Humber Station Villages
Landowners Group

TRANSPORTATION MOBILITY PLAN UPDATE

Humber Station Employment Area Secondary Plan, Town of Caledon

July 2024
23347

HUMBER STATION VILLAGES
LANDOWNERS GROUP

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July 12, 2024

Reference Number: 23347

Humber Station Villages Landowners Group
c/o Delta Urban Inc.
8800 Dufferin Street, Suite 104
Vaughan, ON L4K 0C5

RE: Transportation Mobility Plan Update
Humber Station Employment Area Secondary Plan
Town of Caledon

Dear Mr. Ghassan,

LEA Consulting Ltd. (LEA) is pleased to present the findings of our Transportation Mobility Plan Update dated July 2024 for the Humber Station Employment Area lands Secondary Plan lands in the Town of Caledon. This study has been prepared on behalf of the Humber Station Villages Landowners Group in support of the Secondary Plan process for developing the Humber Station Employment Area lands. This report concludes that the traffic associated with the secondary plan lands will have an acceptable impact on the surrounding road network, with minor optimizations for the network.

By way of background, LEA previously prepared a Transportation Mobility Plan dated October 2023 for the first submission. This update incorporates the comments received from the Town's Transportation Engineering department, dated February 13, 2024, on the October 2023 submission. Comments received are provided below in italics, followed by LEA's response.

TRANSPORTATION ENGINEERING COMMENTS

Comment 1: *Transportation Engineering Staff have reviewed the materials submitted for the Humber Station Employment Area Secondary Plan (Option #6), 1st Submission and offer the following high-level comments. Please be aware that more detailed technical comments may be provided during subsequent application phases, as applicable to each specific phase.*

- **LEA Response:** Noted.

Comment 2: *All collector and arterial roads should have on-boulevard cycling facilities. Preference for MUTs on both sides of collector and arterial roads to serve both pedestrians and cyclists.*

- **LEA Response:** The Town's preference for MUTs is noted. LEA will be developing and evaluating cross-sections as part of the EA for the George Bolton Parkway extension. The type of active transportation facility will be determined through this process and in consultation with any available standard cross-sections for industrial collector roads.

Comment 4: *The active transportation network within the study area and the future potential connections to the Town's active transportation network should be Illustrated. They must be aligned with the active transportation network identified in the Town's Multi-Modal Transportation Master Plan.*

- **LEA Response:** Comment has been noted and a new figure has been prepared to illustrate the AT network within the study area. Please see **Figure 4-4** which illustrates the proposed active transportation network and future potential connections to the Town's AT network.

Comment 5: *Please note that the Technical Studies, including the Traffic Impact Study, may not meet the Town's requirements for the SABE lands. The Town endorses a grid-style transportation network for better connectivity. The non-grid system leads to more driver turns and longer travel times. Direct north-south and east-west connections are recommended for improved connectivity. The current design isolates the community with few links to the south. Also, the non-grid transportation network is not transit-supportive for the coverage.*

- **LEA Response:** The proposed road network follows a grid system. The extension of George Bolton Parkway provides a direct east-west connection through the block. North-south connections will be provided via a local road located approximately mid-block between Coleraine Drive and Humber Station Road, extending south, with its alignment following the natural features in the area.

  It is understood that the Town's MMTMP recommended a collector road network for the Settlement Area Boundary Expansion (SABE) areas which consists of a George Bolton extension, a northly extension of Arterial A2 through the site to the rail corridor, and two (2) east-west collectors to connect the SABE employment and community areas. Based on a review of the conceptual collector network, several environmental and development constraints were identified limiting the feasibility of the proposed MMTMP collector road network (see **Section 6.1**). Furthermore, based on the feasibility memo prepared by LEA for the extension of Arterial A2 (see **Appendix G**), LEA recommends to cul-de-sac the future north-south collector road (A2) south of the Geroge Bolton Parkway extension and north of the future Highway 413. Resultingly, the segment north of George Bolton Parkway would no longer effectively provide increased multi-modal connectivity for the site, and the continuation of the collector road north of the George Bolton Parkway extension would provide limited benefits to the overall road and active transportation network connectivity.

  It should be noted that the traffic study demonstrates the minimum road network required to service the employment area; however, does not preclude the Town from implementing the long-term extension of A2 as identified in the HDR Transportation Network Feasibility Study nor does it preclude the development of a grid system network. The recommended road network will be examined further as part of the EA for the George Bolton Parkway extension.

Comment 6: *Transportation Demand Management measures and initiatives and Parking policies need to be developed to achieve the Town's future non-auto modal split targets and reduce single-occupant vehicles.*

- **LEA Response:** Please see **Section 9** outlining recommended high-level TDM strategies. Vehicular parking rates will be determined on a site-specific basis during subsequent applications.

Comment 10: *Please ensure that the George Bolton Parkway (GBP) extension is included in the analysis. The full buildout is proposed for 2033, but the GBP is included in the 2043 horizon (10 years after the full buildout). In the MMTMP, the GBP Parkway is planned for 2031 and, as such, should be taken as a future planned network, and accordingly, traffic should be assigned for 2033 to build out future total conditions. Also, table 4-3 should be updated to align with the recommendations noted in the MMTMP and accordingly the analyses.*

- **LEA Response:** The planned timing from the Town's MMTMP for the extension of George Bolton Parkway and widening of Humber Station Road and Healey Road is noted. The traffic study has been updated to include the identified background road improvements and **Table 4-3** has been updated to align with the recommendations noted in the MMTMP. Please see **Section 7** for an updated analysis.

Comment 11: As part of subsequent applications:

a. *Site access proposed unsignalized intersections; intersection operations are to be determined.*
   - **LEA Response:** Noted. To be addressed during subsequent applications.

b. *Traffic management measures at intersections should be further reviewed and developed to ensure they operate at an acceptable LOS to the Town's satisfaction.*
   - **LEA Response:** Noted. To be addressed during subsequent applications.

c. *General bicycle parking rates should be proposed in line with nearby municipalities.*
   - **LEA Response:** As part of the TDM mechanisms, bike parking for developments will be encouraged as a means to limit the use of automobile travel as a primary mode of transportation. Bicycle parking rates will be determined on a site-specific basis during subsequent applications.

d. *Further details on the internal road network will be required in subsequent applications.*
   Noted. To be addressed during subsequent applications.
   - **LEA Response**: Noted. To be addressed during subsequent applications.

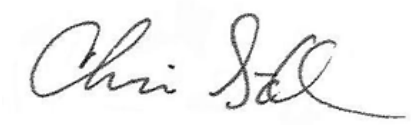
e. *Please note that a phasing plan for the Transportation Infrastructure could be requested to be reviewed by transportation after the OPA approval.*
   - **LEA Response:** Noted.

f. *Transportation Engineering reserves the right for additional comments based on a revised submission. Transportation Engineering requests that the Traffic Consultant provide a response letter with the re-submission package clearly reiterating the Town's comments in order and including details for how each comment has been addressed.*
   - **LEA Response**: Noted. A TIS Update and response letter have been provided.

Should you have any questions regarding this updated Transportation Mobility Plan dated November 2023, please do not hesitate to contact the undersigned.

Yours truly,

LEA CONSULTING LTD.



Christopher Sidlar, M.Sc.pl., MCIP, RPP
Vice President, Transportation

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Enclosed: LEA Transportation Mobility Plan Update – Humber Station Employment Area Secondary Plan (July 2024)

Disclaimer

This Report represents the work of LEA Consulting Ltd ("LEA"). This Report may not be relied upon for detailed implementation or any other purpose not specifically identified within this Report. This Document is confidential and prepared solely for the use of the Humber Station Villages Landowners Group. Neither LEA, its sub-consultants nor their respective employees assume any liability for any reason, including, but not limited to, negligence, to any party other than the Humber Station Villages Landowners Group for any information or representation herein.

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APPENDICES

1 INTRODUCTION

LEA Consulting Ltd. was retained by the Humber Station Villages Landowners Group ("Landowners Group") to undertake a Transportation Mobility Plan for the Humber Station Employment Area lands (Option 6 lands) ("subject site") generally situated northeast of Mayfield Road & Humber Station Road and southwest of Healey Road & Coleraine Drive in the Town of Caledon, Ontario ("Town").

It is understood that the Landowners Group is undertaking a Secondary Planning process for developing the Humber Station Employment Area lands. The purpose of the Secondary Plan is to guide development within the Humber Station Employment Area and prepare a land use plan to support employment investment. This Transportation Mobility Plan forms support for the Secondary Plan study and development of the transportation network in the area.

By way of background, an initial traffic study was submitted in support of the Secondary Plan process for developing the Humber Station Employment Area lands:

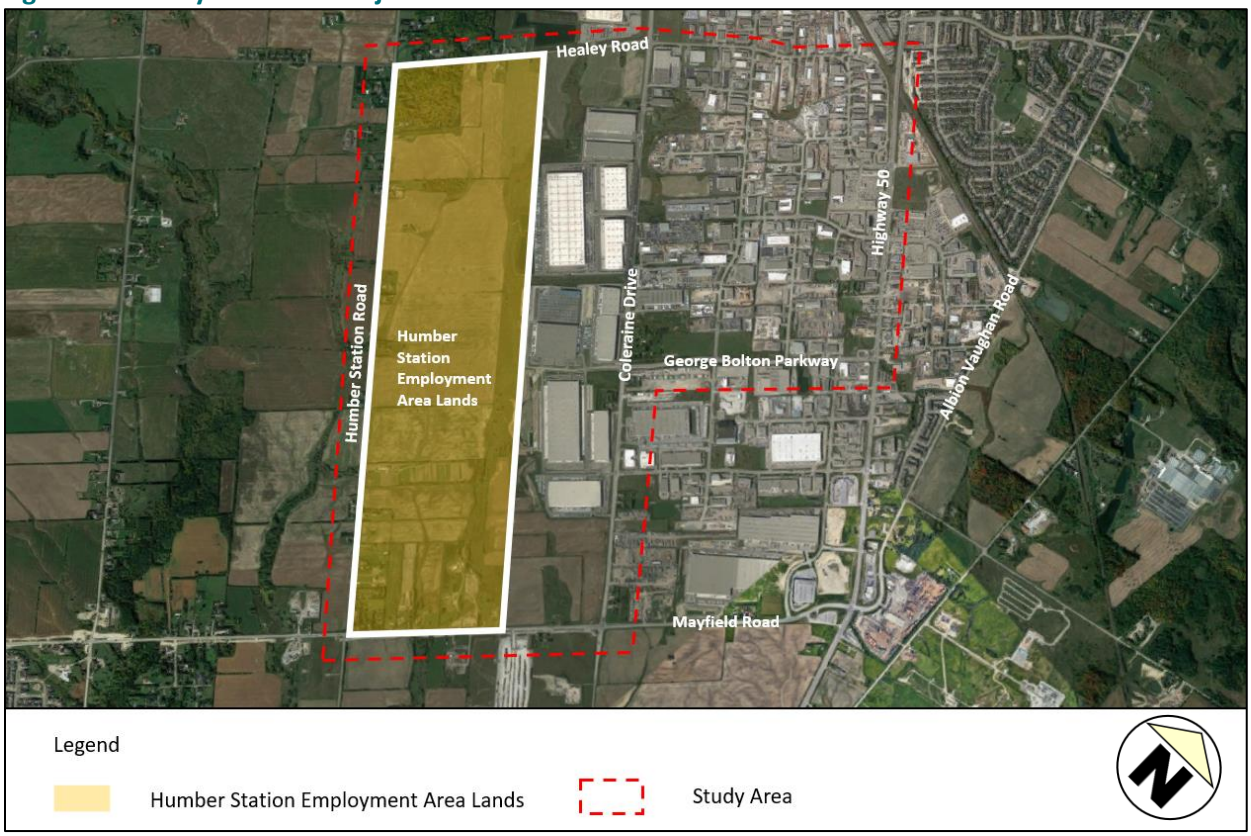
- Transportation Mobility Plan, dated October 2023.

Since the October 2023 submission, comments were received from the Town's Transportation Engineering department, dated February 13, 2024. The following Transportation Mobility Plan update will address the transportation-related comments received. Full comments are provided in **Appendix M**.

1.1 STUDY AREA

The Humber Station Employment Area lands include approximately 207 hectares of total land located generally west of Coleraine Drive in Bolton, Caledon. The study area included within this assessment is generally bounded by Humber Station Road to the west, Mayfield Road to the south, Healey Road to the north, and Highway 50 to the east. The Humber Station Employment Area lands are owned by various participating owners of the Landowners Group, as well as non-participating owners. The study area and subject lands are illustrated in **Figure 1-1**.

Figure 1-1: Study Area and Subject Lands



Source: Google Maps, accessed May 2023

The purpose of this study is to assess the proposed development of the Humber Station Employment Area lands from a transportation perspective, determine the traffic impacts on the adjacent road network, and identify any required mitigation measures. This Transportation Mobility Plan will assess a 5-, 10-, and 20-year horizon to the years 2028, 2033, and 2043, respectively. In addition, this study will outline Transportation Demand Management (TDM) measures to encourage alternative modes of travel. The study has been prepared in accordance with the Town of Caledon's Transportation Impact Studies Terms of Reference and Guidelines dated March 2017.

1.2 HUMBER STATION EMPLOYMENT AREA LAND USE PLAN

The Humber Station Employment Area lands are planned for employment consisting of Prestige Employment and predominately General Employment land use designations. A portion of the subject lands has also been designated as Natural Features and Areas. The proposed land use plan for the Humber Station Employment Area lands is illustrated in **Figure 1-2** below.

Consistent with the October 2023 submission, development of the Humber Station Employment Area lands will be realized in phases, with Parcel 1 (see **Figure 1-3**) being delivered first by the 2028 horizon year. Phase 2/full buildout of the site will occur by the 2033 horizon year. It is understood that access to the subject lands will be provided off the future George Bolton Parkway extension, as well as local connections to Humber Station Road, Healey Road, and Mayfield Road.

No changes to the planned minimum density have been proposed since the October 2023 submission. Therefore, consistent with the October 2023 traffic study, the subject lands are planned for a minimum density of 26 jobs per hectare to achieve the employment density target as outlined in the Town Future Caledon Official Plan (March 2024). Based on the above-mentioned density target, 4,774 employees are anticipated upon full buildout of the subject lands. A breakdown of the proposed density by phase is summarized in **Table 1-1**.

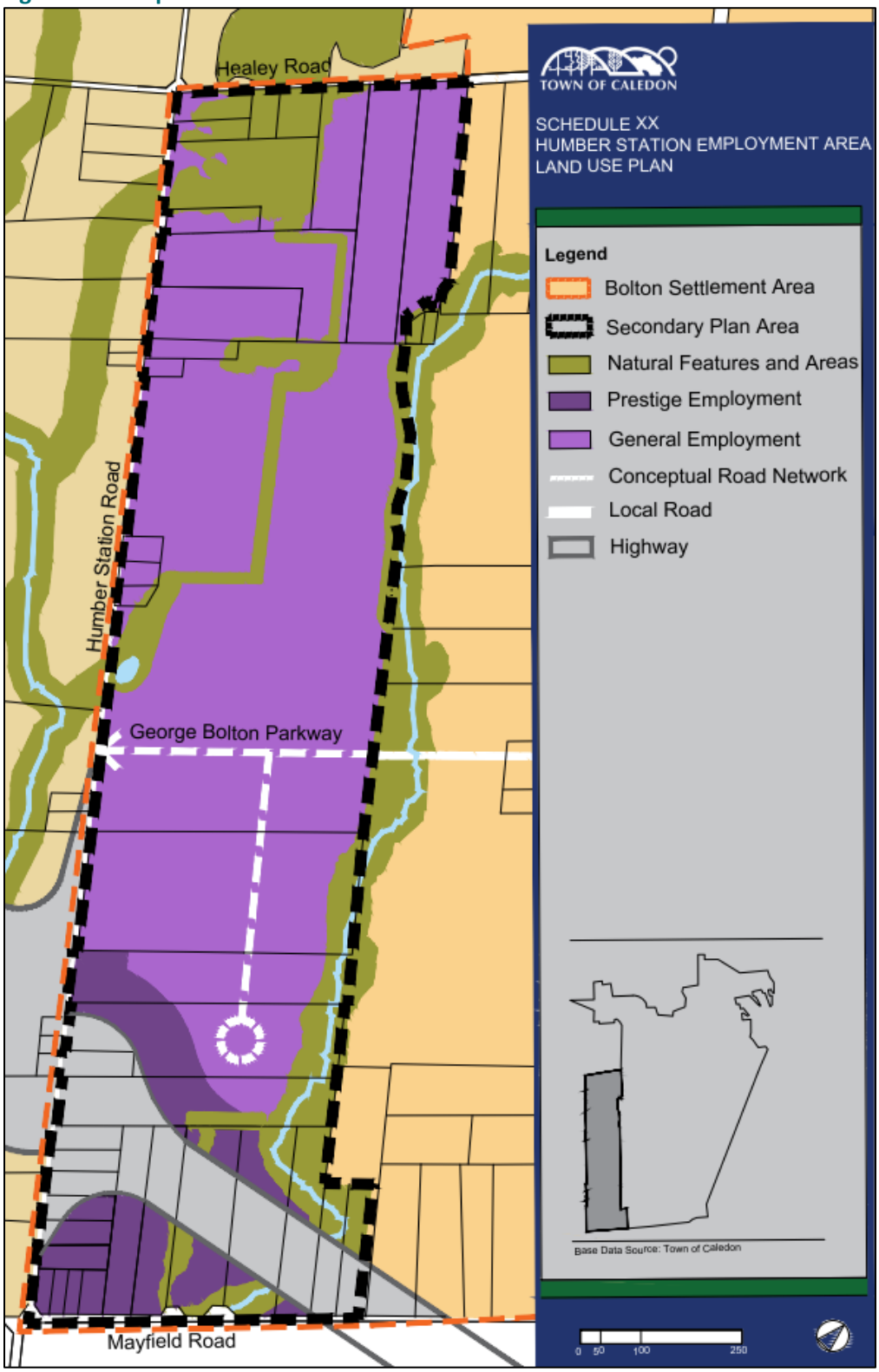
Table 1-1: Proposed Density by Phase (October 2023 & July 2024 Submissions)

Phase	Parcel	Land Use	Gross Area (ac)	Gross Area (ha)	Density Target (jobs/ha)	# Of Jobs/Employees
1	1	Industrial	95.0	38.0	26	988
2	2	Industrial	99.0	40.0	26	1,040
2	3-38 (1)	Industrial	261 (2)	106 (2)	26	2,746
Total	**1 - 38**	**-**	**455**	**184**	**-**	**4,774**

Note: (1) – The entirety of parcels 1-23 have been included in the calculation of total gross area. Only portions of parcels 24-38 have been included in this analysis due to the location of the future Highway 413 and its planned interchange at Humber Station Road and natural features area that would result in undevelopable land on the south portion of the site.

(2) Rounded up to the nearest whole number.

Figure 1-2: Proposed Land Use Plan



Source: SGL Planning, September 2023

Figure 1-3: Humber Station Employment Area Lands Parcel Mapping

Source: Adapted from Delta Urban, January 2023

2 POLICY CONTEXT & BACKGROUND STUDIES

The study area is guided by the regulatory framework of various policy documents, standards, and guidelines. This section summarizes the various provincial, regional, and local planning policies and guiding documents influencing the study area.

2.1 PROVINCIAL POLICY FRAMEWORK

Several provincial policy documents provide the basis and guidance for the transportation vision for the TMP study. Provincial plans are identified and summarized below.

2.1.1 Provincial Policy Statement (2020)

The Provincial Policy Statement (PPS) guides land use planning and development in Ontario. It contains a set of policies that outline a municipality's responsibility regarding transportation infrastructure and corridors to align with land use patterns and support multimodal travel for the efficient movement of people and goods. Section 1 of the PPS outlines the direction for building strong healthy communities and includes guidance in relation to managing effective land uses and implementation of infrastructure and public service facilities. Sections 1.6.7 and 1.6.8 provide policy direction on transportation systems and infrastructure corridors to ensure safe and energy-efficient networks to facilitate the movement of people and goods.

2.1.2 A Place to Grow - Growth Plan for the Greater Golden Horseshoe (2020)

A Place to Grow: Growth Plan for the Greater Golden Horseshoe (Growth Plan) guides decisions on a wide range of issues, such as land use, urban form, housing, environment, resource protection, transportation, and infrastructure, in the interest of economic prosperity. The Growth Plan provides population and employment growth forecasts for the Region that are required to be used for regional and local planning purposes. It also sets minimum intensification targets for delineated built-up areas and designated greenfield areas in the Region. The study area is located within the Greater Golden Horseshoe Growth Plan area. Key tenets of the Growth Plan include providing an integrated transportation network that is accessible and supports employment and a variety of housing.

2.1.3 Provincial Planning Statement (Proposed 2024)

The Ministry of Municipal Affairs and Housing (MMAH) is consulting on proposed policies for an integrated province-wide land use planning policy document that combines policies from The Growth Plan and the Provincial Policy Statement to support the achievement of the province's housing objectives. Should the Province adopt the proposed Provincial Planning Statement, the government would revoke the Provincial Policy Statement 2020 and amend regulations (O. Reg. 416/05 and O. Reg. 311/06) under the Places to Growth Act 2005.

The proposed Provincial Planning Statement will continue to outline the strategic vision for land use and development within Ontario. It represents the minimum standards that will guide planning authorities and decision-makers in developing and implementing specific plans, including transportation facilities to support the long-term prosperity and social well-being of Ontario. Transportation policies within the proposed Provincial Planning Statement focus on the safe and efficient movement of people and goods through a multi-modal transportation system and land use pattern that supports transit and active

transportation. Proposed policies also recognize that new developments should be compatible with existing or planned corridors and transportation facilities.

Furthermore, the proposed Provincial Planning Statement will guide decisions on a wide range of issues including land use, urban form, housing, environment, resource protection, transportation, and infrastructure in the interest of economic prosperity. The proposed statement addresses specific issues through policy direction, including designating lands within settlement areas located adjacent to major goods movement facilities and corridors (i.e., major highway interchanges) for manufacturing, warehousing, and employment activities.

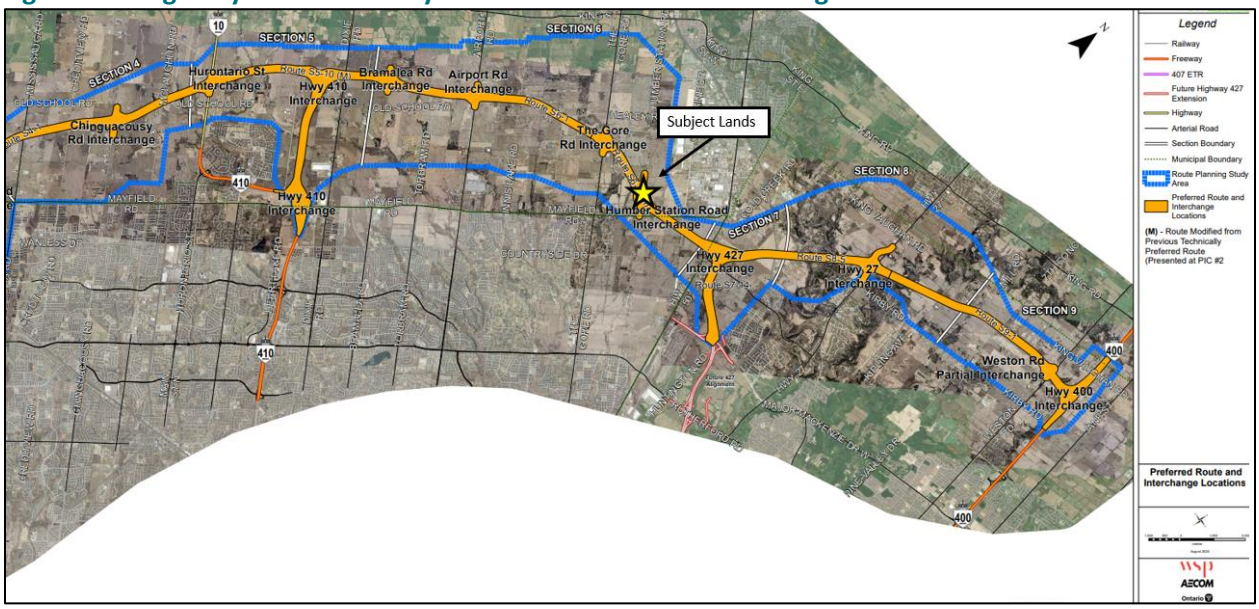
2.1.4 Highway 413 Transportation Corridor Route Planning and Environmental Assessment Study

The Ministry of Transportation (MTO) initiated the Highway 413 Transportation Corridor Environmental Assessment (EA) (formerly GTA West Corridor) in 2007 to propose a new 400-series highway and transit corridor across the Halton, Peel, and York Region. The 52-kilometre proposed highway and transitway will extend from Highway 400 (between Kirby Road and King-Vaughan Road) in the east to Highway 401/407 ETR interchange area in the west. The project also includes a 3 km extension to Highway 427. The transitway would be a separate corridor running alongside the highway dedicated exclusively for public transit, such as buses or light rail transit.

A Terms of Reference was prepared for approval by the Ministry of the Environment (MOE) outlining the preliminary transportation problems and opportunities, existing environmental conditions, and the proposed alternatives to the undertaking. The need for Highway 413 was identified as a response to the overarching problem of the inter-regional transportation system as much of the higher-order road system (Highway 401, 400, 410, and 427) is expected to be heavily congested during peak periods and increasingly throughout the day. Furthermore, the lack of integration between local and inter-regional transit services beyond corridors served by GO Transit was identified as an issue that Highway 413 could address.

Following approval of the Terms of Reference, Stage 1 of the EA included a Transportation Development Strategy to determine recommendations for transit improvements, transportation demand management measures, and widening of provincial facilities in the western GTA. The Ontario government is currently in Stage 2 of the EA which was initiated in 2014. Stage 2 focuses on identifying the route and developing the preliminary design for the new multi-modal transportation corridor. Currently, the preferred route includes 11 interchanges along municipal roads. The subject lands are located within the Route Planning Study Area. As illustrated in **Figure 2-1**, an interchange is planned within the study area at Mayfield Road and Humber Station Road.

Figure 2-1: Highway 413 Technically Preferred Route and Interchange Locations



Source: Highway 413 project website (WSP, AECOM, Government of Ontario, August 2020)

2.2 REGIONAL POLICY FRAMEWORK

Several regional policy documents provide the basis and guidance for the transportation vision for the TMP study. Regional plans are identified and summarized below.

2.2.1 Region of Peel Official Plan (2022)

The Region of Peel Official Plan provides the long-term strategic policy framework for managing growth and development to create healthy, resilient, equitable, and sustainable regional communities for those living and working in Peel Region. The Regional Official Plan has an overarching theme of sustainable development to enable the integration of the environmental, social, economic, and cultural imperatives throughout the Plan.

Under the Regional Official Plan, the subject lands are included as part of the Pearson Airport Hub (Hwy 50 Corridor), a significant employment zone. From a transportation perspective, the Regional Official Plan includes policies to support goods movement by coordinating the major road network, the provincial freeway network, areas of significant employment activity, and major goods movement corridors. Furthermore, the Regional Official Plan includes policies to strengthen the regional network to accommodate current and projected travel demands of the people who live, work, or travel within the Region. Policies focus on creating a sustainable transportation system by encouraging the development of a safe, attractive, accessible, and integrated network for all travel modes.

2.2.2 Bolton Residential Expansion Study & Regional Official Plan Amendment (ROPA 30)

The Bolton Residential Expansion Study (BRES) was initiated to determine where the 2031 population assigned for Bolton by the Region of Peel would occur. The goals of the study were to evaluate and select an area for residential development, ensure the study fulfills the requirements of the Planning Act, and

provide an opportunity for public input. On November 30, 2020, the Region of Peel Council approved a Regional Official Plan Amendment for the Bolton Residential Area (ROPA 30).

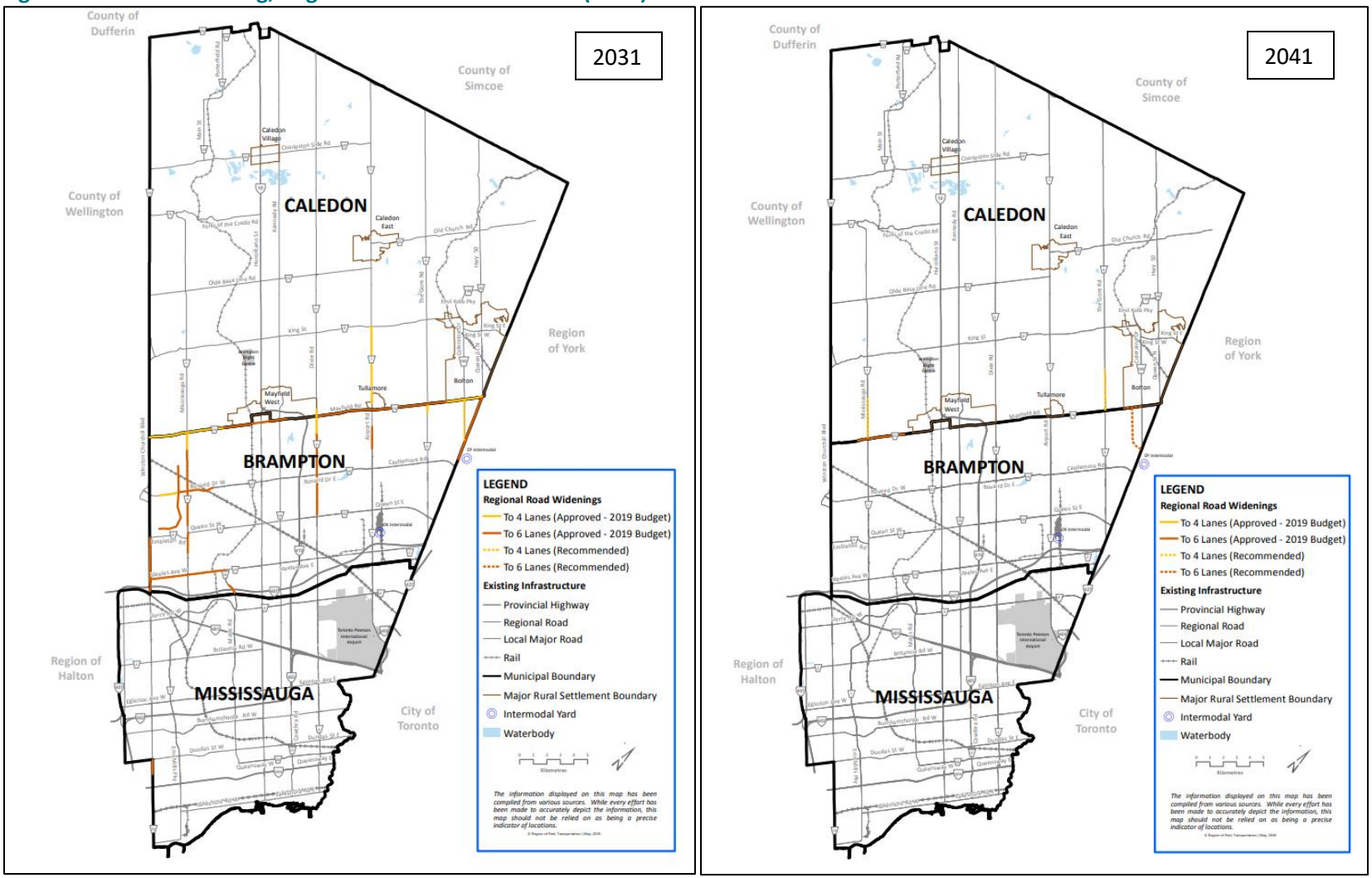
ROPA 30 expands the Bolton Residential Expansion Area to include the subject lands (Option 6) and Triangle Lands as part of the Bolton Rural Service Centre. ROPA 30 has been prepared to provide a policy framework for the expansion while addressing a range of matters including infrastructure, financing, healthy development, transportation, natural heritage, and agricultural planning. The Bolton Residential Expansion Settlement Area will contribute to the development of the Bolton Rural Service Centre to be a complete community and provide a full range of transportation options including transit service, active transportation, and carpooling.

2.2.3 Peel Region Long Range Transportation Plan (2019)

Peel Region's Long Range Transportation Plan (LRTP) is a 5-year plan based on a 2041 horizon that guides transportation planning needs in the Region of Peel. The overarching goal of the LRTP is to establish a transportation network system where 50% of travel is through sustainable modes, such as walking, cycling, transit, and carpooling by 2041. The LRTP includes 3 focus areas including sustainable mobility, safe mobility, and vehicular mobility & goods movement to achieve a safer and more efficient road system.

To allow for growth, the LRTP prioritizes Region-wide strategies that focus on balancing intersection improvements and new infrastructure to facilitate transit, walking, and cycling with road widening and new road development. As illustrated in **Figure 2-2**, by the 2031 horizon year, Mayfield Road is proposed to widen to 6 lanes west of Humber Station Road and 4 lanes east of Humber Station Road while Coleraine Drive is recommended to widen to 4 lanes south of Mayfield Road to Highway 50. By the 2041 horizon year, Mayfield Road is proposed to widen to 6 lanes between Humber Station Road and Coleraine Drive. An additional 6-lane regional road connection (Arterial A2) is proposed south of the subject lands to connect Mayfield Road to Highway 50. Cycling infrastructure is also proposed along Mayfield Road, Coleraine Drive, and Highway 50.

Figure 2-2: Road Widening, Region of Peel 2031 and 2041 (LRTP)



Source: Long Range Transportation Plan (Region of Peel, 2019)

2.3 LOCAL POLICY FRAMEWORK

Several local policy documents provide the basis and guidance for the transportation vision for the TMP study. Local plans are identified and summarized below.

2.3.1 Town of Caledon Official Plan (2018)

The Town of Caledon Official Plan sets out the policy framework for guiding future land use, physical development, and change within the Town. The broad transportation policies of the Official Plan include developing a safe, convenient, economical, efficient, sustainable, and energy-conserving transportation system for the movement of people and goods which will be well-integrated with the envisioned land use designations. Objectives include improved transportation mobility choices for residents, employees, and visitors to provide appropriate linkages between local, regional, and provincial roads, optimizing the use of existing and planned transportation infrastructure, and creating safe and efficient movement of goods and services within the Town. While the Official Plan recognizes that the primary mode of travel will be the automobile, transportation policies aim to create a comprehensive transportation system that accommodates all modes of travel.

2.3.2 Future Caledon: Official Plan (2024)

The Future Caledon Official Plan was prepared to conform with the 2020 Provincial Policy Statement, 2019 Growth Plan for the Greater Golden Horseshoe, and 2022 Region of Peel Official Plan. The new Official Plan will be implemented in 3 phases to replace the existing 2018 plan. The current draft provides the Phase 1 framework and policies to guide development and support population and employment growth to 2051. It is understood that the Future Caledon Official Plan has been adopted by Council in March 2204 and submitted to the Region of Peel for approval.

The new Official Plan envisions a multimodal transportation system for the Town that is safe, efficient, manages future demand and congestion, and is well-integrated with the land use and development within the Town and across the Region. Based on *Schedule C1: Town-Wide Transportation Network* of the draft Official Plan, a conceptual collector road network of north-south and east-west connections is proposed throughout the subject lands. The feasibility of new collector roads will be conducted through secondary planning to facilitate development, connect future communities and employment lands, and accommodate continuity of transit service and active transportation routes while protecting the natural environmental features. The Town of Caledon Council adopted of the Future Caledon – Our Official Plan on March 26, 2024.

2.3.3 Caledon Transportation Master Plan (2017)

The Town of Caledon Transportation Master Plan (TMP) addresses the Town's transportation needs for the year 2031. The goals of the TMP include providing a transportation framework that will support economically sustainable and environmentally respectful growth and identifying opportunities for a multimodal transportation network while considering the needs of automobiles and safe and efficient goods movement.

The recommended transportation network identified in Caledon's TMP includes intersection and road improvements, plans for a Transit Implementation Strategy for future public transit service, and recommended active transportation facilities to connect Rural Service Centres to nearby communities, conservation areas, and scenic areas. Within the Humber Station Employment Area study area, the

Humber Station Road & Healey Road intersection was identified to meet the traffic signal, left-turn lane, and right-turn lane warrants by the 2031 horizon year.

2.3.4 Caledon Multi-Modal Transportation Master Plan (2024)

The Town of Caledon has initiated a Multi-Modal Transportation Master Plan (MMTMP) in coordination with the Caledon Official Plan to develop the long-term strategy for Caledon's transportation system to accommodate the needs of pedestrians, cyclists, transit riders, and motorists while enhancing connectivity and accessibility. The draft MMTMP study was released in April 2024 which included recommended improvements for the road, active transportation, and transit networks. As a policy update, future collector roads would be assessed as part of the secondary or block plan process to connect to the Town's collector and arterial road network.

The recommended MMTMP strategy includes the widening of Humber Station Road, Healey Road, and Mayfield Road as well as an extension of George Bolton Parkway from Coleraine Drive to Humber Station Road by 2031. The TMP strategy also recommends physically separated cycling facilities along Humber Station Road and Healey Road and proposes a local transit network throughout the study area. The Town of Caledon Council adopted of the Multi-modal Transportation Master Plan on June 25, 2024.

2.3.5 Caledon Active Transportation Master Plan (2024)

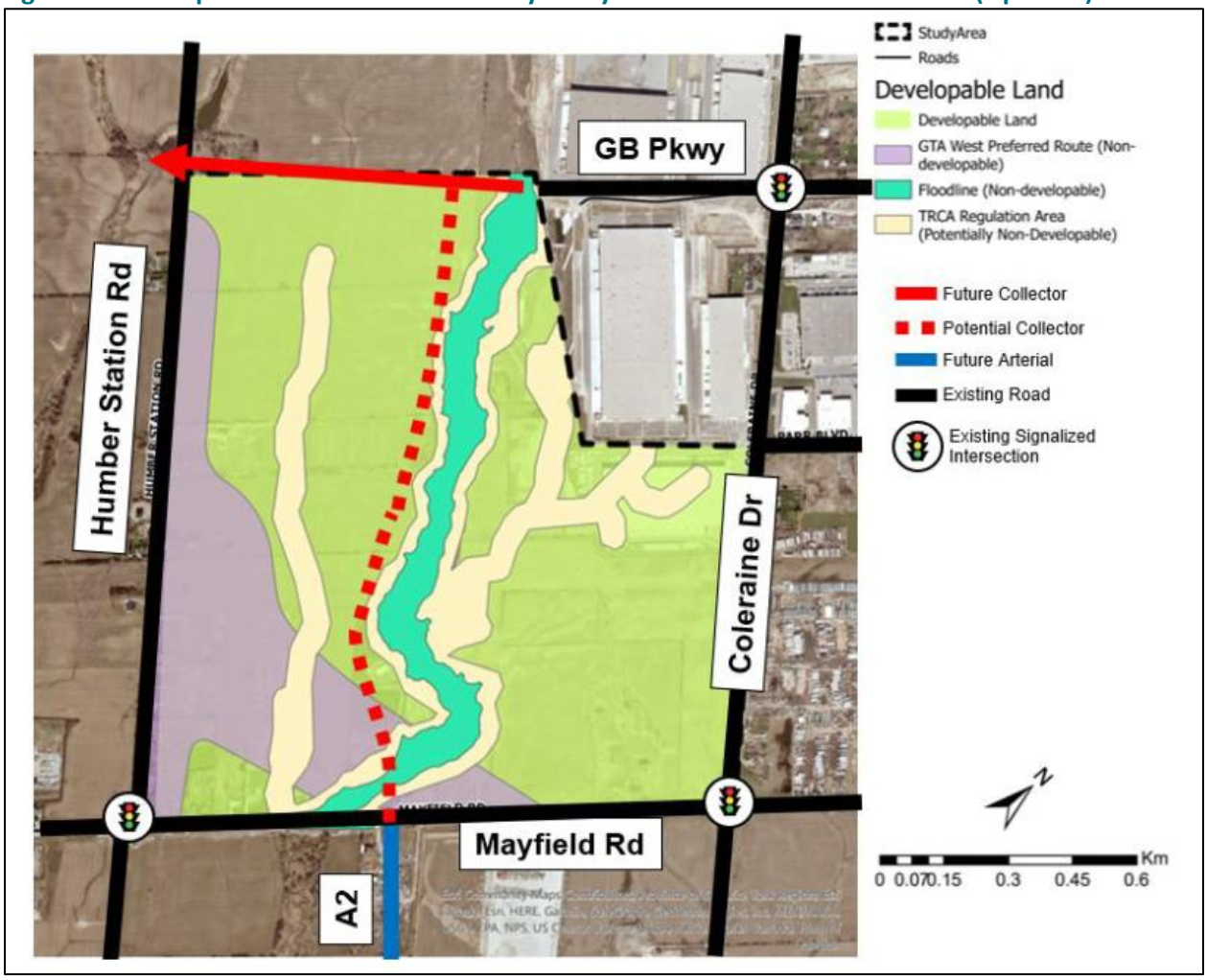
The Town of Caledon initiated its Active Transportation Master Plan (ATMP) in April 2022 to promote active transportation, trail development, and sustainable development. The ATMP builds on the Town's Multi-Modal Transportation Master Plan to identify gaps in the existing active transportation network and to prioritize the implementation of a trail system, routes, and facilities to support a network of active transportation opportunities for people of all ages and abilities. Within the study area, active network expansion opportunities are identified along Humber Station Road and Healey Road. The Town of Caledon Council adopted of the Active Transportation Master Plan on June 25, 2024.

2.3.6 Transportation Network Feasibility Study - Option 6 and Triangle Lands (2023)

The Transportation Network Feasibility Study (TNFS) was initiated by the Town of Caledon to recommend a potential collector road network for the Option 6 and Triangle Lands. The study aims to determine the technical feasibility of the proposed George Bolton Parkway extension crossing of the Clarkway Tributary, a potential extension of Peel Region Arterial A2 north of Mayfield Road, and other key network connections. The feasibility of the recommended conceptual road network would be determined through more detailed studies in the area such as Municipal Class Environmental Assessment(s). The recommended road network identified in the TNFS is illustrated in **Figure 2-3** and includes the following:

- **TNFS Recommended Network (Option 3):** A new two-lane east-west corridor extending George Bolton Parkway westerly to Humber Station Road + a new two-lane north-south corridor extending Arterial A2 northerly to the new George Bolton Parkway extension. To support additional east-west connectivity, it is also recommended that a signalized intersection at Coleraine Drive be implemented, located approximately midblock between Parr Boulevard and Mayfield Road.

Figure 2-3: Transportation Network Feasibility Study Recommended Road Network (Option 3)



Source: Transportation Network Feasibility Study - Option 6 and Triangle Lands (June 2023)

2.4 MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

2.4.1 Highway 427 Industrial Secondary Plan Area (Area 47)

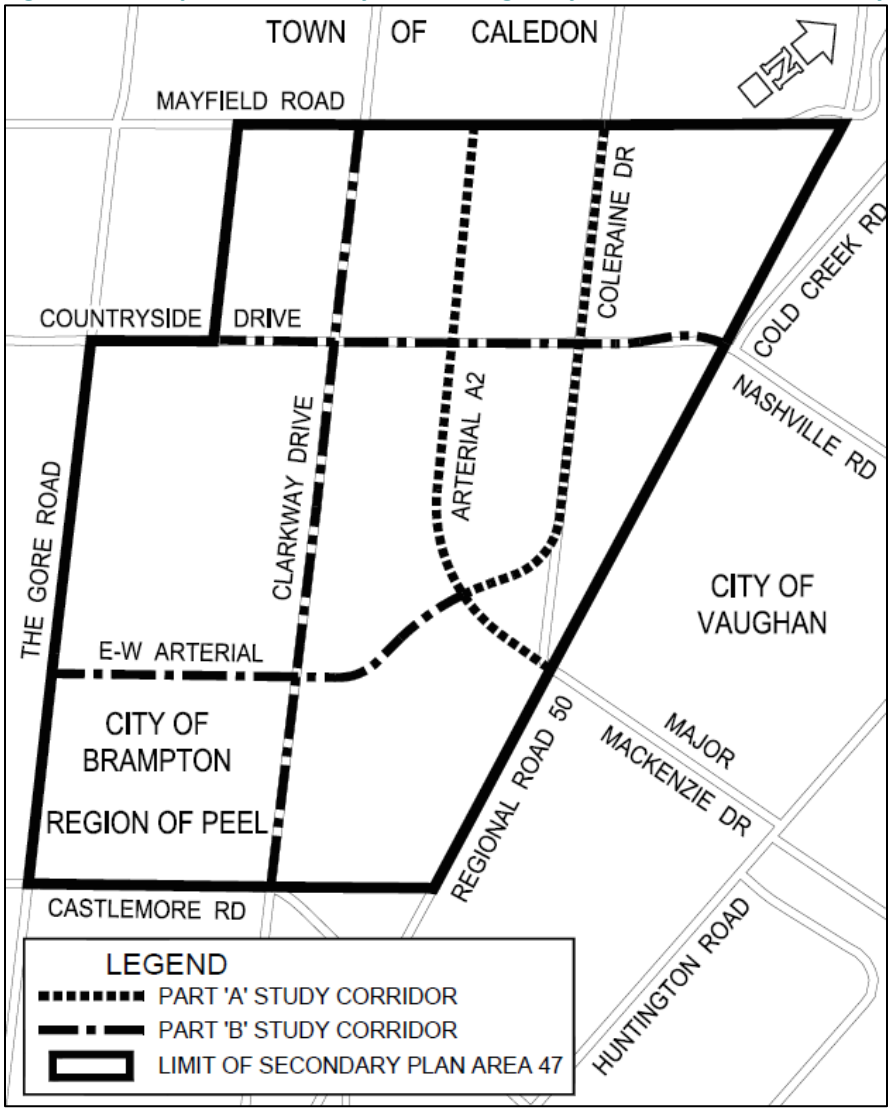
The Region of Peel and the City of Brampton undertook two Schedule 'C' Municipal Class Environmental Assessments (Class EA) Phases 3 & 4 study for the arterial roads within the Highway 427 Industrial Secondary Plan Area (Area 47), located south of the subject lands. The purpose of the study was to consider a range of transportation improvements to satisfy future capacity needs. The preferred design identified in the Highway 427 Industrial Secondary Plan Area Class EA includes the following:

- Arterial A2: a new 6-lane north-south roadway that connects Major Mackenzie Drive to Mayfield Road
- Coleraine Drive: an existing roadway that will be widened to 4 lanes and upgraded to include curb and gutter and multi-use pathways (MUP)
- Countryside Drive: an existing roadway which will be widened to 4 lanes and upgraded to include curb and gutter and MUP

- Clarkway Drive: an existing roadway that will have portions widening to 4 lanes and upgraded to include storm sewers, sidewalks, and cycle lanes
- East-West Arterial: a new 4-lane roadway connecting the Gore Road to Arterial A2.

The proposed roadways within the Highway 427 Industrial Secondary Plan Area are illustrated in **Figure 2-4**.

Figure 2-4: Proposed Roadways within Highway 427 Industrial Secondary Plan Area (Area 47)



Source: Region of Peel

3 EXISTING TRANSPORTATION CONDITIONS

This section identifies and assesses the existing transportation conditions within the study area as it relates to the road, transit, cycling, and pedestrian networks. An overview of the existing transportation conditions is provided to identify the transportation deficiencies and potential opportunities for solutions to serve existing and future demand for the study area. This study includes the analysis of the following roads and intersections:

- Humber Station Road/Clarkway Drive & Mayfield Road (signalized);
- Humber Station Road & Healey Road (unsignalized);
- Coleraine Drive & Healey Road (signalized);
- Coleraine Drive & George Bolton Parkway (signalized);
- Coleraine Drive & Mayfield Road(signalized); and
- Highway 50 & George Bolton Parkway (signalized).

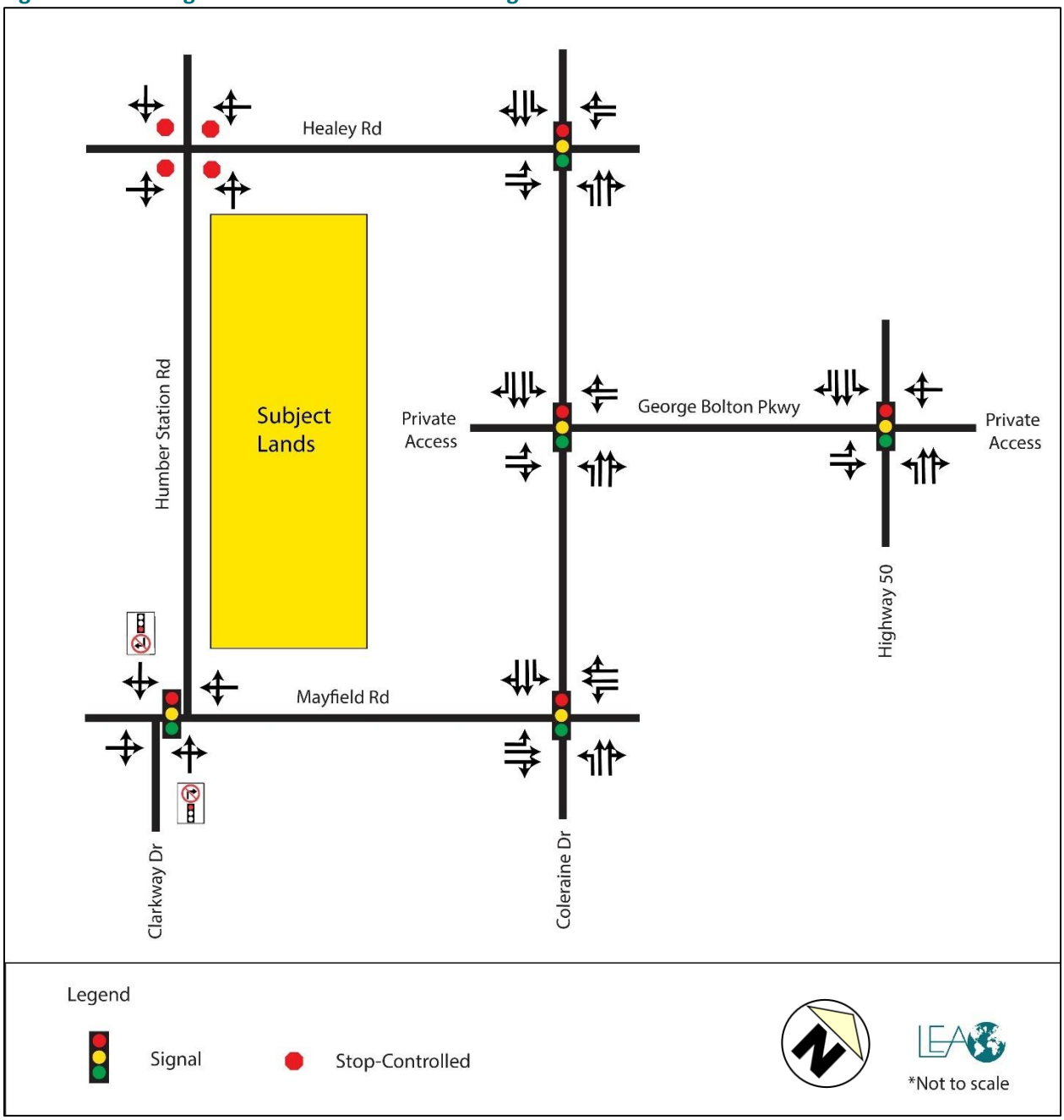
3.1 EXISTING ROAD NETWORK

The Humber Station Employment Area study area is currently serviced by an existing network of Peel Region and Town of Caledon roadways, with the exception of Clarkway Drive which is under the jurisdiction of the City of Brampton.

Within the overall study area, there are 3 regional roadways: Highway 50 and Mayfield Road are classified as high-capacity arterials while Coleraine Drive is classified as a medium-capacity arterial. The study area also includes 4 main municipal roadways: Humber Station Road, Clarkway Drive, and Healey Road are classified as collectors while George Bolton Parkway is classified as an industrial collector. The remaining roadways are local streets and property accesses.

The following section provides a description of the roadways within the study area. **Figure 3-1** illustrates the existing intersections and lane configuration.

Figure 3-1: Existing Road Network and Lane Configuration



- **Humber Station Road** is a north-south collector road under the jurisdiction of the Town of Caledon. The roadway extends north from Mayfield Road to Highway 9, operating with a 2-lane cross-section (1 lane per direction) and with a posted speed limit of 80 km/h within the study area. Of note, the Town of Caledon plans to reduce the posted speed limit along Humber Station Road to 60 km/hr, which will be presented to Council in 2024.
- **Coleraine Drive** is a north-south medium-capacity arterial road under the jurisdiction of Peel Region. The roadway extends north from Highway 50 to King Street W before continuing as Emil

Kolb Parkway. Coleraine Drive operates with a 4-lane cross-section (2 lanes per direction) and with a posted speed limit of 70 km/h within the study area.

- **Highway 50** is a north-south high-capacity arterial road under the jurisdiction of Peel Region. The roadway extends north from Steeles Avenue W in Brampton to ON-89 in Alliston, operating with a 4-lane cross-section (2 lanes per direction) and with a posted speed limit of 60 km/h within the study area.
- **Clarkway Drive** is a north-south collector road under the jurisdiction of the City of Brampton. The roadway extends north from Cottrelle Boulevard in Brampton to Mayfield Road, operating with a 2-lane cross-section (1 lane per direction) and with a posted speed limit of 70 km/h within the study area.
- **Mayfield Road** is an east-west high-capacity arterial road under the jurisdiction of Peel Region. The roadway extends west from Albion Vaughan Road to Winston Churchill Boulevard in Halton Hills. The roadway acts as a municipal boundary between Caledon and Brampton. Mayfield Road operates with a 2-lane cross-section (1 lane per direction) and with a posted speed limit of 80 km/h within the study area.
- **Healey Road** is an east-west collector road under the jurisdiction of the Town of Caledon. The roadway extends west from Queen Street S to Airport Road, operating with a 2-lane cross-section (1 lane per direction) and with a posted speed limit of 60 km/h within the study area.
- **George Bolton Parkway** is an east-west industrial collector road under the jurisdiction of the Town of Caledon. The roadway extends west from Highway 50 and terminates approximately 430 m west of Coleraine Drive. George Bolton Parkway operates with a 2-lane cross-section (1 lane per direction) and with a posted speed limit of 50 km/h within the study area.

3.2 EXISTING TRANSIT NETWORK SERVICE

There is currently no Town-wide local public transit service operated by the Town of Caledon. However, following the Town's Transit Feasibility Study in 2019, Voyago was retained to provide local service in the Bolton area. It is understood that as of 2024, service by Voyago has been replaced by Brampton Transit via Route 41 which operates along Highway 50 between Queen Street/Highway 7 in Brampton to Columbia Way/Bolton Heights in Caledon. The route operates Monday to Friday during peak commute hours and services the employment lands along Coleraine Drive.

An inter-regional commuter bus service is also available within the Bolton area. The inter-regional route is operated by GO Transit between Malton and the area of Highway 50 & Columbia Way with opportunities to transfer to Metrolinx's GO rail transit. The route operates Monday to Friday during peak hours. The existing transit routes within the Bolton area are illustrated in **Figure 3-2** and **Figure 3-3**. Details of the available services in the area are provided in **Table 3-1**.

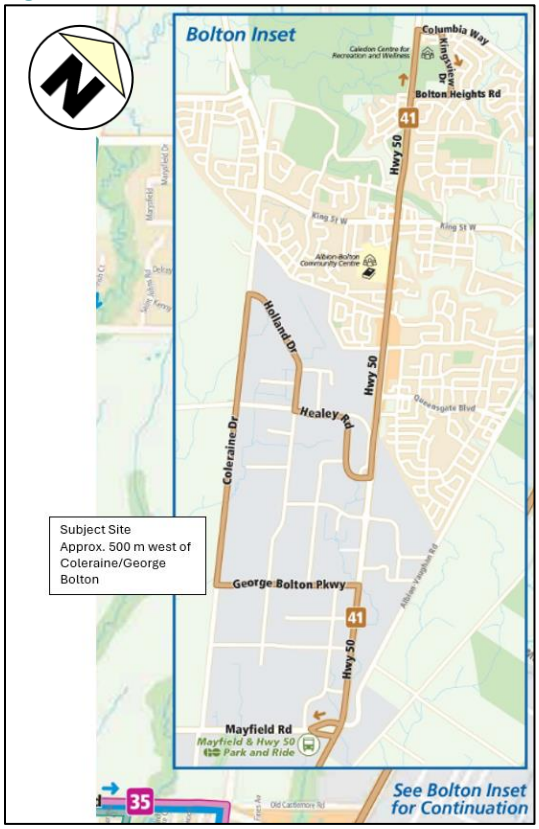
Table 3-1: Existing Transit Service

Transit System	Route	Description	Frequency	Accessibility from Subject Site
GO Transit	Route 38	Bolton to Malton (Monday to Friday, 5AM - 7:30AM and 3:30PM - 6:30PM)	60 minutes	Mayfield Road @ Highway 50: 2km
Brampton Transit	Route 41	Bolton to Brampton (Monday to Friday, 5AM - 9:30AM and 3PM - 6:30 PM)	2 hours	George Bolton Parkway @ Coleraine Drive: 450m

Figure 3-2: GO Transit Route 38

Source: GO Train and Bus Schedule (Metrolinx, April 2023)

Figure 3-3: Bolton Local Transit Route

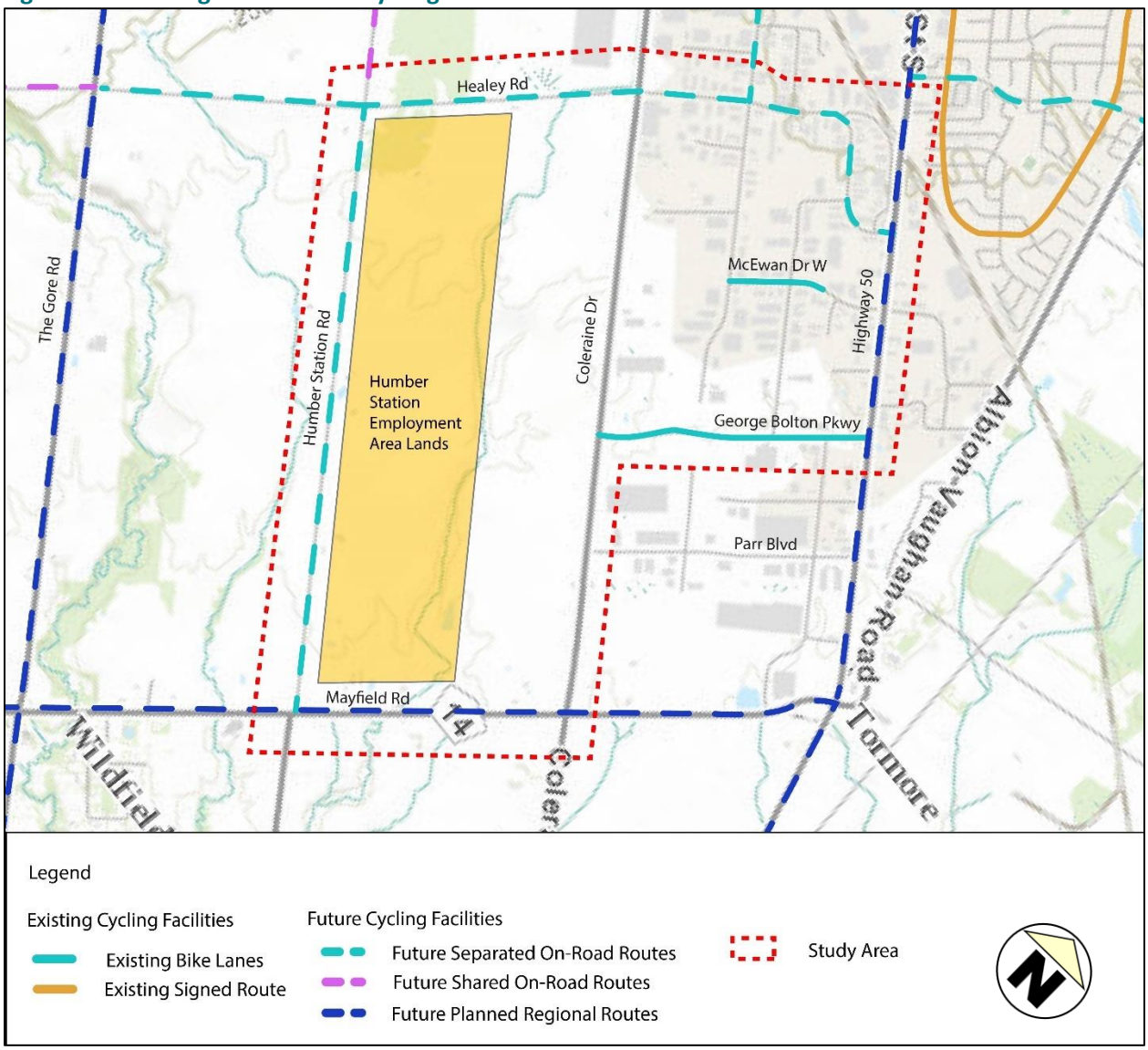


Source: Brampton Transit (2024)

3.3 EXISTING CYCLING NETWORK

Cycling facilities in Caledon consist of on and off-road facilities that are managed by the Town of Caledon, Peel Region, and adjacent municipalities. Due to the current rural and undeveloped nature of the study area, there are a limited number of active transportation and cycling facilities. Bike lanes are provided on both sides of George Bolton Parkway, east of Coleraine Drive as well as along a portion of McEwan Drive W within the Coleraine West Employment Lands. However, no cycling facilities are available along the remaining study area roadways. **Figure 3-4** illustrates the existing and planned cycling facilities within the study area.

Figure 3-4: Existing and Planned Cycling Network



3.3.1.1 Cycling Multimodal Level of Service Evaluation

An analysis of the multimodal level of service (MMLOS) for the cycling network in the study area was undertaken to provide a baseline biking level of service in the study area. The cycling network has been

evaluated in accordance with the *City of Ottawa's Multi-Modal Level of Service (MMLOS) Guidelines* to describe the convenience and comfort level of active transportation infrastructure in the study area. The results are on a scale of 'A' to 'F', where 'A' represents the preferred conditions and 'F' represents the least preferred conditions. The biking level of service (BLOS) evaluation was conducted for the worst segments of Healey Road, Humber Station Road, Mayfield Road, Coleraine Drive, and George Bolton Parkway within the study area.

The BLOS for the study area roadway segments is summarized in **Table 3-2**. Detailed MMLOS analysis is provided in **Appendix A**.

Table 3-2: Existing Bicycle Level of Service (BLOS)

Segment	From	To	Side	Existing (2023) LOS
Healey Road	Humber Station Road	Coleraine Drive	North	F
			South	F
Humber Station Road	Healey Road	Mayfield Road	East	F
			West	F
Mayfield Road	Humber Station Road	Coleraine Drive	North	F
			South	F
Coleraine Drive	Mayfield Road	George Bolton Parkway	East	F
			West	F
Coleraine Drive	George Bolton Parkway	Healey Road	East	F
			West	F
George Bolton Parkway	Coleraine Drive	Highway 50	North	B
			South	B

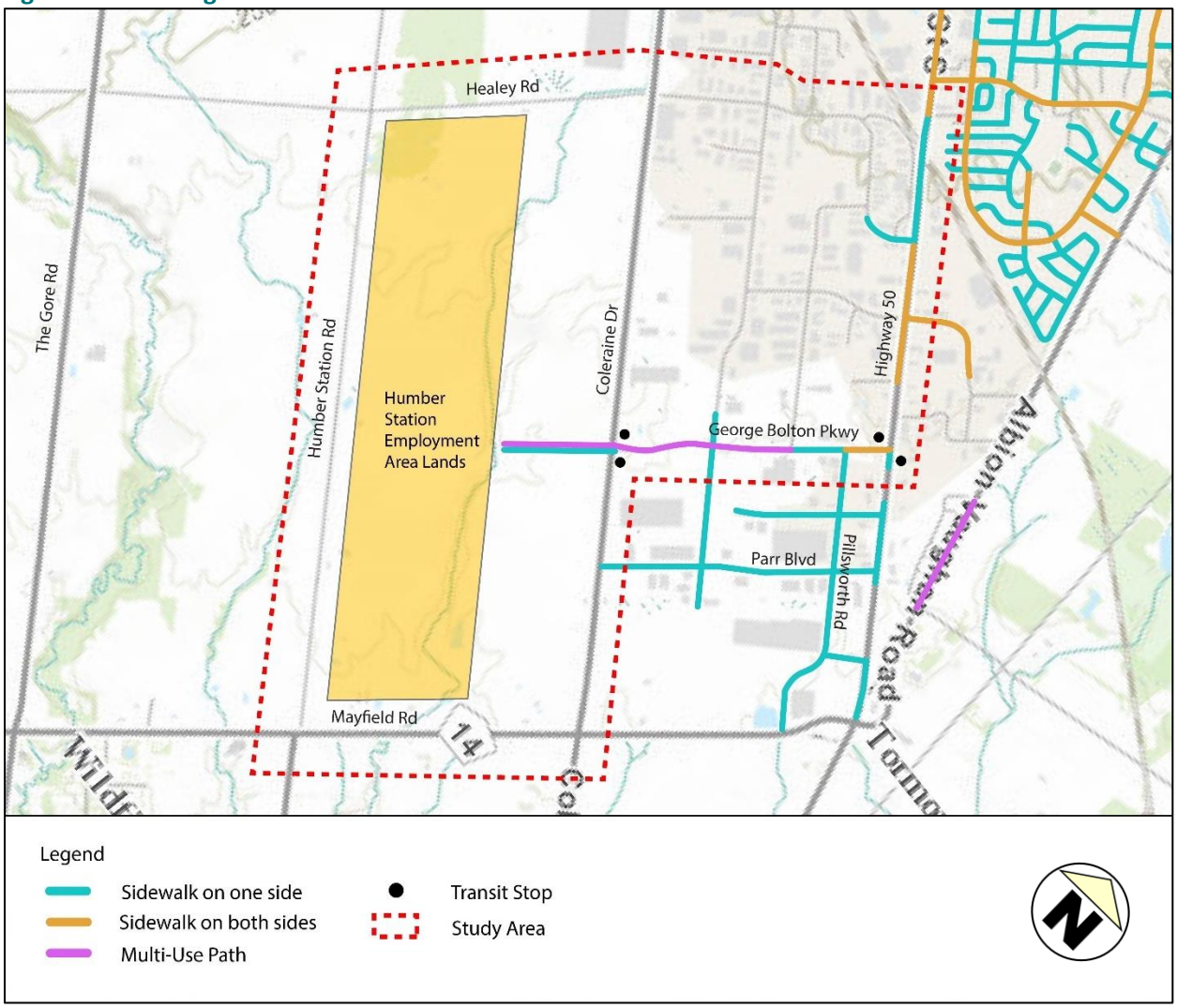
Overall, the study area displays a BLOS of 'B' to 'F'. This is largely due to the lack of dedicated cycling facilities, the number of travel lanes, and the speed of traffic along most roads within the study area. The highest BLOS occurs along George Bolton Parkway between Coleraine Drive and Highway 50, where a bike lane is provided.

3.4 EXISTING PEDESTRIAN NETWORK

Given the rural nature of the Humber Station Employment Lands, the site exhibits poor pedestrian connectivity, a lack of collector/local streets, missing facilities, and discontinuous sidewalks. Majority of the pedestrian facilities are concentrated within the residential community located northeast of the study area. Within the study area, sidewalks are provided along one side of Parr Boulevard, Simona Drive, George Bolton Parkway, Pillsworth Road, Simpson Road, and segments of Highway 50. A multi-use path is also provided along George Bolton Parkway. Sidewalks are missing along the surrounding collector and arterial roadway including Mayfield Road, Coleraine Drive, Humber Station Road, and Healey Road. Sidewalks are also missing along a majority of the local streets within the Coleraine West Employment Lands.

As illustrated in **Figure 3-5**, pedestrian facilities are provided connecting the employment lands with existing local transit stops located at George Bolton Parkway & Coleraine Drive and George Bolton Parkway & Highway 50.

Figure 3-5: Existing Pedestrian Network



3.4.1.1 Pedestrian Multimodal Level of Service Evaluation

An analysis of the multimodal level of service (MMLOS) for the pedestrian network in the study area was undertaken to provide a baseline pedestrian level of service in the study area. The pedestrian network has been evaluated in accordance with the *City of Ottawa's Multi-Modal Level of Service (MMLOS) Guidelines* to describe the convenience and comfort level of active transportation infrastructure in the study area. The results are on a scale of 'A' to 'F', where 'A' represents the preferred conditions and 'F' represents the least preferred conditions. The pedestrian level of service (PLOS) evaluation was conducted for the worst segments of Healey Road, Humber Station Road, Mayfield Road, Coleraine Drive, and George Bolton Parkway within the study area.

The PLOS for the study area roadway segments is summarized in **Table 3-3**. Detailed MMLOS analysis is provided in **Appendix A**.

Table 3-3: Existing Pedestrian Level of Service (PLOS)

Segment	From	To	Side	Existing (2023) LOS
Healey Road	Humber Station Road	Coleraine Drive	North	F
			South	F
Humber Station Road	Healey Road	Mayfield Road	East	F
			West	F
Mayfield Road	Humber Station Road	Coleraine Drive	North	F
			South	F
Coleraine Drive	Mayfield Road	George Bolton Parkway	East	F
			West	F
Coleraine Drive	George Bolton Parkway	Healey Road	East	F
			West	F
George Bolton Parkway	Coleraine Drive	Highway 50	North	C
			South	F

Overall, the study area displays a PLOS of 'C' to 'F'. This is largely due to the lack of pedestrian facilities along the arterial and collector roads within the study area including Mayfield Road, Coleraine Drive, Humber Station Road, and Healey Road. Pedestrian facilities are provided along the south side of George Bolton Parkway; however, sidewalks are less than 1.5 m wide and have no separation from high-speed vehicles resulting in a PLOS of 'F' for this segment.

3.5 TRAFFIC DATA COLLECTION

Turning movement counts (TMCs) were used as the source of traffic data for the intersection capacity analysis. Traffic counts were collected by LEA Consulting on Wednesday, May 3, 2023, between 7:00 AM - 9:30 AM and 4:00 PM - 6:30 PM to capture the weekday AM and PM peak periods. To note, during the time of the survey, the south approach at Coleraine Drive & Mayfield Road was closed for construction. As such, traffic counts were obtained from the Region of Peel and balanced with adjacent intersections.

Signal timing plans at the signalized intersections were obtained from the Region of Peel. Heavy vehicle traffic, pedestrian traffic, and cyclist traffic were recorded separately and included in the capacity analysis. A summary of the TMC data collected is provided in **Table 3-4**, with detailed traffic counts and signal timing plans available in **Appendix B**.

Table 3-4: Data Collection Summary

Intersection	TMC Date	Source
Coleraine Drive & Healey Road	Wednesday, May 3, 2023	LEA Consulting
Humber Station Road & Healey Road		
Mayfield Road & Humber Station Road/Clarkway Drive		
Coleraine Drive & George Bolton Parkway/Private Access		
Highway 50 & George Bolton Parkway/Private Access		
Mayfield Road & Coleraine Drive	Tuesday, May 7, 2013	MG8 ENG

As of fall 2022, it is understood that the Town of Caledon accepts new traffic data. As such, no COVID adjustments were performed on the counts collected.

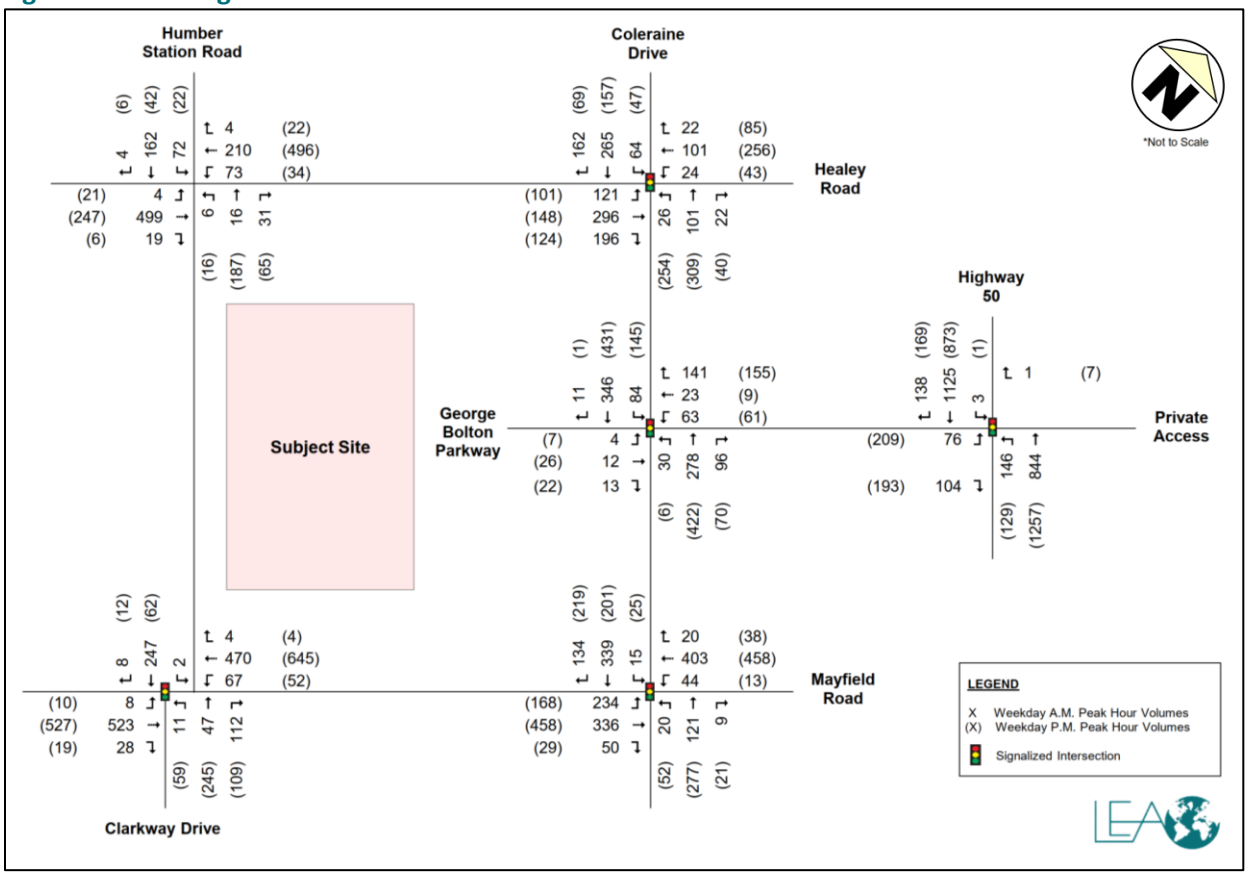
3.6 EXISTING SYNCHRO MODEL INPUTS

Existing traffic operations were assessed to provide a baseline for future traffic operations and identify intersections currently experiencing capacity constraints. The existing analysis incorporates the most recent signal timing plans for the study intersections. The applied Peak Hour Factor (PHF) values were calculated based on surveyed counts.

3.7 EXISTING TRAFFIC VOLUMES

The existing traffic volumes during the weekday AM and PM peak hours are illustrated in **Figure 3-6**. Volume balancing was applied to through movements where adjacent intersections had volume discrepancies greater than 10%.

Figure 3-6: Existing Peak Hour Traffic Volumes



4 FUTURE BACKGROUND TRANSPORTATION CONDITIONS

For the analysis of future background traffic conditions, this study considers a 5-, 10-, and 20-year horizon from the existing year 2023 to the future years 2028, 2033, and 2043, respectively. Future background conditions include traffic added to the network from other future developments, corridor growth, and road network improvements. The future background conditions will be used as the baseline for evaluating the impact of the proposed development.

4.1 BACKGROUND DEVELOPMENTS

4 background developments have been identified within the surrounding study area. Detailed information on the background developments included in the analysis was obtained from the Town's development application online inventory. The background developments are summarized in **Table 4-1** with their location illustrated in **Figure 4-1**.

Table 4-1: Background Developments

#	Development	Statistics	Anticipated Horizon	Source
1	12544 Highway 50	Gas Station 279 m^2 of retail GFA 461 m^2 of retail GFA	2028	TIS dated March 2017 (Figure 5-1) LMM Engineering Inc.
2	Triangle Lands	406,000 m^2 of industrial GFA	2028	LEA Estimate
3	Coleraine Drive & Mayfield Road Block Plan (South Simpson Landowners Group)	224,000 m^2 of industrial GFA	2028	LEA Estimate
4	12563 & 12599 Highway 50 – Phase 1	1,301 residential units 2,399 m^2 of retail GFA	2033	TIS dated January 2022 (Figure 21) BA Group
	12563 & 12599 Highway 50 – Full Buildout	2,238 residential units 3,179 m^2 of retail GFA	2043	TIS dated January 2022 (Figure 24) BA Group

The background development traffic volumes were extracted from their respective traffic studies for their development applications and subsequently assigned to the study area road network. Excerpts from the studies are provided in **Appendix C**. As traffic studies were not available for background development #2 and #3, site traffic was estimated based on ITE Trip Generation rates and TTS trip distribution, and subsequently assigned to the study area. It was assumed that site accesses for the Triangle Lands and Coleraine Drive & Mayfield Road Block Plan development would occur along Mayfield Road. Detailed background development site traffic volumes and calculations are provided in **Appendix C**.

Figure 4-1: Background Development Locations

4.2 CORRIDOR GROWTH

EMME plots from the Region of Peel's 2021, 2031, and 2041 Travel Demand Forecasting Model were used to determine corridor growth rates along major roads. **Table 4-2** summarizes the applied growth rates calculated between screenlines. Detailed corridor growth rate calculations are provided in **Appendix D**.

Table 4-2: Corridor Growth Summary

Corridor	Direction	Annual Growth Rate (AM/PM)
Humber Station Road	Northbound	2%
	Southbound	1%
Mayfield Road	Eastbound	3%
	Westbound	2%
Healey Road	Eastbound	3%
	Westbound	4%
Coleraine Drive	Northbound	2%
	Southbound	0%
Highway 50	Northbound	1%
	Southbound	0%

4.3 PLANNED EXTERNAL ROAD NETWORK

As identified in **Section 2**, there are several proposed and planned changes to the road network surrounding the subject lands. The road network improvements considered in the future horizons are summarized in **Table 4-3**. Of note, based on correspondence with Regional staff (see **Appendix E**), it is understood that the widening of Mayfield Road from 2 to 6 lanes west of Humber Station Road and from 2 to 4 lanes between Humber Station Road and Highway 50 is scheduled for construction starting 2026. As such, the completion of this improvement has been considered by the 2028 horizon year.

Table 4-3: Future Transportation Network Improvements

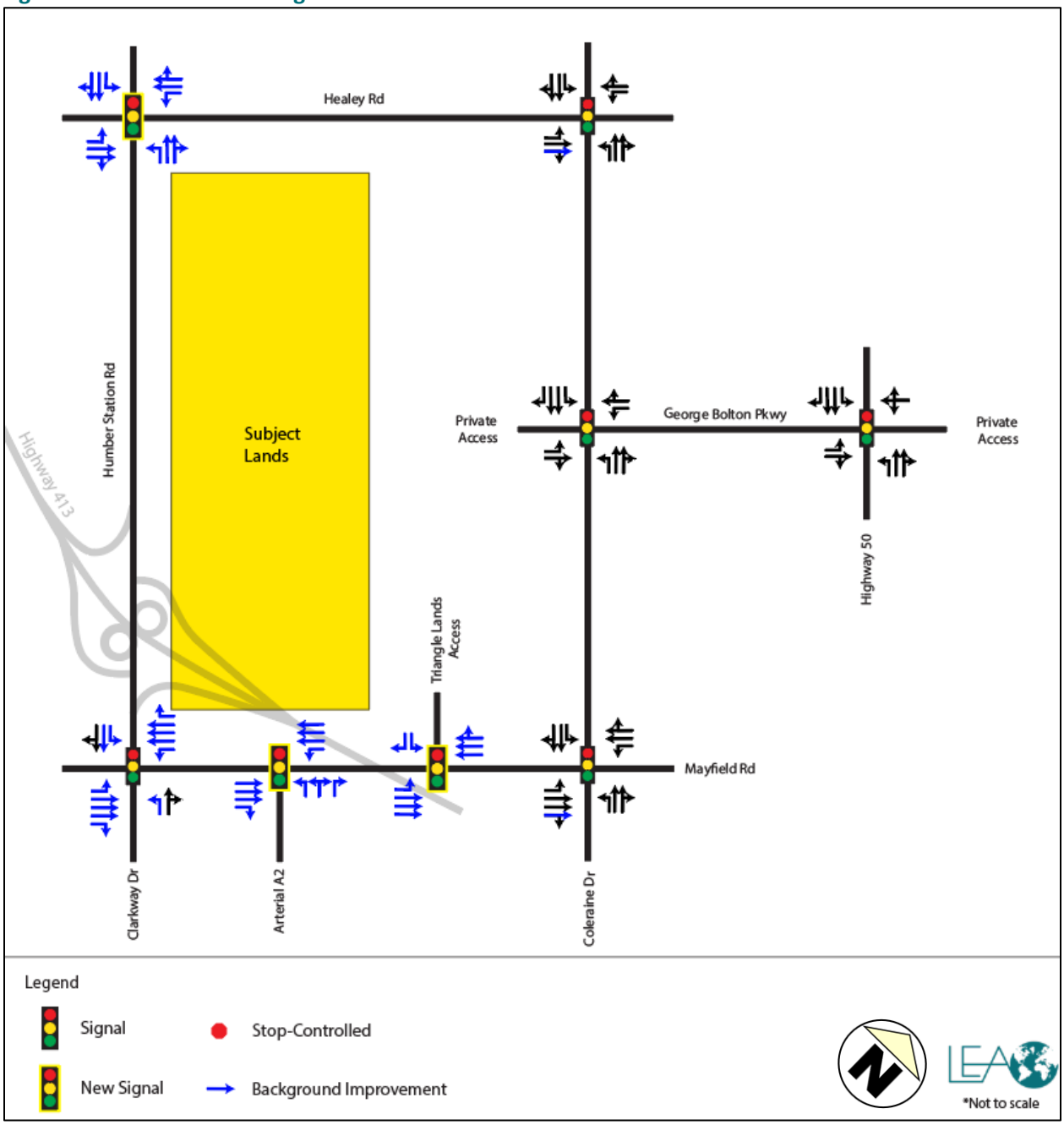
Roadway	Network Improvement	Horizon Year as per Policy Document	Included in Analysis?
Provincial			
Highway 413	**Ontario Ministry of Transportation Highway 413 Transportation Corridor Route Planning Study (formerly GTA West)** • New 400-series highway with an interchange at Humber Station Road, north of Mayfield Road	2041	Yes
Regional			
Coleraine Drive	**Peel Region Long Range Transportation Plan** • Widening from 2 to 4 lanes, between Mayfield Road and Highway 50	2031	Yes
Mayfield Road	**Peel Region Long Range Transportation Plan** • Widening from 2 to 6 lanes, between Dixie Road and Humber Station Road • Widening from 2 to 4 lanes, between Humber Station Road and Highway 50	2031	Yes [1]
	Peel Region Long Range Transportation Plan • Widening from 4 to 6 lanes, between Humber Station Road and Coleraine Drive	2041	Yes
Arterial A2	**Peel Region Long Range Transportation Plan** • New 6-lane road connection located between Humber Station Road and Coleraine Drive, extending from Mayfield Road to Highway 50	2041	Yes
Local			
Humber Station Road	**Town of Caledon Transportation Master Plan** • Proposed signalization of Humber Station Road & Healey Road	2031	Yes [2]
	Draft Town of Caledon Multi-Modal Transportation Master Plan • Widening from 2 to 4 lanes, between Highway 8 and Mayfield Road	2031	Yes
Healey Road	**Town of Caledon Transportation Master Plan** • Proposed signalization of Humber Station Road & Healey Road	2031	Yes [2]
	Draft Town of Caledon Multi-Modal Transportation Master Plan	2031	Yes

Roadway	Network Improvement	Horizon Year as per Policy Document	Included in Analysis?
	• Widening from 2 to 4 lanes, between Heritage Road and Coleraine Drive		
George Bolton Parkway	**Draft Town of Caledon Multi-Modal Transportation Master Plan** • 4-lane extension between Coleraine Drive and Humber Station Road	2031	To be built out by the development proposal
Arterial A2 North Extension	**Town of Caledon Transportation Network Feasibility Study (Option 6 and Triangle Lands)** • New 2-lane extension of Arterial A2 between Mayfield Road and George Bolton Parkway extension	-	No (see **Section 6.1**)

Note: (1) – The widening of Mayfield Road from 2 to 6 lanes west of Humber Station Road and from 2 to 4 lanes between Humber Station Road and Highway 50 has been considered under the 2028 horizon year based on correspondence with the Region.
*(2) – Based on the capacity analysis results in **Section 7**, the signalization of Humber Station Road & Healey Road is recommended by the 2028 horizon year.*

Figure 4-2 illustrates the ultimate 2033 and 2043 future background road network. To note, planned infrastructure improvements could be advanced to further the development of the ultimate road network.

Figure 4-2: 2043 Future Background Road Network



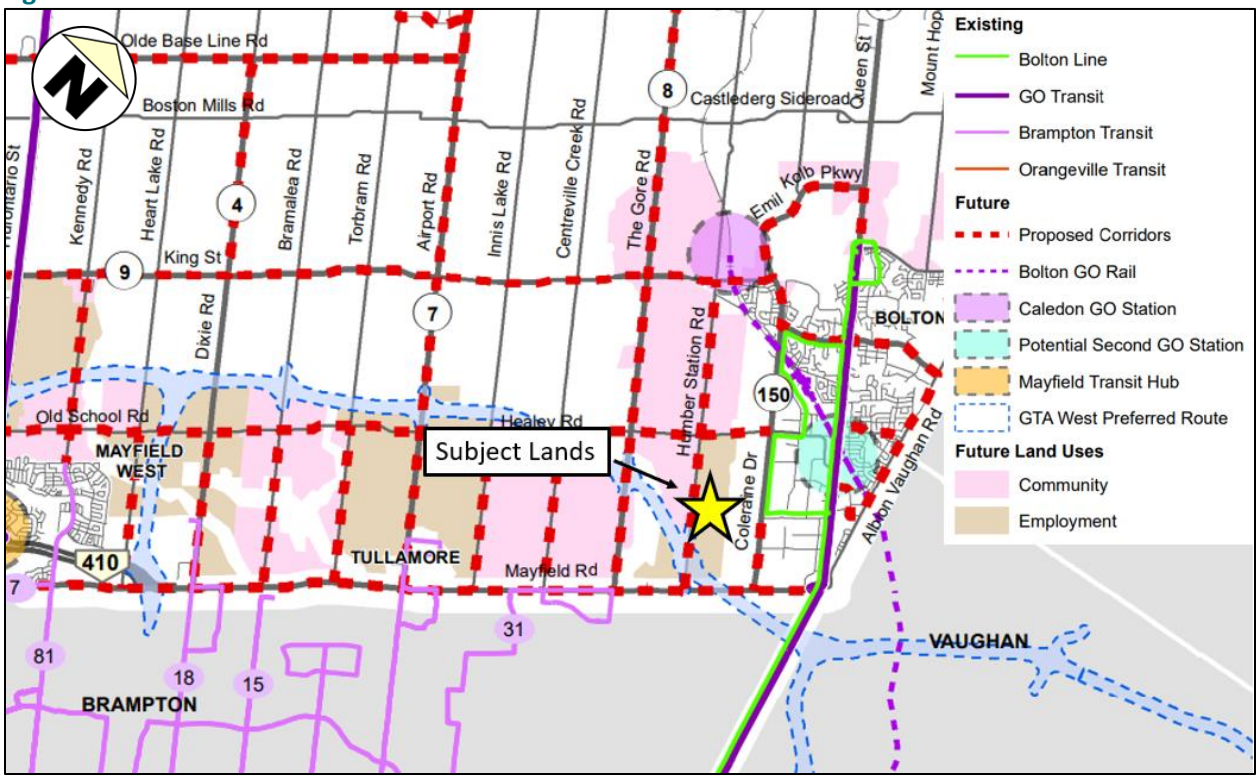
Note: Lane configuration and traffic control for new intersections were based on required improvements from the intersection capacity analysis results in **Section 7**.

4.4 PLANNED TRANSIT AND ACTIVE TRANSPORTATION IMPROVEMENTS

As illustrated in **Figure 4-3**, the Town of Caledon's draft MMTMP proposes a future transit network including local transit routes along the Humber Station Employment Area boundary roadways and commuter rail service to connect the west side of Toronto to Vaughan and Caledon. The Bolton commuter rail corridor would include a planned Major Transit Station Area (MTSA) centered around the Caledon GO Station (planned at King Street & Humber Station Road). A second potential GO Station / MTSA is identified in the draft MMTMP along Highway 50 / Queen Street. This second GO Station would support new high density mixed-use transit-oriented communities. It is understood that this station will be further assessed as part of future secondary plan processes. Furthermore, a Highway 413 Transitway station is proposed at Mayfield Road & Humber Station Road. The transit corridor is expected to provide separated, exclusive access alongside the highway for public transit.

These nearby transit initiatives aim to expand transit reach to existing and proposed residential and employment land uses. Having more frequent and reliable transit service, as well as improving first/last mile initiatives to existing transit stops will enhance the multi-modal transportation network in the study area.

Figure 4-3: Future Transit Network



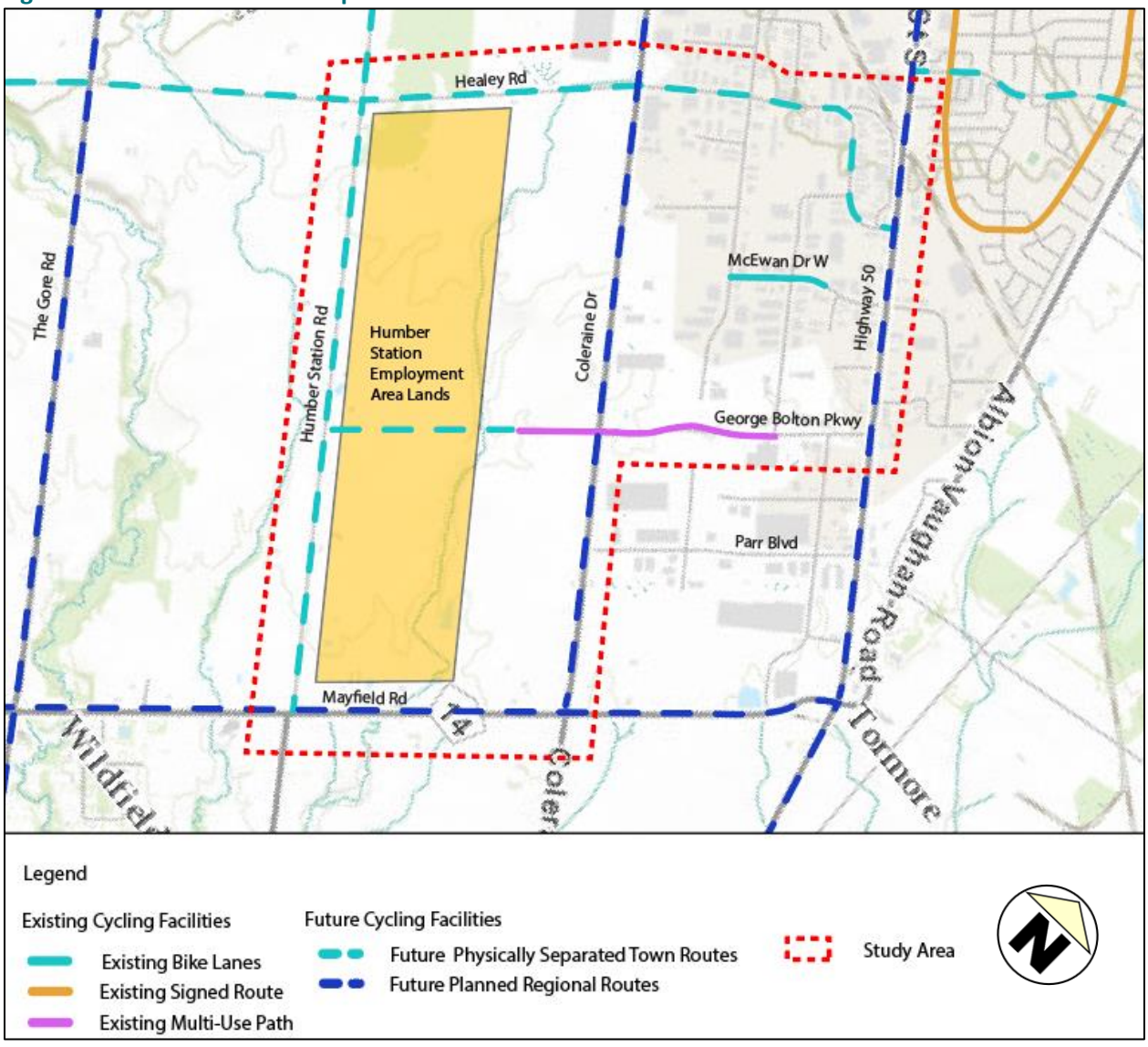
Source: Draft Multi-Modal Transportation Master Plan (Town of Caledon, April 2024)

Improved pedestrian and cycling facilities are provisionally planned for all 4 surrounding roadways. The Town of Caledon's Draft MMTMP proposes physically separated cycling facilities along Humber Station Road and Healey Road. Regional cycling facilities are also planned along Mayfield Road, Highway 50, Coleraine Drive, and The Gore Road. These external facilities will serve as active transportation links to nearby neighbourhoods within the community.

As part of the development of the Humber Station Employment lands, George Bolton Parkway will extend from its existing terminal west of Coleraine Drive to Humber Station Road. The proposed active transportation facilities along the George Bolton extension will be informed by the Town's MMTMP and evaluated as part of the EA for the George Bolton Parkway extension. The type of active transportation facility will be determined through this process and in consultation with any available standard cross-sections for industrial collector roads. The active transportation facilities along George Bolton will serve as the primary link to external facilities.

A conceptual diagram illustrating the future active transportation network informed by the Town and Region's TMP is provided in **Figure 4-4**.

Figure 4-4: Future Active Transportation Network



4.5 FUTURE BACKGROUND SYNCHRO MODEL INPUTS

Input parameters from the existing scenario were maintained with corresponding future background volumes, with the exception of the following changes:

- Coleraine Drive & Healey Road
  - Optimized splits and increased cycle length to 120 seconds during the PM peak hour under the 2033 horizon year and carried through to future horizons.
  - Lane configuration changed to accommodate the widening of Healy Road with the introduction of an additional through lane.
- Clarkway Drive/Humber Station Road & Mayfield Road
  - Optimized splits during the AM peak hour while maintaining the overall cycle length of 120 seconds under the 2028 horizon and carried through to future horizons.
  - Optimized splits during the PM peak hour while maintaining the overall cycle length of 120 seconds under the 2028 horizon. Splits were further optimized under the 2033 and 2043 horizons.
  - Lane configuration changed to accommodate the widening of Humber Station Road and Mayfield Road, with the introduction of 2 and 3 through lanes, respectively. Exclusive left and right-turning lanes were also added for the westbound and eastbound directions, as well as and exclusive left turning lanes for the northbound and southbound directions.
- Coleraine Drive & Mayfield Road
  - Optimized splits during the AM and PM peak hours while maintaining the overall cycle length of 130 seconds under the 2043 horizon year.
  - Lane configuration changed to accommodate the widening of Mayfield Road, with the introduction of 3 through lanes for the eastbound direction and 2 through lanes for the westbound direction.
- Humber Station Road & Healey Road
  - New signalized intersection under the 2028 horizon year and carried forward to future horizons.
  - Lane configuration changed to accommodate signalization and widening of Humber Station Road and Healey Road, with the introduction of exclusive left-turning lanes for all directions.
- Triangle Lands Access & Mayfield Road
  - New intersection to facilitate access for the Triangle Lands background development. The intersection is recommended as an unsignalized intersection under the 2028 horizon year and as a signalized intersection by the 2033 horizon year.

- Arterial A2 & Mayfield Road
  - New signalized intersection under the 2043 horizon year.

4.6 FUTURE BACKGROUND TRAFFIC VOLUMES

The future background traffic volumes for the weekday AM and PM peak hours under the 2028, 2033, and 2043 horizon years are illustrated in **Figure 4-5**, **Figure 4-6**, and **Figure 4-7**, respectively.

Figure 4-5: 2028 Future Background Peak Hour Traffic Volumes

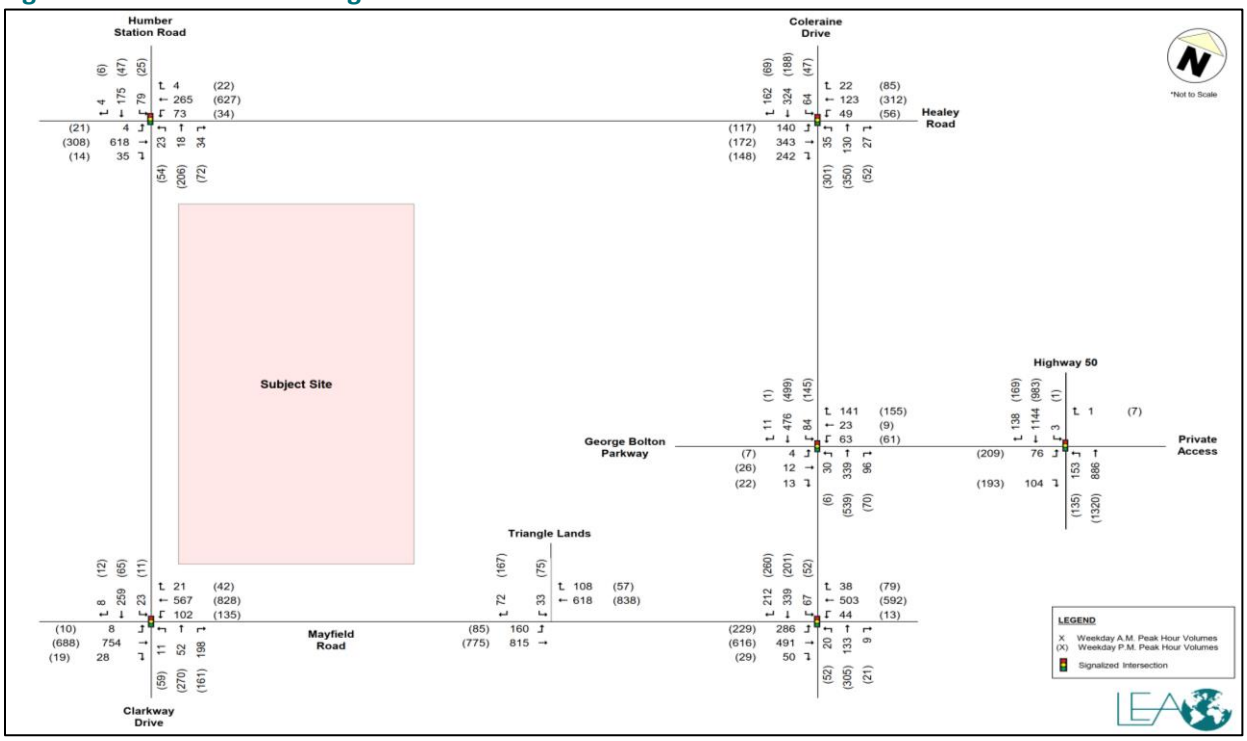


Figure 4-6: 2033 Future Background Peak Hour Traffic Volumes

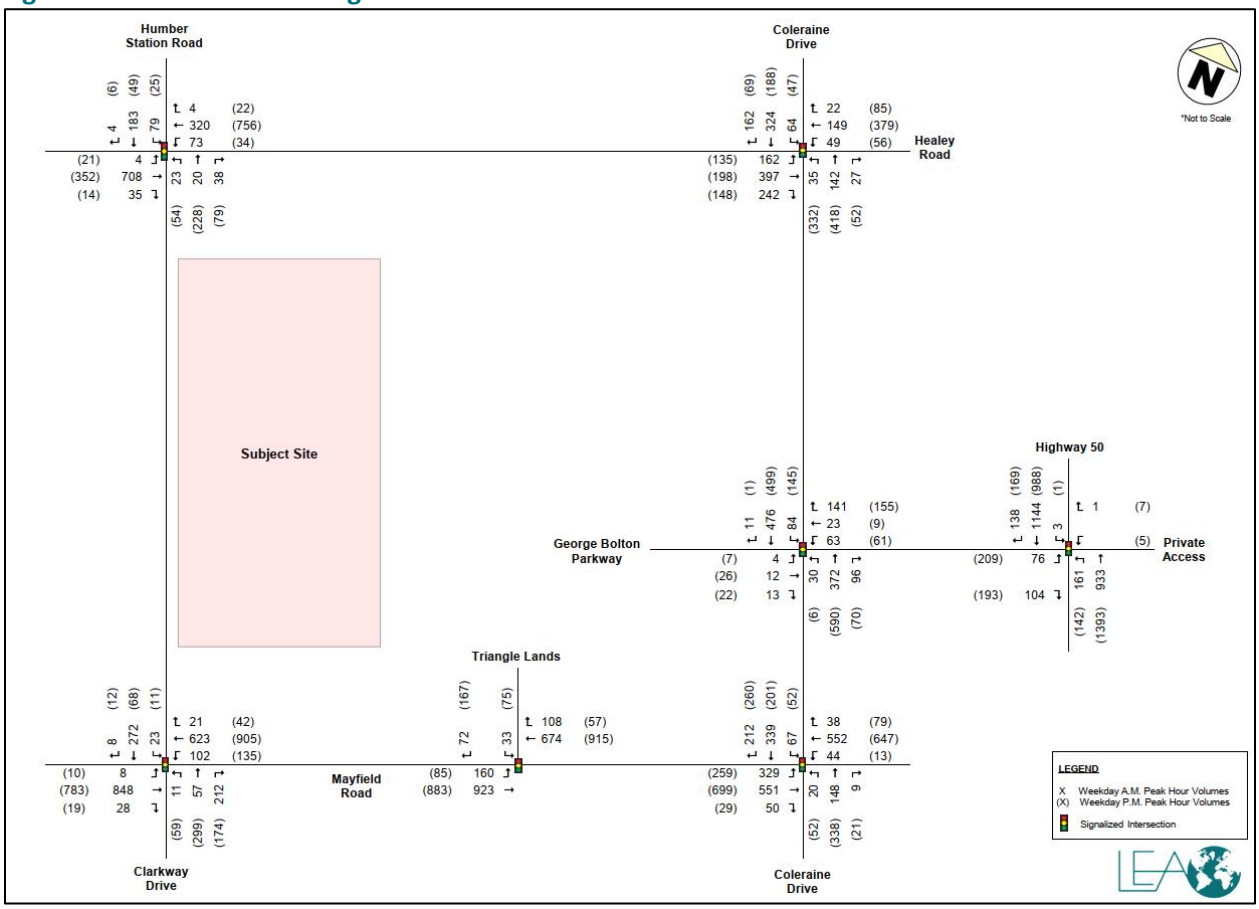
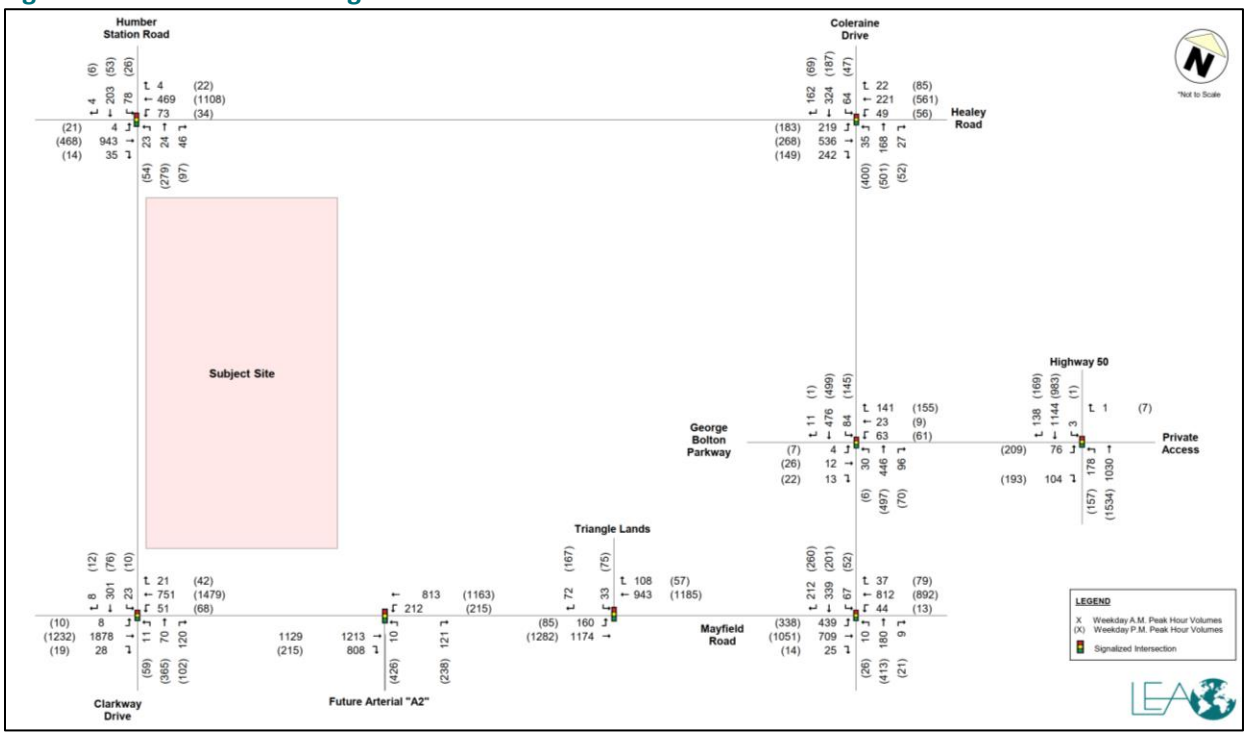


Figure 4-7: 2043 Future Background Peak Hour Traffic Volumes



5 SITE-GENERATED TRAFFIC

The full buildout of the subject lands consists of approximately 184 hectares of employment area consisting of Prestige Employment and predominately General Employment land use designations. As previously mentioned, Parcel 1 is being delivered first by the 2028 horizon year. Full buildout of the remainder of the site will occur by the 2033 horizon year. Furthermore, it is understood that access to the subject lands will be provided off the future George Bolton Parkway extension and via local connections to Humber Station Road, Healey Road, and Mayfield Road.

This section provides details regarding the site-generated traffic that has been conducted to assess the future travel demand and capacity deficiencies of the road network upon Phase 1 and full buildout of the Humber Station Employment Area lands. The calculation, distribution, and assignment of future site-generated trips are discussed below.

5.1 TRIP GENERATION

It is understood that warehousing activities are likely proposed for Parcels 1 & 2. As such, trip generation for these parcels were estimated using average baseline auto and truck trip rates from the ITE Trip Generation Manual 11th Edition for ITE LUC 150 – Warehousing in General Urban/Suburban and based on the proposed industrial GFA of 248,872 m^2 (2,678,769 ft^2) for Parcel 1 and 51,371 m^2 (552,953 ft^2) for Parcel 2.

Given that the proposed uses for the remainder of the site are unknown at this time, trip generation for Parcels 3-38 was estimated based on the minimum density target of 26 jobs per hectare for *Employment Areas* as outlined in the Town's August 2023 Draft Official Plan (Policy 4.1.4). Average baseline auto and truck trips were estimated using trip rates from the ITE Trip Generation Manual 11th Edition for ITE LUC 140 – Manufacturing in General Urban/Suburban.

A summary of the site trip generation for auto and truck trips is provided in **Table 5-1** and **Table 5-2**, respectively.

Table 5-1: Trip Generation (Auto Trips)

Land Use	Description	Weekday AM Peak Hour			Weekday PM Peak Hour		
		In	Out	Total	In	Out	Total
Phase 1 (Site Access 1 - George Bolton Parkway)							
ITE LUC 150 – Warehousing 2,678,769 ft^2	Auto Trip Rate (/1000 ft^2)	0.13	0.04	0.17	0.05	0.13	0.18
	Total ITE Auto Trips	351	105	456	135	347	482
	External Auto Trips (100%)	**351**	**105**	**456**	**135**	**347**	**482**
Phase 2 (Site Access 1 - George Bolton Parkway)							
ITE LUC 150 – Warehousing 552,953 ft^2	Auto Trip Rate (/1000 ft^2)	0.13	0.04	0.17	0.05	0.13	0.18
	Total ITE Auto Trips	72	22	94	28	72	100
ITE LUC 140 – Manufacturing 1326 Employees	Auto Trip Rate (/employee)	0.23	0.09	0.32	0.11	0.20	0.31
	Total ITE Auto Trips	310	115	425	152	259	411
	External Auto Trips (100%)	**382**	**137**	**519**	**180**	**331**	**511**
Phase 2 (Site Access 2 - Humber Station)							
ITE LUC 140 – Manufacturing 52 Employees	Auto Trip Rate (/employee)	0.23	0.09	0.32	0.11	0.20	0.31
	Total ITE Auto Trips	12	4	16	6	10	16
	External Auto Trips (100%)	**12**	**4**	**16**	**6**	**10**	**16**

Land Use	Description	Weekday AM Peak Hour			Weekday PM Peak Hour		
		In	Out	Total	In	Out	Total
Phase 2 (Site Access 3 - Humber Station)							
ITE LUC 140 – Manufacturing 624 Employees	Auto Trip Rate (/employee)	0.23	0.09	0.32	0.11	0.20	0.31
	Total ITE Auto Trips	146	54	200	72	122	194
	External Auto Trips (100%)	**146**	**54**	**200**	**72**	**122**	**194**
Phase 2 (Site Access 4 - Healey)							
ITE LUC 140 – Manufacturing 598 Employees	Auto Trip Rate (/employee)	0.23	0.09	0.32	0.11	0.20	0.31
	Total ITE Auto Trips	140	52	192	69	117	186
	External Auto Trips (100%)	**140**	**52**	**192**	**69**	**117**	**186**
Phase 2 (Site Access 5 - Mayfield)							
ITE LUC 140 – Manufacturing 146 Employees	Auto Trip Rate (/employee)	0.23	0.09	0.32	0.11	0.20	0.31
	Total ITE Auto Trips	34	13	47	17	29	46
	External Auto Trips (100%)	**34**	**13**	**47**	**17**	**29**	**46**
Total							
Phase 1 Total New Auto Trips		**351**	**105**	**456**	**135**	**347**	**482**
Phase 2 Total New Auto Trips		**714**	**260**	**974**	**344**	**609**	**953**
Total New Auto Trips		**1065**	**365**	**1430**	**479**	**956**	**1435**

Table 5-2: Trip Generation (Truck Trips)

Land Use	Description	Weekday AM Peak Hour			Weekday PM Peak Hour		
		In	Out	Total	In	Out	Total
Phase 1 (Site Access 1 - George Bolton Parkway)							
ITE LUC 150 – Warehousing 2,678,769 ft^2	Truck Trip Rate (/1000 ft^2)	0.01	0.01	0.02	0.02	0.01	0.03
	Total ITE Truck Trips	28	26	54	42	39	81
	External Truck Trips (100%)	**28**	**26**	**54**	**42**	**39**	**81**
Phase 2 (Site Access 1 - George Bolton Parkway)							
ITE LUC 150 – Warehousing 552,953 ft^2	Auto Trip Rate (/1000 ft^2)	0.02	0.01	0.03	0.02	0.03	0.05
	Total ITE Auto Trips	23	16	39	25	42	67
ITE LUC 140 – Manufacturing 1326 Employees	Truck Trip Rate (/employee)	0.01	0.01	0.02	0.02	0.01	0.03
	Total ITE Truck Trips	6	5	11	9	8	17
	External Truck Trips (100%)	**29**	**21**	**50**	**34**	**50**	**84**
Phase 2 (Site Access 2 - Humber Station)							
ITE LUC 140 – Manufacturing 52 Employees	Truck Trip Rate (/employee)	0.02	0.01	0.03	0.02	0.03	0.05
	Total ITE Truck Trips	1	1	2	1	2	3
	External Truck Trips (100%)	**1**	**1**	**2**	**1**	**2**	**3**
Phase 2 (Site Access 3 - Humber Station)							
ITE LUC 140 – Manufacturing 624 Employees	Truck Trip Rate (/employee)	0.02	0.01	0.03	0.02	0.03	0.05
	Total ITE Truck Trips	11	8	19	12	20	32
	External Truck Trips (100%)	**11**	**8**	**19**	**12**	**20**	**32**
Phase 2 (Site Access 4 - Healey)							
ITE LUC 140 – Manufacturing 598 Employees	Truck Trip Rate (/employee)	0.02	0.01	0.03	0.02	0.03	0.05
	Total ITE Truck Trips	11	7	18	11	19	30
	External Truck Trips (100%)	**11**	**7**	**18**	**11**	**19**	**30**
Phase 2 (Site Access 5 - Mayfield)							
ITE LUC 140 – Manufacturing 146 Employees	Truck Trip Rate (/employee)	0.02	0.01	0.03	0.02	0.03	0.05
	Total ITE Truck Trips	3	2	5	3	5	8
	External Truck Trips (100%)	**3**	**2**	**5**	**3**	**5**	**8**

Total						
Phase 1 Total New Truck Trips	28	26	54	42	39	81
Phase 2 Total New Truck Trips	55	39	94	61	96	157
Total New Truck Trips	83	65	148	103	135	238

Full buildout of the subject lands is anticipated to generate 1,430 two-way auto vehicle trips during the AM peak hour (1,065 inbound, 365 outbound) and 1,435 two-way auto vehicle trips during the PM peak hour (479 inbound, 956 outbound). In addition, 148 two-way truck trips (83 inbound, 65 outbound) are anticipated during the AM peak hour and 238 two-way truck trips (103 inbound, 135 outbound) are anticipated during the PM peak hour.

5.2 TRIP DISTRIBUTION AND ASSIGNMENT

The directional trip distribution of site traffic was derived using the 2016 TTS data filtered for trips originating in/destined to industrial areas during the AM and PM peak periods within Traffic Analysis Zones (TAZ) 3017 and 3191. Inbound and outbound distribution was based on the results of the peak hour for the peak direction (i.e., inbound direction based on AM in and outbound distribution based on PM out). Site traffic was assigned to the road network based on logical routing, turn restrictions, and changes in the future network.

The trip distribution for the subject lands is outlined in **Table 5-3**. Detailed TTS data is provided in **Appendix F**.

Table 5-3: Trip Distribution

Direction From/ To	Expected Route	Industrial Weekday AM/PM	
		In	Out
North	Albion Vaughn Road	8%	9%
	Coleraine Drive	14%	11%
	Highway 50	-	4%
	Humber Station Road	3%	-
South	Clarkway Drive	18%	22%
	Highway 50	3%	4%
East	Healey Road	6%	3%
West	Healey Road	13%	16%
	Mayfield Road	35%	31%
	Total	100%	100%

The site-generated traffic volumes for the weekday AM and PM peak hours under the 2028, 2033, and 2043 horizon years are illustrated in **Figure 5-1** to **Figure 5-6**.

Figure 5-1: Total Site-Generated Auto Peak Hour Traffic Volumes (Phase 1 - 2028)

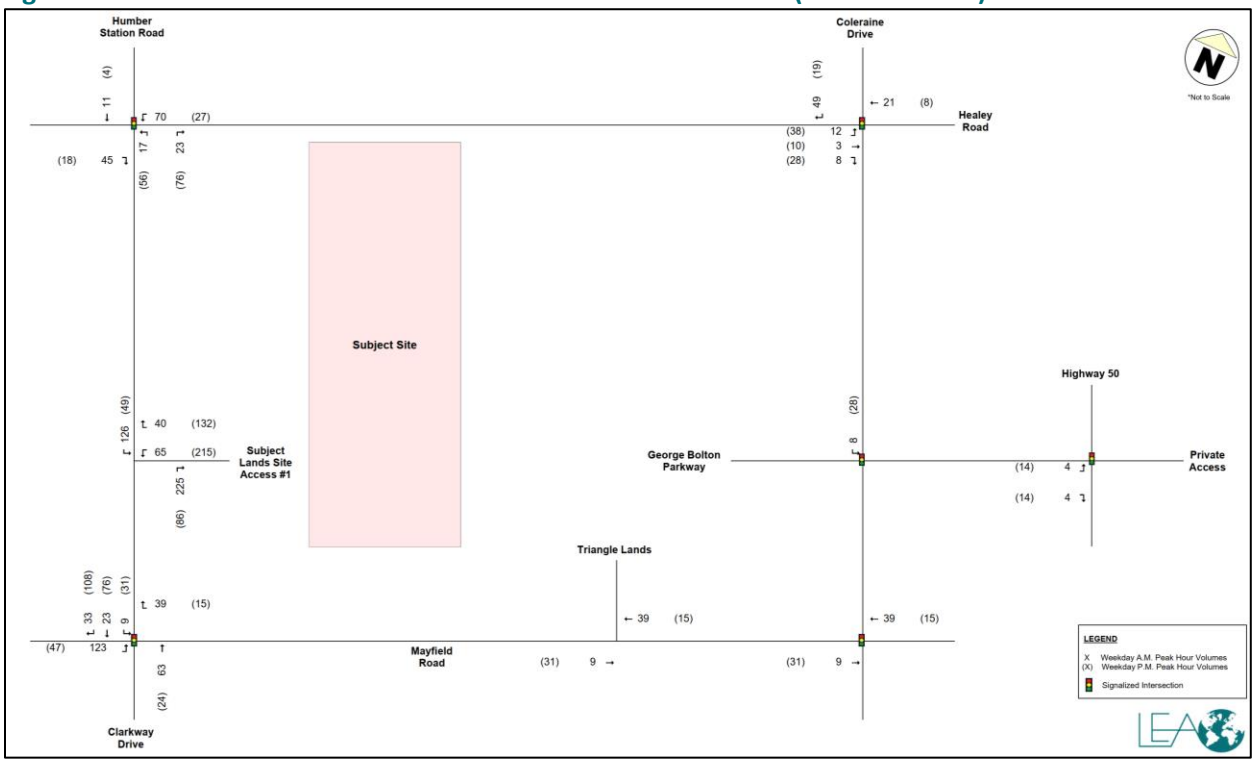


Figure 5-2: Total Site-Generated Truck Peak Hour Traffic Volumes (Phase 1 - 2028)

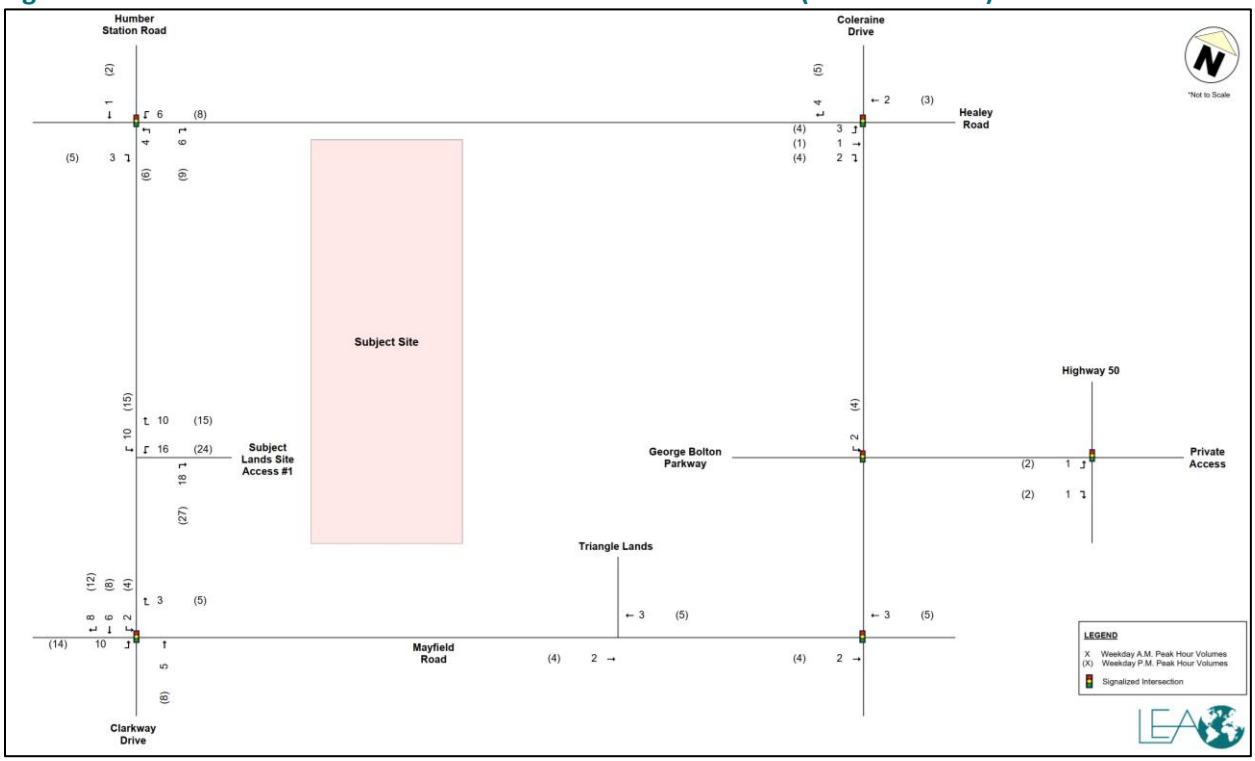


Figure 5-3: Total Site-Generated Auto Peak Hour Traffic Volumes (Full Buildout - 2033)

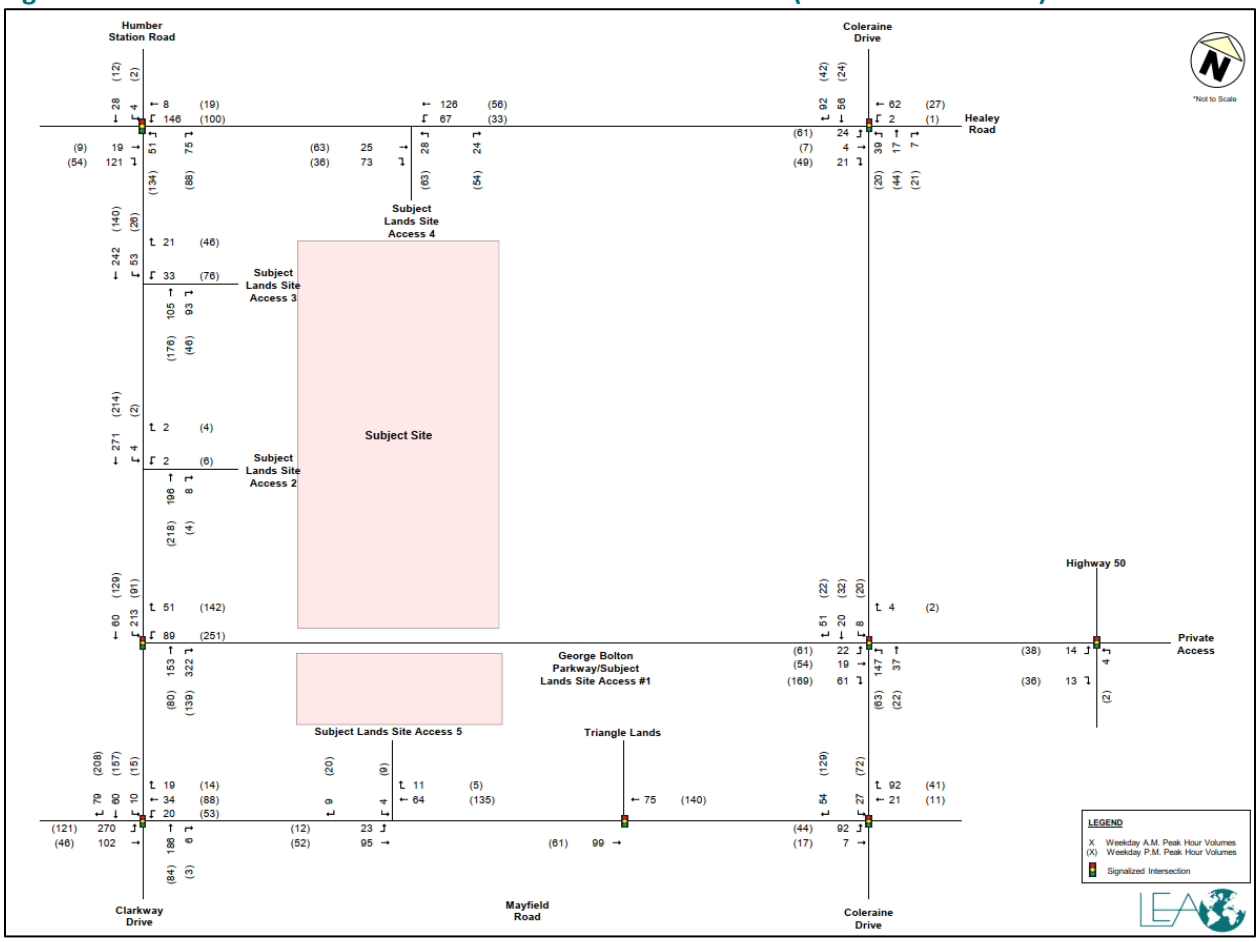


Figure 5-4: Total Site-Generated Truck Peak Hour Traffic Volumes (Full Buildout - 2033)

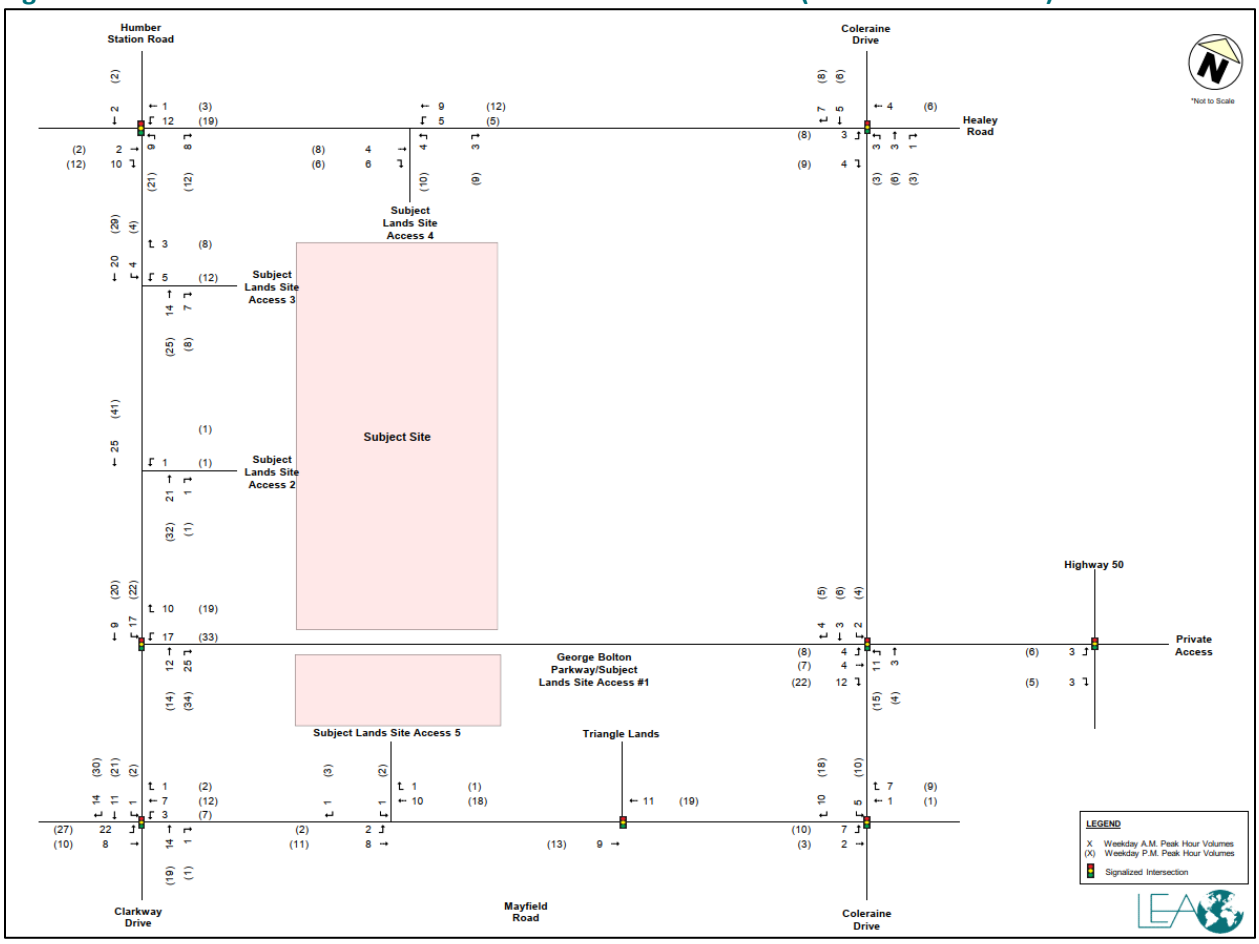


Figure 5-5: Total Site-Generated Auto Peak Hour Traffic Volumes (Full Buildout - 2043)

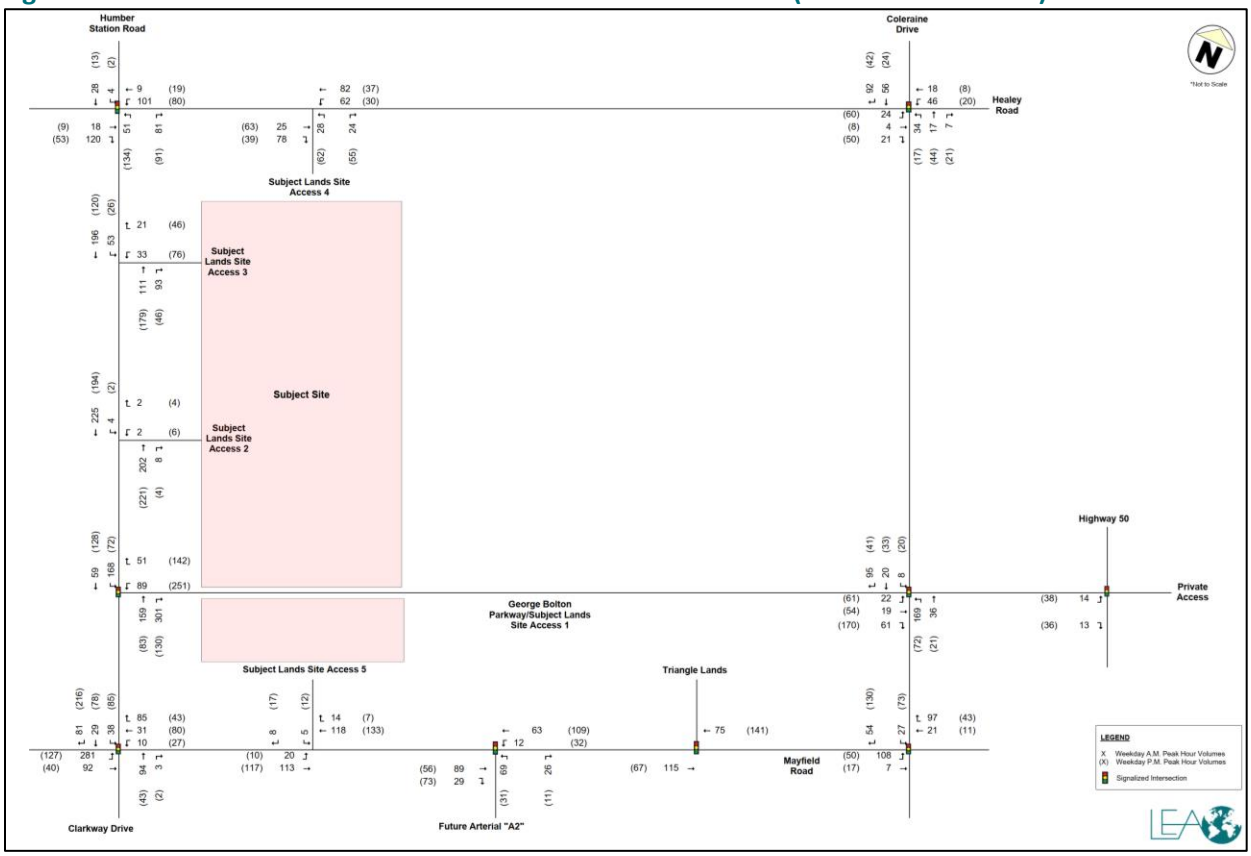
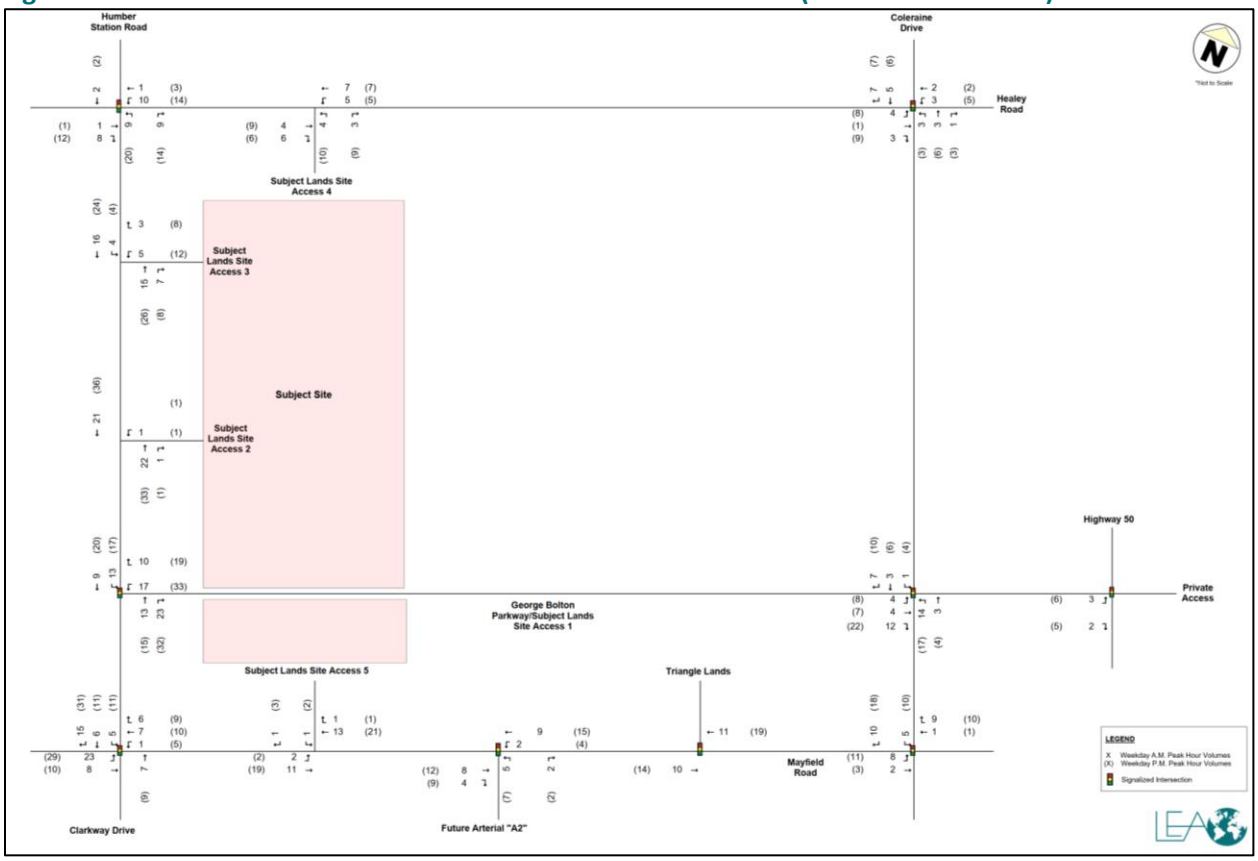


Figure 5-6: Total Site-Generated Truck Peak Hour Traffic Volumes (Full Buildout - 2043)



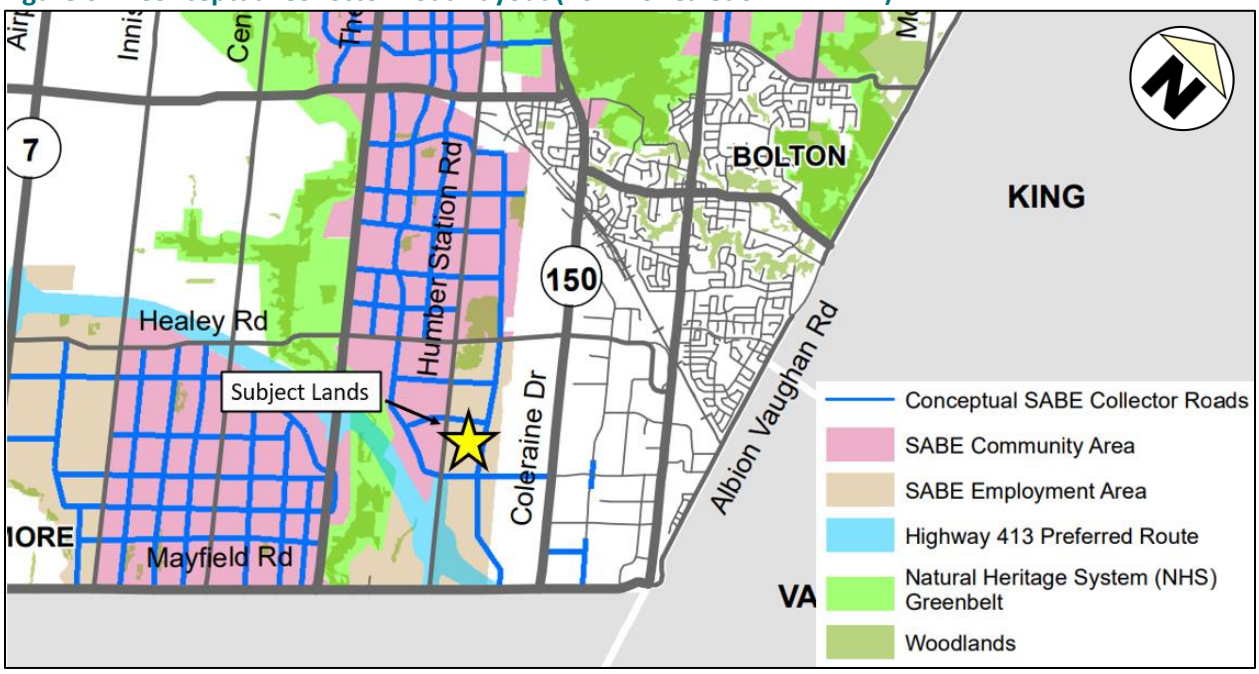
6 FUTURE TOTAL TRANSPORTATION CONDITIONS

The future total traffic conditions include the addition of site trips to the 2028, 2033, and 2043 background volumes.

6.1 INTERNAL NETWORK DEVELOPMENT

To support the development of the Humber Station Employment Area lands, a network of collector and/or local roads is required to provide servicing, frontage, and connectivity to the external road network. The Future Caledon Official Plan and MMTMP recommended a collector road network for the Settlement Area Boundary Expansion (SABE) consisting of a westerly extension of George Bolton Parkway to Humber Station, a northly extension of Arterial A2 through the site to the rail corridor, and two (2) east-west collectors to connect the SABE employment and community areas (see **Figure 6-1**). It is understood that the conceptual road layout from the MMTMP is *subject to further study as part of secondary plans, including environmental impacts.*

Figure 6-1: Conceptual Collector Road Layout (Town of Caledon MMTMP)

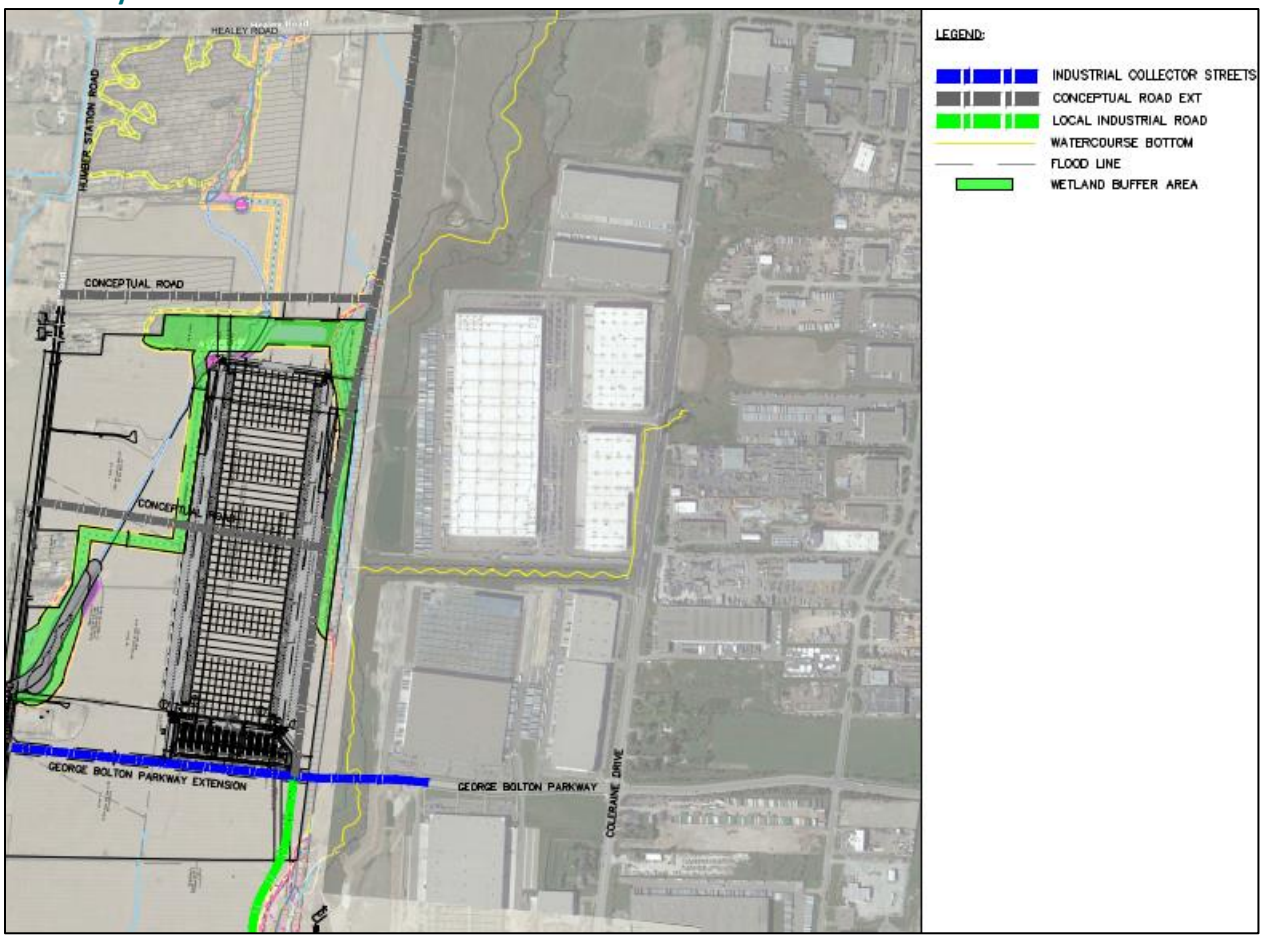


Source: Draft Multi-Modal Transportation Master Plan (Town of Caledon, June 2024)

6.1.1 Constraints of the MMTMP Conceptual Collector Road Network

Per the Town of Caledon's Transportation Network Feasibility Study for the Option 6 and Triangle Lands and MMTMP, the Humber Station Employment Area lands will be predominately serviced by the extension of George Bolton Parkway (Collector Road) from west of Coleraine Drive to Humber Station Road. However, as part of the Humber Station Employment Area secondary plan, the remaining conceptual collector road network within the subject site was assessed against environmental impacts and development constraints to determine the feasibility of additional north-south and east-west connections as proposed in the MMTMP. Several constraints were identified as illustrated in **Figure 6-2**.

Figure 6-2: Town of Caledon MMTMP Conceptual Collector Road Network within the Humber Station Secondary Plan Area



Natural Environment Constraints

Detailed existing natural environmental conditions were completed as part of the Humber Station Secondary Plan process and documented in a Comprehensive Environmental Impact Study and Management Plan – Phase 1 Report (CEISMP). Based on the CEISMP, there are a number of natural environmental constraints north of the proposed George Bolton Parkway extension that were not considered as part of the MMTMP which limit the feasibility of the proposed collector road network. Due to the development plans north of the George Bolton Parkway extension, there is very limited opportunity to shift the road alignment to minimize natural environmental impacts.

The following natural environmental constraints were identified with the proposed north-south collector road:

- Directly impacts a large stretch of significant wetland requiring permit(s) and compensation;
- Impacts within a TRCA regulated area;
- Requires two (2) crossings of the Clarkway Tributary which is designated as contributing redside dace, a species-at-risk (SAR), habitat;

- Potential impacts to Terrestrial crayfish chimney Significant Wildlife Habitat (SWH);
- Potential impact to Snapping Turtle SWH;
- Potential impact to Monarch Butterfly SWH; and
- Potential encroachment into Top of Bank.

Socio-Economic Constraints

The proposed development plans north of the Geroge Bolton Parkway extension results in further constraints to the proposed conceptual collector road network and limits the potential to shift the collector road alignment to minimize natural environmental impacts. Of note, the location of the buildings north of the George Bolton Parkway extension are fixed and any changes to the location/size of the buildings will significantly impact the development and the collector road network will need to accommodate the location of the development buildings as shown in **Figure 6-2**. The development building is located against the wetland buffer area. As such, the proposed conceptual collector road would need to be placed directly within the significant wetland feature.

Furthermore, the proposed Prestige Employment and General Employment land use designations for the Humber Station Employment Area will typically accommodate larger structures. As such, the provision of collector roads at intervals of 250-400 meters presents a substantial challenge. Notably, the southerly east-west collector road bisects the planned building for the development and therefore, the southerly east-west collector road is not a viable alignment. Based on a review of the conceptual collector road network against the development plans for the secondary plan area, the subject site can be accessed sufficiently off the George Bolton Parkway extension and local accesses off the boundary roadways without the need for additional north-south or east-west connections.

6.1.2 Connectivity

As illustrated in **Figure 6-1,** the MMTMP recommends extending Arterial A2 north from Mayfield Road to Healey Road and further to the rail corridor. The general intent of the proposed conceptual collector road is to increase route choice, provide collector roads with 250-400 m spacing, improve the overall active transportation connectivity, and provide connectivity to the proposed transit hub/GO Station planned at King Street & Humber Station Road.

Based on the memo prepared by LEA Consulting in July 2024, entitled, "*Option 6 and Triangle Lands – Technical Feasibility of A2 Extension*" (see **Appendix G**), while the segment of A2 north of Mayfield Road to George Bolton Parkway is technically feasible, implementation of the roadway would significantly impact the existing natural features and the current design of Highway 413. Furthermore, based on LEA's cost-benefit analysis for the roadway (see **Appendix G**), it was determined that the extension would result in a net negative benefit and therefore, an extension of A2 north of Mayfield Road to George Bolton Parkway is not recommended. Given the technical challenges of implementing the connection between George Bolton Parkway and Mayfield Road, LEA recommends to cul-de-sac the north-south collector road (A2) south of the Geroge Bolton Parkway extension and north of the future Highway 413.

With the recommendation to cul-de-sac the north-south collector road south of the Geroge Bolton Parkway extension, the segment north of George Bolton Parkway would no longer effectively provide increased multi-modal connectivity for the site, and the continuation of the collector road north of the George Bolton Parkway extension would provide limited benefits to the overall road and active transportation network connectivity. The future road network (i.e., Humber Station Road, Healey Road,

and George Bolton Parkway) can adequately accommodate active transportation and transit modes to facilitate multi-modal connectivity between the SABE employment and community areas.

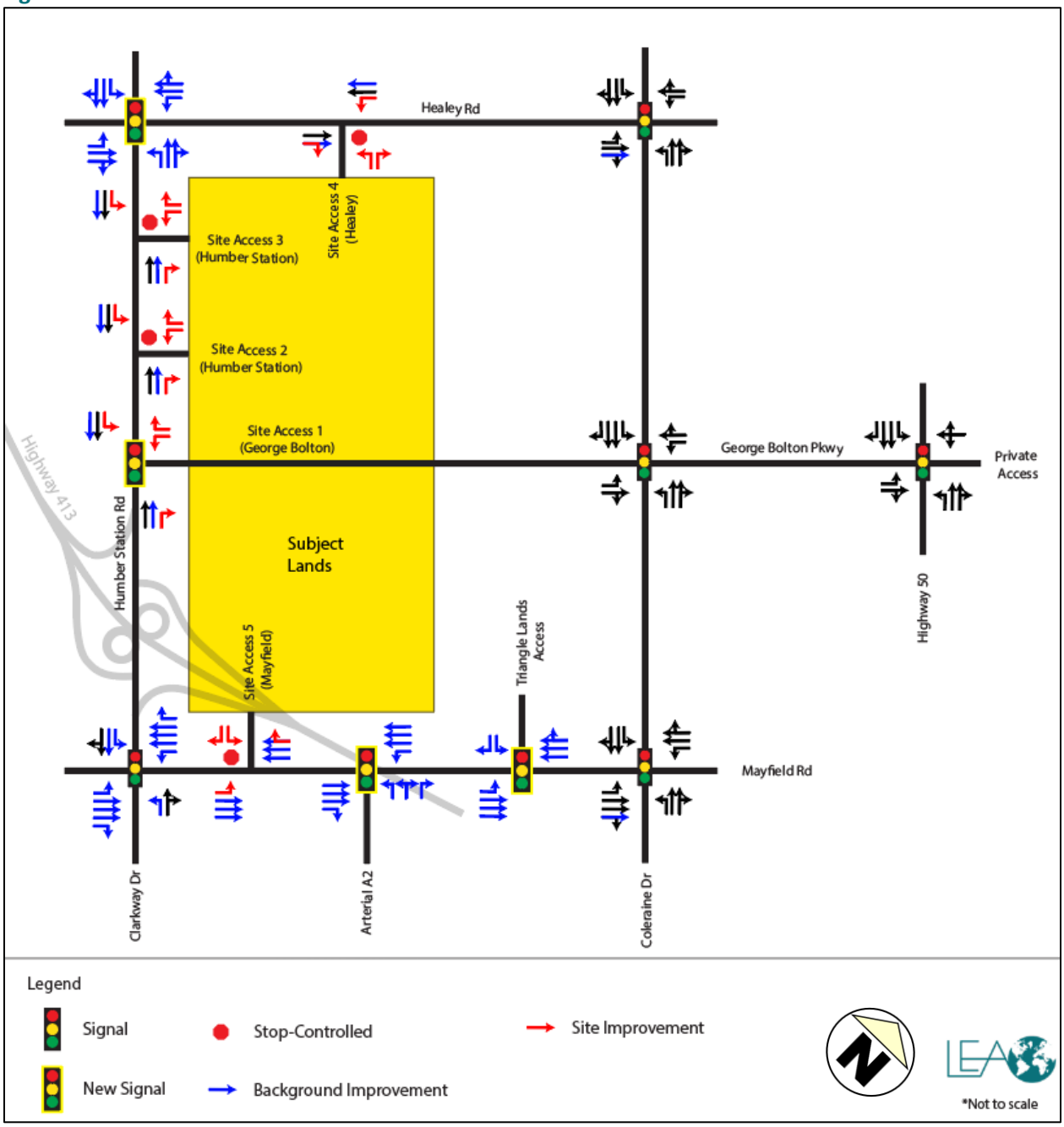
Overall, given the environmental and development constraints of the proposed conceptual collector road network in the MMTMP, the recommended collector road network for the Humber Station Employment Area lands consists of an extension of George Bolton Parkway to Humber Station Road. Based on the traffic modelling as summarized in **Section 7**, the George Bolton Parkway extension provides sufficient capacity for the anticipated traffic and the provision of local roads and/or consolidated accesses in the northern section of the Humber Station Employment Area is sufficient for the proposed land-uses.

The recommendation for the internal road network under the 2028 interim horizon includes the partial buildout of George Bolton Parkway to facilitate access for Parcel 1. The ultimate 2033 and 2043 conditions include the full western extension of George Bolton Parkway, connecting Coleraine Drive to Humber Station Road as well as local connections to Humber Station Road, Healey Road, and Mayfield Road are proposed to accommodate full buildout of the subject lands. All five site accesses are proposed as unsignalized intersections in the interim. The future intersection of George Bolton Parkway & Humber Station Road is proposed as a full-movement signalized intersection under ultimate conditions. As detailed in **Section 7** below, the proposed internal road network can sufficiently accommodate the anticipated site trips.

Of note, the planned infrastructure improvements within the site could be advanced to further the development of the ultimate road network. Furthermore, the alignment of George Bolton Parkway as well as the need and justification for additional connections will be evaluated through future master plan and environment assessment studies.

Figure 6-3 illustrates the ultimate 2043 road network.

Figure 6-3: 2043 Future Road Network



Note: Lane configuration and traffic control for the new site access intersections were based on required improvements from the intersection capacity analysis results in **Section 7**.

6.2 FUTURE TOTAL SYNCHRO MODEL INPUTS

Input parameters from the existing and future background scenarios were maintained with corresponding future total volumes, with the exception of the following changes:

- Humber Station Road & George Bolton Parkway (Subject Lands Site Access 1)
    - New intersection to facilitate access for the subject lands. The intersection is recommended as an unsignalized intersection under the 2028 horizon year and as a signalized intersection under the 2033 and 2043 horizons. Partial buildout of the George Bolton Parkway extension was assumed under the 2028 horizon. Ultimate 2033 & 2043 conditions include the full western extension of George Bolton Parkway, connecting Coleraine Drive to Humber Station Road.
- Subject Lands Site Access 2 & Humber Station Road
    - New intersection to facilitate access for the subject lands. The intersection is recommended as an unsignalized intersection under the 2033 and 2043 horizon years.
- Subject Lands Site Access 3 & Humber Station Road
    - New intersection to facilitate access for the subject lands. The intersection is recommended as an unsignalized intersection under the 2033 and 2043 horizon years.
- Subject Lands Site Access 4 & Healey Road
    - New intersection to facilitate access for the subject lands. The intersection is recommended as an unsignalized intersection under the 2033 and 2043 horizon years.
- Subject Land Site Access 5 & Mayfield Road
    - New intersection to facilitate access for the subject lands. The intersection is recommended as an unsignalized intersection under the 2033 and 2043 horizon years.

6.3 FUTURE TOTAL TRAFFIC VOLUMES

The future total traffic volumes for the weekday AM and PM peak hours under the 2028, 2033, and 2043 horizon years are illustrated in **Figure 6-4**, **Figure 6-5**, and **Figure 6-6**, respectively.

Figure 6-4: 2028 Future Total Peak Hour Traffic Volumes

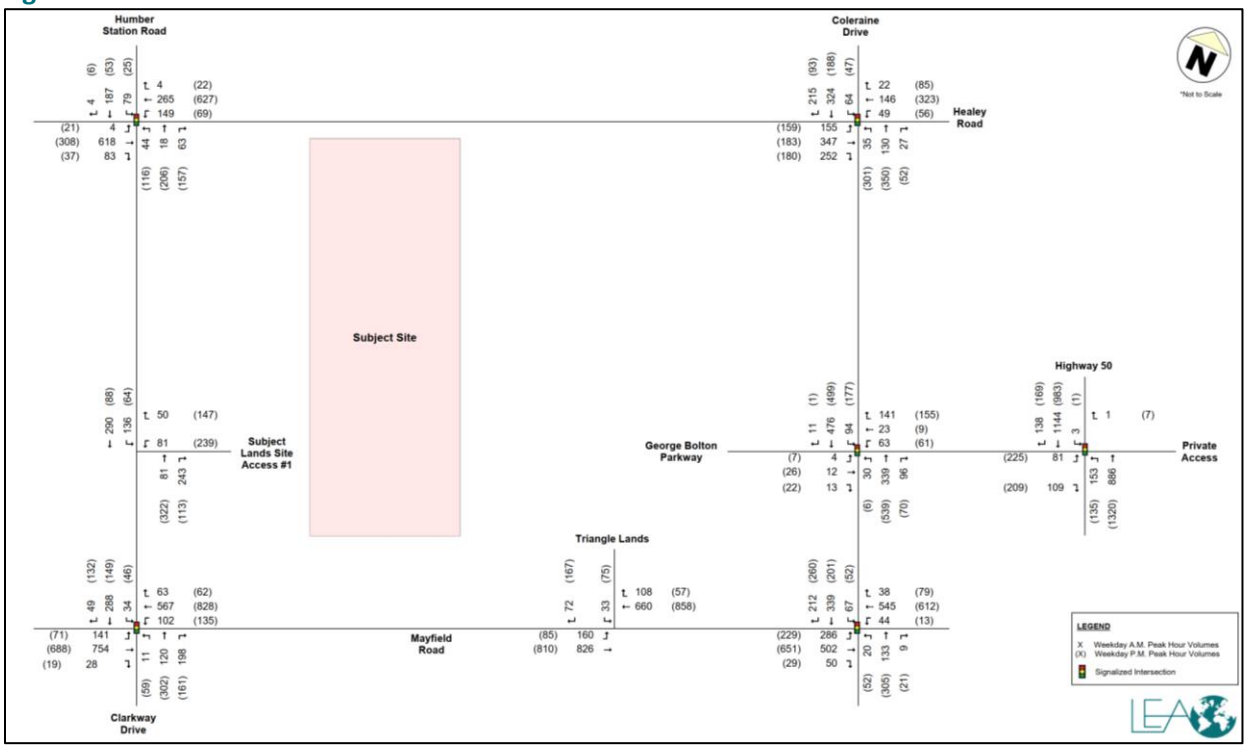


Figure 6-5: 2033 Future Total Peak Hour Traffic Volumes

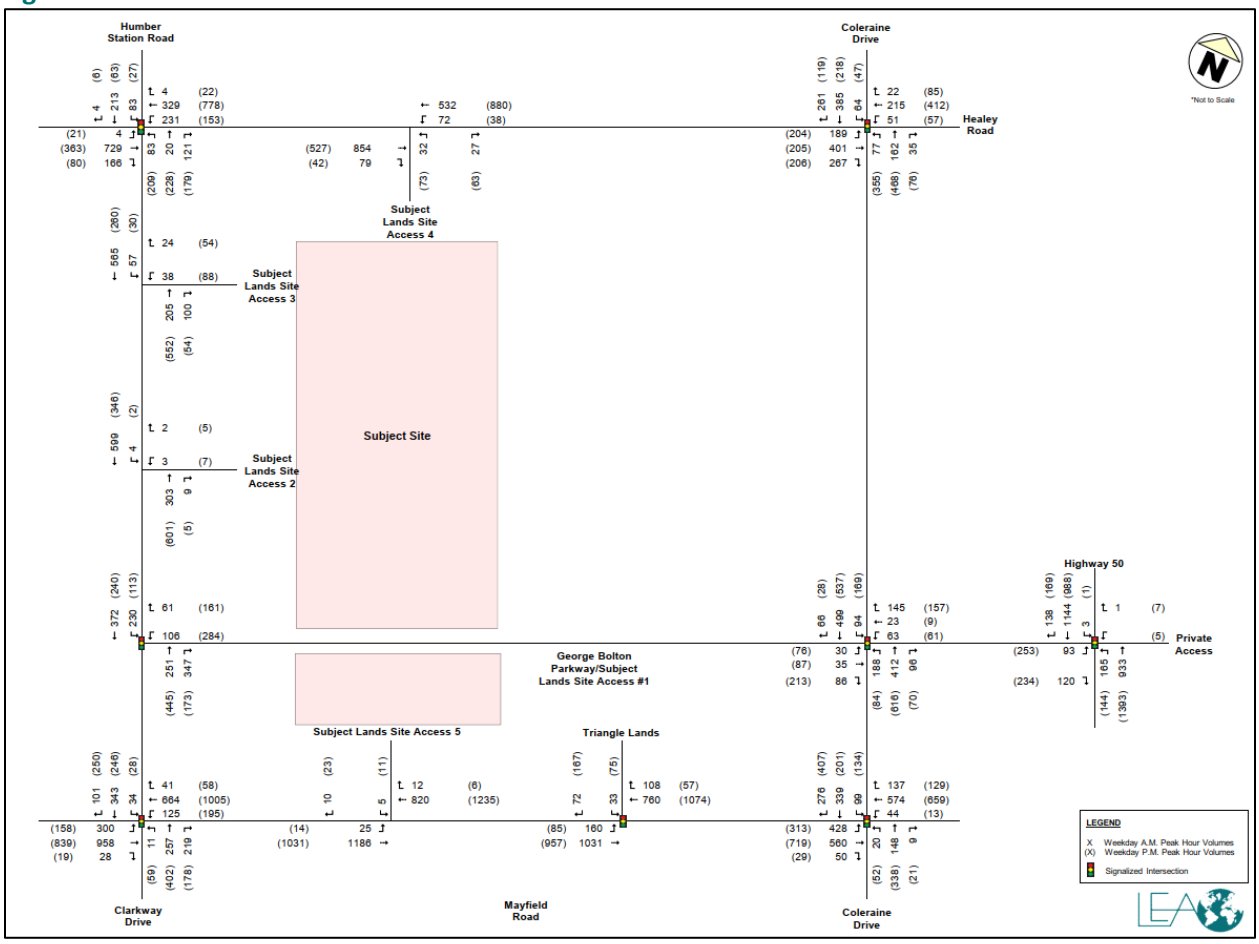
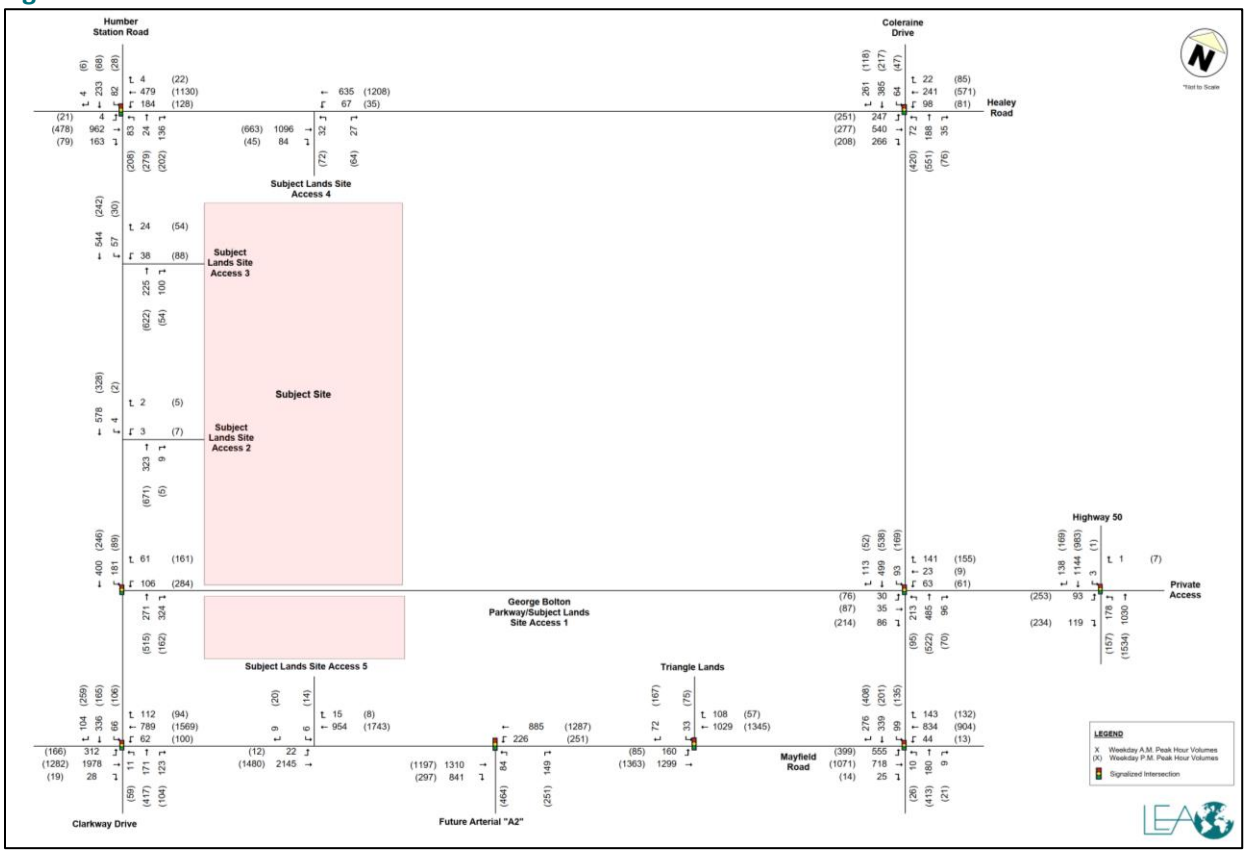


Figure 6-6: 2043 Future Total Peak Hour Traffic Volumes



7 INTERSECTION CAPACITY ANALYSIS

The intersection capacity analysis was undertaken using Synchro 11.0, which is based on the Highway Capacity Manual (HCM) (2000) and adheres to the Town of Caledon's Transportation Impact Studies Terms of Reference and Guidelines dated March 2017. HCM 2000 and 6 results are presented for signalized and unsignalized study intersections, respectively. As per the Town of Caledon guidelines, critical movements of interest for signalized intersections were identified as those with a volume-to-capacity (v/c) ratio greater than 0.90 for overall intersection operations, through movements or shared through/turning movements and a v/c ratio greater than 1.00 for exclusive turning movements. For unsignalized intersections, critical movements were identified as those with a level-of-service (LOS) 'E' or greater. LOS definitions are included in **Appendix H**.

The following sections outline a comparison of the capacity analysis results under existing, future background (2028, 2033, 2043), and future total (2028, 2033, 2043) conditions. Detailed capacity analysis results are provided in the following appendices:

- **Appendix I:** Existing Intersection Capacity Analysis;
- **Appendix J:** 2028, 2033, and 2043 Future Background Intersection Capacity Analysis; and
- **Appendix K:** 2028, 2033, and 2043 Future Total Intersection Capacity Analysis.

Of note, the planned infrastructure improvements detailed within this section could be advanced to further the development of the ultimate road network.

7.1 EXISTING SIGNALIZED INTERSECTIONS

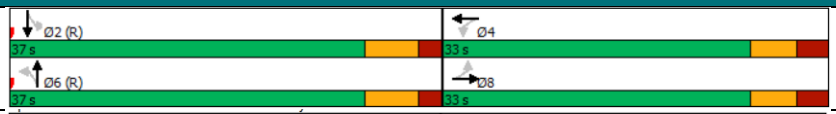
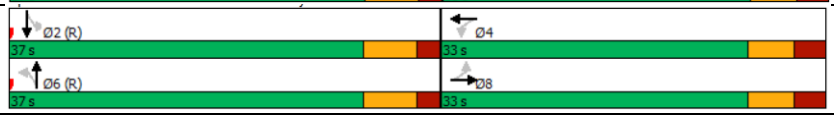
The results for the existing signalized intersections under each traffic scenario during the weekday AM and PM peak hours are summarized in the sections below.

7.1.1 Coleraine Drive & Healey Road

In order to improve traffic conditions and accommodate future traffic growth at the intersection, optimized signal timing plans, including a cycle length increased from 70 seconds to 120 seconds was applied during the PM peak hour. The signal timing optimizations for the future horizons are summarized in **Table 7-1**.

Furthermore, consistent with the recommendations in the *Town of Caledon Multi-Modal Transportation Master Plan (2024),* Healey Road was assumed to be widened to 4 lanes by the 2033 horizon.

Table 7-1: Signal Timing Optimizations, Coleraine Drive & Healey Road

Horizon	Cycle Length (s)	Signal Timing
Existing, 2028, 2033, and 2043 Weekday AM	70	
Existing & 2028 Weekday PM	70	

Horizon	Cycle Length (s)	Signal Timing
2033 & 2043 Weekday PM (Optimized)	120	

The intersection capacity analysis at Coleraine Drive & Healey Road under the 2028, 2033, and 2043 horizon years are summarized in **Table 7-2**, **Table 7-3**, and **Table 7-4**, respectively, for the weekday AM and PM peak hours.

Table 7-2: Intersection Capacity Analysis, Coleraine Drive & Healey Road (2028)

AM	Existing Conditions (2023)				Future Background (2028)				Future Total (2028)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	Delay (LOS)	Queue 50th/ 95th
Overall	-	0.50	20 (C)	-	-	0.60	25 (C)	-	-	0.62	26 (C)	-
EBL	121	0.34	18 (B)	13/25	140	0.37	17 (B)	15/29	155	0.42	17 (B)	17/33
EBTR	492	0.85	33 (C)	58/105	**585**	**0.94**	**44 (D)**	**74/140**	**599**	**0.95**	**46 (D)**	**77/145**
WBL	24	0.28	19 (B)	3/9	49	0.63	33 (C)	6/24	49	0.63	33 (C)	6/24
WBTR	123	0.23	17 (B)	11/22	145	0.25	16 (B)	13/26	168	0.28	16 (B)	16/30
NBL	26	0.07	10 (B)	2/7	35	0.11	12 (B)	3/9	35	0.12	12 (B)	3/9
NBTR	123	0.10	10 (B)	4/9	157	0.13	12 (B)	6/11	157	0.13	12 (B)	6/11
SBL	64	0.16	11 (B)	5/13	64	0.17	13 (B)	6/14	64	0.18	13 (B)	6/14
SBTR	427	0.26	11 (B)	12/22	486	0.32	13 (B)	16/27	539	0.34	14 (B)	16/27
PM	Existing Conditions (2023)				Future Background (2028)				Future Total (2028)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	Delay (LOS)	Queue 50th/ 95th)	Vol	V/C	Delay (LOS)	Queue 50th/ 95th
Overall	-	0.58	18 (B)	-	-	0.71	21 (C)	-	-	0.82	24 (C)	-
EBL	101	0.65	31 (C)	13/27	117	0.83	51 (D)	16/41	**159**	**0.99**	**89 (F)**	**22/58**
EBTR	272	0.52	22 (C)	26/43	320	0.58	22 (C)	32/52	363	0.62	22 (C)	34/61
WBL	43	0.22	20 (C)	5/11	56	0.30	20 (B)	6/15	56	0.31	18 (B)	6/15
WBTR	341	0.74	29 (C)	43/63	397	0.79	30 (C)	51/76	408	0.75	26 (C)	48/79
NBL	254	0.50	14 (B)	23/53	301	0.65	19 (B)	32/80	301	0.70	23 (C)	37/81
NBTR	349	0.24	9 (A)	13/25	402	0.29	11 (B)	17/29	402	0.30	12 (B)	19/29
SBL	47	0.13	9 (A)	3/11	47	0.14	10 (B)	4/11	47	0.15	11 (B)	4/11
SBTR	226	0.14	9 (A)	6/14	257	0.17	10 (A)	8/16	281	0.19	11 (B)	9/16

Table 7-3: Intersection Capacity Analysis, Coleraine Drive & Healey Road (2033)

AM	Existing Conditions (2023)				Future Background (2033)				Future Total (2033)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-	0.50	20 (C)	-	-	0.38	B (18)	-	-	0.50	B (18)	-
EBL	121	0.34	18 (B)	13/25	162	0.61	C (27)	22/35	189	0.77	D (36)	25/44
EBTR	492	0.85	33 (C)	58/105	639	0.63	C (25)	31/40	668	0.57	C (23)	28/39
WBL	24	0.28	19 (B)	3/9	49	0.56	C (30)	7/16	51	0.53	C (27)	6/17
WBTR	123	0.23	17 (B)	11/22	171	0.41	C (22)	20/31	237	0.52	C (22)	28/43
NBL	26	0.07	10 (B)	2/7	35	0.08	A (8)	2/8	77	0.25	B (11)	6/18
NBTR	123	0.10	10 (B)	4/9	169	0.11	A (8)	5/12	197	0.13	A (9)	6/14
SBL	64	0.16	11 (B)	5/13	64	0.14	A (8)	4/13	64	0.15	A (9)	5/14
SBTR	427	0.26	11 (B)	12/22	486	0.26	A (9)	12/27	646	0.35	B (10)	16/32
PM	Existing Conditions (2023)				Future Background				Future Total			

					(2033 - Optimized)				(2033 - Optimized)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-	0.58	18 (B)	-	-	0.79	C (32)	-	**-**	**0.94**	**D (40)**	**-**
EBL	101	0.65	31 (C)	13/27	135	0.60	C (24)	28/43	204	0.83	D (42)	38/74
EBTR	272	0.52	22 (C)	26/43	346	0.20	B (19)	31/40	411	0.21	B (11)	26/33
WBL	43	0.22	20 (C)	5/11	56	0.22	C (31)	11/23	57	0.24	C (31)	12/25
WBTR	341	0.74	29 (C)	43/63	464	0.89	E (56)	114/178	**497**	**0.96**	**E (68)**	**133/209**
NBL	254	0.50	14 (B)	23/53	332	0.71	C (28)	61/92	355	0.91	D (54)	69/124
NBTR	349	0.24	9 (A)	13/25	470	0.37	C (23)	44/61	544	0.46	C (27)	54/71
SBL	47	0.13	9 (A)	3/11	47	0.26	D (36)	11/23	47	0.32	D (42)	11/23
SBTR	226	0.14	9 (A)	6/14	257	0.30	C (35)	26/39	337	0.43	D (40)	32/48

Table 7-4: Intersection Capacity Analysis, Coleraine Drive & Healey Road (2043)

AM	Existing Conditions (2023)				Future Background (2043)				Future Total (2043)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-	0.50	20 (C)	-	-	0.48	B (20)	-	-	0.63	C (23)	-
EBL	121	0.34	18 (B)	13/25	219	0.77	C (33)	28/53	247	0.84	D (40)	31/70
EBTR	492	0.85	33 (C)	58/105	778	0.71	C (24)	45/60	806	0.68	C (22)	42/61
WBL	24	0.28	19 (B)	3/9	49	0.56	C (28)	6/20	**98**	**0.98**	**F (104)**	**13/42**
WBTR	123	0.23	17 (B)	11/22	243	0.47	C (20)	27/44	263	0.47	B (19)	28/48
NBL	26	0.07	10 (B)	2/7	35	0.09	A (10)	3/9	72	0.27	B (14)	7/17
NBTR	123	0.10	10 (B)	4/9	195	0.14	A (10)	7/14	223	0.16	B (11)	9/15
SBL	64	0.16	11 (B)	5/13	64	0.16	B (11)	5/14	64	0.17	B (12)	6/14
SBTR	427	0.26	11 (B)	12/22	486	0.29	B (11)	15/27	646	0.38	B (13)	19/32
PM	**Existing Conditions (2023)**				**Future Background (2043 - Optimized)**				**Future Total (2043 - Optimized)**			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-	0.58	18 (B)	-	**-**	**1.04**	**E (62)**	**-**	**-**	**1.17**	**E (80)**	**-**
EBL	101	0.65	31 (C)	13/27	183	0.80	D (50)	43/64	251	0.97	E (78)	51/109
EBTR	272	0.52	22 (C)	26/43	417	0.24	C (32)	44/56	485	0.27	C (26)	37/47
WBL	43	0.22	20 (C)	5/11	56	0.23	C (29)	11/24	81	0.39	C (34)	17/34
WBTR	341	0.74	29 (C)	43/63	**646**	**1.16**	**F (131)**	**210/296**	**656**	**1.28**	**F (184)**	**227/304**
NBL	254	0.50	14 (B)	23/53	400	0.94	E (59)	81/142	**420**	**1.09**	**F (104)**	**93/180**
NBTR	349	0.24	9 (A)	13/25	553	0.47	C (27)	56/73	627	0.53	C (28)	65/84
SBL	47	0.13	9 (A)	3/11	47	0.32	D (42)	11/23	47	0.35	D (44)	11/24
SBTR	226	0.14	9 (A)	6/14	256	0.34	D (38)	26/39	335	0.42	D (39)	31/47

Existing Conditions: The signalized intersection operates within capacity, with acceptable delays and an overall LOS of 'C' or better during the weekday AM and PM peak hours. No critical movements have been identified under existing conditions.

Future Background Conditions: Volumes from background development traffic and growth are expected to increase delays and v/c ratios at the intersection. With the widening along Healey Road, the intersection is forecasted to operate sufficiently during the AM peak hour under all horizons. However, despite signal optimization, the PM peak hour is expected to operate overcapacity under the 2043 horizon. Notably, the WBTR and NBL movements operate with capacity constraints or are approaching capacity. This can be attributed to the increase in background trips and growth along Healey Road.

Future Total Conditions: The intersection is expected to experience some increase in delays and v/c ratios when compared to future background conditions. Under the 2028 horizon and with existing signal timings, the EBTR movement during the AM peak hour is approaching capacity. However, with the widening of Healey Road, this movement operates sufficiently during the 2033 and 2043 horizons. While the WBL movement is expected to operate with a LOS of 'F' under the 2043 horizon, the movement operates within capacity.

During the PM peak, the intersection continues to operate with capacity constraints under the 2043 horizon similar to future background conditions. Notably, the WBTR and NBL movements operate with v/c ratios greater than 1.00. While we recognize the NBL movement is anticipated to experience worsened operations due to site traffic, the movement approaches capacity under future background conditions. Site traffic contributes only 20 trips to the movement (5% of traffic at the movement). The identified constraints occur under future background conditions and can be attributed to background growth. Overall, this intersection is expected to operate sufficiently under all future horizons.

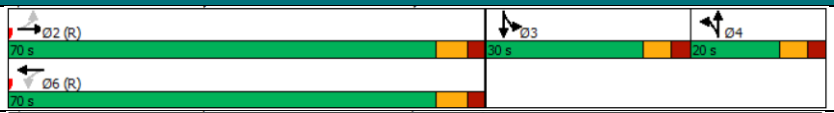
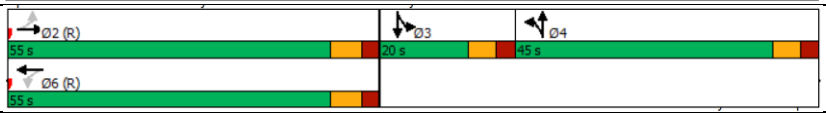
7.1.2 Clarkway Drive/Humber Station Road & Mayfield Road

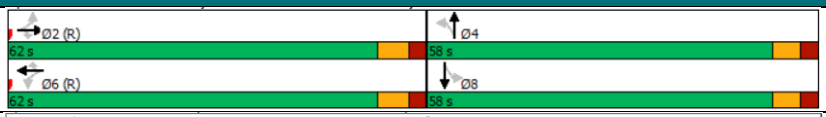
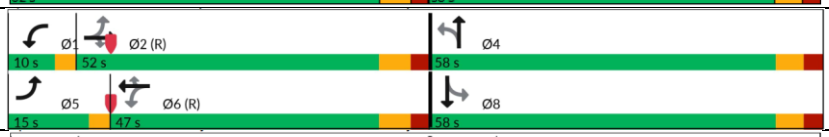
As per the *Peel Region Long Range Transportation Plan (2019)*, Mayfield Road is planned to be widened from 2 to 6 lanes west of Humber Station Road and from 2 to 4 lanes between Humber Station Road and Highway 50 by 2031. However, based on correspondence with Peel Region staff, it is understood that this improvement is scheduled for construction starting 2026. It is further understood that the widening of Mayfield Road will include realignment of the north and south legs of Humber Station Road to eliminate the existing jogged intersection and split phasing. As such, completion of these improvements has been incorporated into the analysis by the 2028 horizon year. Consistent with the recommendations in the *Peel Region Long Range Transportation Plan (2019)*, Mayfield Road was assumed to be widened to 6 lanes between Humber Station and Coleraine Drive by the 2043 horizon. Furthermore, consistent with the recommendations in the *Town of Caledon Multi-Modal Transportation Master Plan (2024),* Humber Station Road was assumed to be widened to 4 lanes by the 2033 horizon.

As per the *Mayfield Road Improvement Class Environment Assessment (April 2013),* exclusive left- and right-turning lanes for the westbound and eastbound directions, and exclusive left turning lanes for the northbound and southbound directions have been included in the analysis.

To reflect the realignment of Humber Station Road and removal of the existing split phasing, optimized signal timing plans were applied during both peak hours while maintaining the overall cycle length. The signal timing optimizations for the future horizons are summarized in **Table 7-5**.

Table 7-5: Signal Timing Optimizations, Clarkway Drive/Humber Station Road & Mayfield Road

Horizon	Cycle Length (s)	Signal Timing
Existing Weekday AM	120	
2028, 2033, and 2043 Weekday AM (Optimized)	120	
Existing Weekday PM	120	

Horizon	Cycle Length (s)	Signal Timing
2028 Weekday PM (Optimized)	120	
2033 Weekday PM (Optimized)	120	
2043 Weekday PM (Optimized)	120	

The intersection capacity analysis at Clarkway Drive/Humber Station Road & Mayfield Road under the 2028, 2033, and 2043 horizon years are summarized in **Table 7-6**, **Table 7-7**, and **Table 7-8**, respectively, for the weekday AM and PM peak hours.

Table 7-6: Intersection Capacity Analysis, Clarkway Drive/Humber Station Road & Mayfield Road (2028)

AM	Existing Conditions (2023)				Future Background (2028 - Optimized)				Future Total (2028 - Optimized)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	Delay (LOS)	Queue 50th/ 95th
Overall	-	0.81	41 (D)	-	-	0.39	19 (B)	-	-	0.47	22 (C)	-
EBL	-	-	-	-	8	0.02	6 (A)	1/3	141	0.34	12 (B)	16/36
EBT	559	0.72	27 (C)	106/153	754	0.26	8 (A)	25/38	754	0.28	10 (B)	30/45
EBR	-	-	-	-	28	0.02	6 (A)	0/3	28	0.02	8 (A)	0/4
WBL	-	-	-	-	102	0.27	9 (A)	9/23	102	0.30	12 (B)	11/27
WBT	541	0.79	32 (C)	110/165	567	0.29	8 (A)	27/44	567	0.31	10 (B)	33/53
WBR	-	-	-	-	21	0.02	6 (A)	0/2	63	0.05	8 (A)	0/6
NBL	-	-	-	-	11	0.12	40 (D)	2/7	11	0.11	35 (D)	2/7
NBTR	**170**	**0.89**	**86 (F)**	**44/92**	250	0.44	43 (D)	24/48	318	0.68	45 (D)	58/84
SBL	-	-	-	-	23	0.21	41 (D)	5/13	34	0.29	38 (D)	7/16
SBTR	257	0.83	64 (E)	63/101	267	0.76	55 (D)	66/89	337	0.81	54 (D)	82/107
PM	**Existing Conditions (2023)**				**Future Background (2028 - Optimized)**				**Future Total (2028 - Optimized)**			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	Delay (LOS)	Queue 50th/ 95th
Overall	**-**	**0.92**	**52 (D)**	**-**	-	0.58	22 (C)	-	-	0.61	24 (C)	-
EBL	-	-	-	-	10	0.04	11 (B)	1/4	71	0.32	18 (B)	9/26
EBT	556	0.75	33 (C)	118/199	688	0.26	12 (B)	30/46	688	0.28	14 (B)	32/49
EBR	-	-	-	-	19	0.01	10 (B)	0/2	19	0.01	12 (B)	0/2
WBL	-	-	-	-	135	0.40	17 (B)	18/42	135	0.42	19 (B)	19/45
WBT	**701**	**0.99**	**64 (E)**	**195/290**	828	0.45	15 (B)	60/92	828	0.47	17 (B)	64/98
WBR	-	-	-	-	42	0.03	11 (B)	0/6	62	0.05	12 (B)	0/8
NBL	-	-	-	-	59	0.19	32 (C)	11/20	59	0.27	31 (C)	11/21
NBTR	413	0.88	58 (E)	99/136	431	0.83	50 (D)	96/122	463	0.84	49 (D)	104/129
SBL	-	-	-	-	11	0.11	31 (C)	2/6	46	0.46	36 (D)	9/20
SBTR	74	0.58	60 (E)	18/34	77	0.15	31 (C)	14/24	281	0.56	35 (D)	59/77

Table 7-7: Intersection Capacity Analysis, Clarkway Drive/Humber Station Road & Mayfield Road (2033)

AM	Existing Conditions (2023)				Future Background (2033 - Optimized)				Future Total (2033- Optimized)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-	0.81	41 (D)	-	-	0.37	B (20)	-	**-**	**0.93**	**C (30)**	**-**
EBL	-	-	-	-	8	0.01	A (5)	1/3	300	0.95	E (63)	72/141
EBT	559	0.72	27 (C)	106/153	848	0.27	A (6)	24/40	958	0.38	B (15)	50/65
EBR	-	-	-	-	28	0.02	A (5)	0/3	28	0.02	B (12)	0/4
WBL	-	-	-	-	102	0.28	A (8)	8/21	125	0.55	C (24)	19/49
WBT	541	0.79	32 (C)	110/165	623	0.29	A (6)	26/43	664	0.39	B (15)	50/62
WBR	-	-	-	-	21	0.01	A (4)	0/2	41	0.03	B (11)	0/6
NBL	-	-	-	-	11	0.09	D (43)	2/7	11	0.05	C (29)	2/6
NBTR	**170**	**0.89**	**86 (F)**	**44/92**	269	0.71	E (57)	40/66	476	0.89	E (57)	107/150
SBL	-	-	-	-	23	0.40	E (63)	6/15	34	0.39	D (38)	7/19
SBTR	257	0.83	64 (E)	63/101	280	0.51	E (57)	37/49	444	0.42	D (35)	47/63
PM	**Existing Conditions (2023)**				**Future Background (2033 - Optimized)**				**Future Total (2033- Optimized)**			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	**-**	**0.92**	**52 (D)**	**-**	-	0.66	C (26)	-	-	0.87	D (35)	-
EBL	-	-	-	-	10	0.05	B (17)	1/4	158	0.76	D (38)	21/58
EBT	556	0.75	33 (C)	118/199	783	0.37	C (22)	48/68	839	0.47	C (28)	60/74
EBR	-	-	-	-	19	0.01	B (18)	0/0	19	0.01	C (22)	0/0
WBL	-	-	-	-	135	0.40	B (14)	15/30	195	0.69	C (29)	26/57
WBT	**701**	**0.99**	**64 (E)**	**195/290**	905	0.54	C (20)	72/128	1005	0.85	D (43)	132/178
WBR	-	-	-	-	42	0.03	B (14)	0/0	58	0.04	C (24)	0/4
NBL	-	-	-	-	59	0.17	C (30)	11/19	59	0.25	C (26)	10/20
NBTR	413	0.88	58 (E)	99/136	473	0.83	D (49)	106/131	580	0.90	D (51)	131/176
SBL	-	-	-	-	11	0.11	C (33)	2/6	28	0.31	C (24)	6/14
SBTR	74	0.58	60 (E)	18/34	80	0.06	C (32)	6/11	496	0.33	B (19)	34/44

Table 7-8: Intersection Capacity Analysis, Clarkway Drive/Humber Station Road & Mayfield Road (2043)

AM	Existing Conditions (2023)				Future Background (2043 - Optimized)				Future Total (2043- Optimized)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-	0.81	41 (D)	-	-	0.59	B (15)	-/-	**-**	**0.93**	**C (25)**	**-/-**
EBL	-	-	-	-	8	0.02	A (5)	1/3	312	0.93	D (52)	66/146
EBT	559	0.72	27 (C)	106/153	1878	0.56	A (9)	75/108	1978	0.65	B (14)	104/148
EBR	-	-	-	-	28	0.02	A (5)	0/3	28	0.02	A (7)	0/4
WBL	-	-	-	-	51	0.56	C (30)	4/33	**62**	**0.98**	**F (122)**	**15/49**
WBT	541	0.79	32 (C)	110/165	751	0.24	A (5)	19/25	789	0.27	A (7)	20/34
WBR	-	-	-	-	21	0.01	A (4)	0/1	112	0.08	A (3)	0/3
NBL	-	-	-	-	11	0.09	D (43)	2/8	11	0.09	D (37)	2/7
NBTR	**170**	**0.89**	**86 (F)**	**44/92**	190	0.72	E (57)	46/67	294	0.79	D (55)	71/95
SBL	-	-	-	-	23	0.19	D (47)	5/15	66	0.59	E (59)	16/33
SBTR	257	0.83	64 (E)	63/101	309	0.55	D (50)	42/56	440	0.57	D (52)	52/70
PM	**Existing Conditions (2023)**				**Future Background**				**Future Total**			

					(2043 - Optimized)				(2043- Optimized)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	**-**	**0.92**	**52 (D)**	**-**	-	0.71	C (25)	-/-	**-**	**0.92**	**D (41)**	**-/-**
EBL	-	-	-	-	10	0.10	B (18)	1/4	166	0.88	E (66)	28/71
EBT	556	0.75	33 (C)	118/199	1232	0.55	C (24)	79/115	1282	0.70	C (33)	103/121
EBR	-	-	-	-	19	0.01	B (17)	0/0	19	0.01	C (23)	0/0
WBL	-	-	-	-	68	0.36	B (13)	5/15	100	0.63	C (32)	12/29
WBT	**701**	**0.99**	**64 (E)**	**195/290**	1479	0.62	B (17)	72/153	**1569**	**0.96**	**D (47)**	**153/188**
WBR	-	-	-	-	42	0.03	B (15)	0/0	94	0.07	B (13)	1/4
NBL	-	-	-	-	59	0.18	C (31)	11/21	59	0.24	C (30)	11/23
NBTR	413	0.88	58 (E)	99/136	467	0.88	E (56)	109/147	**521**	**0.93**	**E (61)**	**123/187**
SBL	-	-	-	-	10	0.10	C (32)	2/4	106	0.69	D (48)	12/35
SBTR	74	0.58	60 (E)	18/34	88	0.07	C (26)	6/10	424	0.26	B (17)	12/20

Existing Conditions: The signalized intersection operates within capacity, with acceptable delays and an overall LOS of 'D' during both weekday AM and PM peak hours. The NBTR movement during the AM peak hour experiences some delay and a LOS of 'F'; however, operates with residual capacity. During the PM peak hour, the overall intersection operates with a v/c above 0.90. Notably, the WBLTR movement is approaching capacity and operating with a LOS of 'E'. It should be noted that these conditions improve under future horizons as a result of widening of Mayfield Road from 2 to 6 lanes west of Humber Station Road and from 2 to 4 lanes east of Humber Station Road, under the 2028 horizon, and to its ultimate 6-lane cross-section between Humber Station Road and Coleraine Drive by the 2043 horizon.

Future Background Conditions: With signal optimization and widening of Mayfield Road and Humber Station Road, the intersection operates acceptably under future background conditions with acceptable delays and an overall LOS of 'C' or better during both peak hours and under all horizons. No critical movements have been identified.

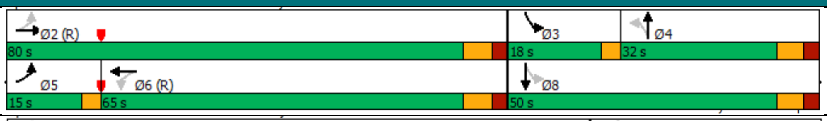
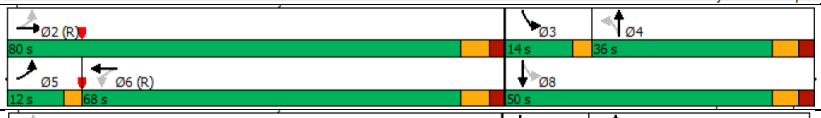
Future Total Conditions: The intersection is expected to experience some increase in delays and v/c ratios when compared to future background conditions. Notably, the WBL during the AM peak hour and WBT and NBTR movements during the PM peak hour under the 2043 horizon are expected to approach capacity; however, all movements are expected to operate sufficiently and with acceptable delay. No new constraints have been identified as a result of site traffic.

7.1.3 Coleraine Drive & Mayfield Road

As per the *Peel Region Long Range Transportation Plan (2019)*, Mayfield Road is planned to be widened from 2 to 4 lanes between Humber Station Road and Highway 50 by 2031. However, as previously noted, this improvement is scheduled for construction starting 2026. As such, completion of this improvement has been incorporated into the analysis by the 2028 horizon year. Furthermore, consistent with the recommendations in the *Peel Region Long Range Transportation Plan (2019*), Mayfield Road was assumed to be widened to 6 lanes between Humber Station and Coleraine Drive by the 2043 horizon and Coleraine Drive was assumed to be widened to 4 lanes between Mayfield Road and Highway 50.

In order to improve traffic conditions and accommodate future traffic growth at the intersection, optimized signal timing plans were applied during both peak hours while maintaining the overall cycle length. The signal timing optimizations for the future horizons are summarized in **Table 7-9**.

Table 7-9: Signal Timing Optimizations, Coleraine Drive & Mayfield Road

Horizon	Cycle Length (s)	Signal Timing
Existing, 2028, & 2033 Weekday AM	130	
2043 Weekday AM (Optimized)	130	
Existing, 2028, & 2033 Weekday PM	130	
2043 Weekday PM (Optimized)	130	

The intersection capacity analysis at Coleraine Drive & Mayfield Road under the 2028, 2033, and 2043 horizon years are summarized in **Table 7-10**, **Table 7-11**, and **Table 7-12**, respectively, for the weekday AM and PM peak hours.

Table 7-10: Intersection Capacity Analysis, Coleraine Drive & Mayfield Road (2028)

AM	Existing Conditions (2023)				Future Background (2028)				Future Total (2028)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	Delay (LOS)	Queue 50th/ 95th
Overall	-	0.55	26 (C)	-	-	0.70	27 (C)	-	-	0.71	27 (C)	-
EBL	234	0.46	9 (A)	21/37	286	0.62	12 (B)	28/51	286	0.65	12 (B)	28/51
EBTR	386	0.21	8 (A)	19/30	541	0.29	9 (A)	31/47	552	0.30	9 (A)	32/49
WBL	44	0.10	14 (B)	6/15	44	0.13	16 (B)	7/17	44	0.13	16 (B)	7/17
WBTR	423	0.27	15 (B)	32/52	541	0.35	18 (B)	47/72	583	0.38	19 (B)	52/78
NBL	20	0.27	50 (D)	5/15	20	0.37	57 (E)	6/15	20	0.37	57 (E)	6/15
NBTR	130	0.26	48 (D)	17/28	142	0.38	53 (D)	21/31	142	0.38	53 (D)	21/31
SBL	15	0.11	42 (D)	4/10	67	0.34	43 (D)	17/28	67	0.34	43 (D)	17/28
SBTR	473	0.74	52 (D)	67/81	551	0.79	54 (D)	71/84	551	0.79	54 (D)	71/84
PM	**Existing Conditions (2023)**				**Future Background (2028)**				**Future Total (2028)**			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	Delay (LOS)	Queue 50th/ 95th
Overall	-	0.41	27 (C)	-	-	0.59	26 (C)	-	-	0.60	26 (C)	-
EBL	168	0.35	7 (A)	14/28	229	0.57	11 (B)	22/40	229	0.58	11 (B)	22/40
EBTR	487	0.22	7 (A)	24/38	645	0.30	9 (A)	38/55	680	0.32	9 (A)	40/59
WBL	13	0.03	11 (B)	2/6	13	0.04	14 (B)	2/6	13	0.04	14 (B)	2/6
WBTR	496	0.27	13 (B)	35/57	671	0.40	18 (B)	57/83	691	0.42	18 (B)	60/86
NBL	52	0.50	56 (E)	14/28	52	0.48	55 (E)	14/28	52	0.48	55 (E)	14/28
NBTR	298	0.68	58 (E)	43/57	326	0.70	58 (E)	47/61	326	0.70	58 (E)	47/61
SBL	25	0.22	45 (D)	6/13	52	0.36	43 (D)	12/22	52	0.36	43 (D)	12/22
SBTR	420	0.44	47 (D)	27/41	461	0.41	44 (D)	26/41	461	0.41	44 (D)	26/41

Table 7-11: Intersection Capacity Analysis, Coleraine Drive & Mayfield Road (2033)

AM	Existing Conditions (2023)				Future Background (2033)				Future Total (2033)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-	0.55	26 (C)	-	-	0.77	C (28)	-	**-**	**0.98**	**D (37)**	**-**
EBL	234	0.46	9 (A)	21/37	329	0.71	B (15)	34/59	428	0.98	E (59)	69/161
EBTR	386	0.21	8 (A)	19/30	601	0.32	A (9)	35/54	610	0.33	A (10)	38/57
WBL	44	0.10	14 (B)	6/15	44	0.14	B (18)	7/17	44	0.16	C (23)	8/17
WBTR	423	0.27	15 (B)	32/52	590	0.40	C (21)	58/79	711	0.55	C (28)	80/97
NBL	20	0.27	50 (D)	5/15	20	0.37	E (57)	6/15	20	0.44	E (60)	6/15
NBTR	130	0.26	48 (D)	17/28	157	0.41	D (54)	24/34	157	0.46	E (55)	24/34
SBL	15	0.11	42 (D)	4/10	67	0.34	D (43)	17/28	99	0.45	D (43)	25/38
SBTR	473	0.74	52 (D)	67/81	551	0.78	D (54)	71/84	615	0.79	D (53)	75/87
PM	Existing Conditions (2023)				Future Background (2033)				Future Total (2033)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-	0.41	27 (C)	-	-	0.67	C (27)	-	-	0.83	C (33)	-
EBL	168	0.35	7 (A)	14/28	259	0.65	B (18)	24/49	313	0.82	D (39)	38/77
EBTR	487	0.22	7 (A)	24/38	728	0.34	A (9)	41/56	748	0.36	B (10)	45/58
WBL	13	0.03	11 (B)	2/6	13	0.04	B (15)	2/6	13	0.05	B (19)	2/6
WBTR	496	0.27	13 (B)	35/57	726	0.44	B (20)	68/91	788	0.54	C (26)	80/100
NBL	52	0.50	56 (E)	14/28	52	0.44	D (53)	14/27	52	0.56	E (59)	14/28
NBTR	298	0.68	58 (E)	43/57	359	0.72	E (58)	51/66	359	0.72	E (58)	51/66
SBL	25	0.22	45 (D)	6/13	52	0.36	D (42)	11/21	134	0.72	D (53)	30/47
SBTR	420	0.44	47 (D)	27/41	461	0.39	D (43)	26/40	608	0.57	D (44)	47/65

Table 7-12: Intersection Capacity Analysis, Coleraine Drive & Mayfield Road (2043)

AM	Existing Conditions (2023)				Future Background (2043- Optimized)				Future Total (2043 - Optimized)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-	0.55	26 (C)	-	-	0.90	D (37)	-	**-**	**1.05**	**E (60)**	**-**
EBL	234	0.46	9 (A)	21/37	439	0.89	D (48)	94/150	**555**	**1.08**	**F (99)**	**180/246**
EBTR	386	0.21	8 (A)	19/30	734	0.26	A (8)	29/37	743	0.26	A (8)	32/37
WBL	44	0.10	14 (B)	6/15	44	0.23	C (30)	10/22	44	0.27	D (36)	10/22
WBTR	423	0.27	15 (B)	32/52	849	0.76	D (40)	126/154	**977**	**1.03**	**F (81)**	**168/204**
NBL	20	0.27	50 (D)	5/15	10	0.23	D (46)	3/9	10	0.24	D (45)	2/9
NBTR	130	0.26	48 (D)	17/28	189	0.29	D (44)	26/36	189	0.28	D (43)	25/36
SBL	15	0.11	42 (D)	4/10	67	0.39	D (46)	18/32	99	0.55	D (49)	27/47
SBTR	473	0.74	52 (D)	67/81	551	0.84	E (60)	73/91	615	0.87	E (61)	77/98
PM	Existing Conditions (2023)				Future Background (2043- Optimized)				Future Total (2043 - Optimized)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-	0.41	27 (C)	-	-	0.79	D (35)	-/-	**-**	**0.96**	**D (46)**	**-/-**
EBL	168	0.35	7 (A)	14/28	338	0.81	E (58)	73/137	**399**	**0.99**	**F (94)**	**106/190**
EBTR	487	0.22	7 (A)	24/38	1065	0.35	B (10)	47/58	1085	0.37	B (12)	50/60
WBL	13	0.03	11 (B)	2/6	13	0.09	C (27)	3/8	13	0.10	C (30)	3/8
WBTR	496	0.27	13 (B)	35/57	971	0.81	D (43)	135/170	**1036**	**0.95**	**E (60)**	**149/196**
NBL	52	0.50	56 (E)	14/28	26	0.19	D (47)	6/15	26	0.23	D (48)	6/16

NBTR	298	0.68	58 (E)	43/57	434	0.75	E (57)	62/78	434	0.75	E (57)	62/78
SBL	25	0.22	45 (D)	6/13	52	0.37	D (40)	11/20	135	0.75	D (54)	30/47
SBTR	420	0.44	47 (D)	27/41	461	0.37	D (40)	25/39	609	0.42	D (39)	27/44

Existing Conditions: The signalized intersection operates within capacity, with acceptable delays and an overall LOS of 'C' during both weekday AM and PM peak hours. No critical movements have been identified under existing conditions.

Future Background Conditions: Volumes from background developments and growth are expected to increase delays and v/c ratios. However, with the widening of Mayfield Road, the intersection continues to operate with acceptable delays and an overall LOS of 'D' or better during both peak hours under the 2028 and 2033 horizons. With signal optimization in the 2043 horizon, the intersection is expected to operate sufficiently.

Future Total Conditions: The intersection operates similarly to future background conditions during both peak hours under the 2028 horizon. While the overall intersection is approaching capacity during the AM peak hour under the 2033 horizon, all movements are anticipated to operate with no constraints.

Despite optimization under the 2043 horizon, the intersection is expected to approach capacity during the PM peak hour; however, all movements operate with a v/c ratio less than 1.00. Furthermore, despite optimization, the intersection is expected to operate with capacity constraints during the AM peak hour. Notably, the EBL and WBTR movements are expected to operate with v/c ratios greater than 1. While we recognize both movements experience worsened operations with site traffic, the subject lands contribute proportionally less trips to the network in comparison to background development and growth traffic. (i.e., 116 site-generated trips vs. 205 background generated trips to the EBL movement and 128 site-generated trips vs. 426 background generated trips to the WBTR movement). Despite capacity constraints, both movements can sufficiently progress through the intersection within 1 cycle length. Overall, this intersection is expected to operate sufficiently with optimized signal timing plans.

7.1.4 Coleraine Drive & Private Access/George Bolton Parkway

As per the *Town of Caledon's Multi-Modal Transportation Master Plan (2024),* George Bolton Parkway is planned as a 4-lane connection from Humber Station Road to Coleraine Drive by 2031. However, to understand the minimum road network required to service the lands, George Bolton Parkway was analyzed as a 2-lane cross-section. A sensitivity analysis is provided in **Section 8** detailing operations for George Bolton Parkway as 4-lanes.

The intersection capacity analysis at Coleraine Drive & Private Access/George Bolton Parkway under the 2028, 2033, and 2043 horizon years are summarized in **Table 7-13**, **Table 7-14**, and **Table 7-15**, respectively for the weekday AM and PM peak hours.

Table 7-13: Intersection Capacity Analysis, Coleraine Drive & Private Access/George Bolton Parkway (2028)

AM	Existing Conditions (2023)				Future Background (2028)				Future Total (2028)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	Delay (LOS)	Queue 50th/ 95th
Overall	-	0.25	13 (B)	-	-	0.29	12 (B)	-	-	0.29	12 (B)	-
EBL	4	0.04	37 (D)	1/4	4	0.04	37 (D)	1/4	4	0.04	37 (D)	1/4
EBTR	25	0.09	37 (D)	3/10	25	0.09	37 (D)	3/10	25	0.09	37 (D)	3/10
WBL	63	0.52	43 (D)	14/26	63	0.52	43 (D)	14/26	63	0.52	43 (D)	14/26
WBTR	164	0.25	39 (D)	5/21	164	0.25	39 (D)	5/21	164	0.25	39 (D)	5/21
NBL	30	0.07	5 (A)	2/6	30	0.08	5 (A)	2/6	30	0.08	5 (A)	2/6
NBTR	374	0.20	5 (A)	10/19	435	0.23	5 (A)	13/23	435	0.23	5 (A)	13/23
SBL	84	0.16	5 (A)	5/13	84	0.18	5 (A)	5/13	94	0.20	6 (A)	6/15
SBT	346	0.18	5 (A)	11/20	476	0.25	5 (A)	16/28	476	0.25	5 (A)	16/28
SBR	11	0.01	4 (A)	0/0	11	0.01	4 (A)	0/0	11	0.01	4 (A)	0/0
PM	Existing Conditions (2023)				Future Background (2028)				Future Total (2028)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	Delay (LOS)	Queue 50th/ 95th
Overall	-	0.36	12 (B)	-	-	0.40	12 (B)	-	-	0.48	12 (B)	-
EBL	7	0.07	38 (D)	2/5	7	0.07	38 (D)	2/5	7	0.07	38 (D)	2/5
EBTR	48	0.16	39 (D)	6/15	48	0.16	39 (D)	6/15	48	0.16	39 (D)	6/15
WBL	61	0.48	42 (D)	14/25	61	0.48	42 (D)	14/25	61	0.48	42 (D)	14/25
WBTR	164	0.18	39 (D)	2/17	164	0.18	39 (D)	2/17	164	0.18	39 (D)	2/17
NBL	6	0.02	4 (A)	0/2	6	0.02	4 (A)	0/2	6	0.02	4 (A)	0/2
NBTR	492	0.26	5 (A)	16/26	609	0.33	5 (A)	22/34	609	0.33	5 (A)	22/34
SBL	145	0.34	7 (A)	10/23	145	0.39	8 (A)	11/25	177	0.48	10 (A)	15/33
SBT	431	0.23	5 (A)	15/23	499	0.26	5 (A)	18/27	499	0.26	5 (A)	18/27
SBR	1	0.00	4 (A)	0/0	1	0.00	4 (A)	0/0	1	0.00	4 (A)	0/0

Table 7-14: Intersection Capacity Analysis, Coleraine Drive & Private Access/George Bolton Parkway (2033)

AM	Existing Conditions (2023)				Future Background (2033)				Future Total (2033)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-	0.25	13 (B)	-	-	0.29	B (12)	-	-	0.46	B (13)	-/-
EBL	4	0.04	37 (D)	1/4	4	0.03	D (37)	1/4	30	0.28	D (39)	7/14
EBTR	25	0.09	37 (D)	3/10	25	0.04	D (37)	1/5	121	0.26	D (38)	8/22
WBL	63	0.52	43 (D)	14/26	63	0.51	D (43)	14/26	63	0.54	D (44)	14/26
WBTR	164	0.25	39 (D)	5/21	164	0.13	D (37)	3/11	168	0.24	D (38)	5/21
NBL	30	0.07	5 (A)	2/6	30	0.07	A (5)	2/6	188	0.44	A (9)	15/37
NBTR	374	0.20	5 (A)	10/19	468	0.24	A (5)	15/26	508	0.27	A (6)	17/30
SBL	84	0.16	5 (A)	5/13	84	0.18	A (5)	5/14	94	0.21	A (6)	6/16
SBT	346	0.18	5 (A)	11/20	476	0.24	A (5)	16/28	499	0.26	A (6)	18/31
SBR	11	0.01	4 (A)	0/0	11	0.00	A (4)	0/0	66	0.05	A (5)	0/4
PM	Existing Conditions (2023)				Future Background (2033)				Future Background (2033)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-	0.36	12 (B)	-	-	0.43	B (12)	-	-	0.68	C (20)	-/-
EBL	7	0.07	38 (D)	2/5	7	0.05	D (38)	2/5	76	0.46	D (36)	16/25
EBTR	48	0.16	39 (D)	6/15	48	0.08	D (38)	3/8	300	0.75	D (46)	44/59

WBL	61	0.48	42 (D)	14/25	61	0.47	D (42)	14/25	**61**	**0.86**	**F (94)**	**15/29**
WBTR	164	0.18	39 (D)	2/17	164	0.16	D (38)	4/11	166	0.26	C (33)	9/21
NBL	6	0.02	4 (A)	0/2	6	0.01	A (4)	0/2	84	0.27	A (10)	8/21
NBTR	492	0.26	5 (A)	16/26	660	0.34	A (6)	25/37	686	0.41	A (10)	38/61
SBL	145	0.34	7 (A)	10/23	145	0.41	A (9)	11/26	169	0.61	B (19)	22/63
SBT	431	0.23	5 (A)	15/23	499	0.26	A (5)	18/27	537	0.32	A (9)	28/47
SBR	1	0.00	4 (A)	0/0	1	0.00	A (4)	0/0	28	0.02	A (7)	0/3

Table 7-15: Intersection Capacity Analysis, Coleraine Drive & Private Access/George Bolton Parkway (2043)

AM	Existing Conditions (2023)				Future Background (2043)				Future Total (2043)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-	0.25	13 (B)	-	-	0.32	B (12)	-	-	0.51	B (13)	-/-
EBL	4	0.04	37 (D)	1/4	4	0.03	D (37)	1/4	30	0.28	D (39)	7/14
EBTR	25	0.09	37 (D)	3/10	25	0.04	D (37)	1/5	121	0.26	D (38)	8/22
WBL	63	0.52	43 (D)	14/26	63	0.51	D (43)	14/26	63	0.54	D (44)	14/26
WBTR	164	0.25	39 (D)	5/21	164	0.13	D (37)	3/11	164	0.24	D (38)	5/21
NBL	30	0.07	5 (A)	2/6	30	0.07	A (5)	2/6	213	0.50	B (10)	19/45
NBTR	374	0.20	5 (A)	10/19	542	0.28	A (5)	18/31	581	0.30	A (6)	21/35
SBL	84	0.16	5 (A)	5/13	84	0.19	A (6)	5/14	93	0.23	A (6)	6/16
SBT	346	0.18	5 (A)	11/20	476	0.24	A (5)	16/28	499	0.26	A (6)	18/31
SBR	11	0.01	4 (A)	0/0	11	0.00	A (4)	0/0	113	0.09	A (5)	0/6
PM	**Existing Conditions (2023)**				**Future Background (2043)**				**Future Total (2043)**			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-	0.36	12 (B)	-	-	0.38	B (12)	-	-	0.62	C (20)	-/-
EBL	7	0.07	38 (D)	2/5	7	0.05	D (38)	2/5	76	0.46	D (36)	16/25
EBTR	48	0.16	39 (D)	6/15	48	0.08	D (38)	3/8	301	0.75	D (46)	44/59
WBL	61	0.48	42 (D)	14/25	61	0.47	D (42)	14/25	**61**	**0.87**	**F (97)**	**15/29**
WBTR	164	0.18	39 (D)	2/17	164	0.09	D (38)	1/9	164	0.15	C (32)	2/14
NBL	6	0.02	4 (A)	0/2	6	0.01	A (4)	0/2	95	0.30	B (10)	10/24
NBTR	492	0.26	5 (A)	16/26	567	0.30	A (5)	20/31	592	0.35	A (9)	31/52
SBL	145	0.34	7 (A)	10/23	145	0.36	A (7)	11/24	169	0.53	B (15)	21/50
SBT	431	0.23	5 (A)	15/23	499	0.26	A (5)	18/27	538	0.32	A (9)	29/47
SBR	1	0.00	4 (A)	0/0	1	0.00	A (4)	0/0	52	0.04	A (7)	0/5

Existing Conditions: The signalized intersection operates within capacity, with acceptable delays and an overall LOS of 'B' during both weekday AM and PM peak hours. No critical movements have been identified under existing conditions.

Future Background Conditions: The intersection is expected to operate similarly to existing conditions during both peak hours and under all horizon years. No new constraints have been identified.

Future Total Conditions: Minor increases in delay and v/c ratios are expected under futural total conditions compared to future background conditions during both weekday peak hours under all horizon years. While the WBL during the PM peak hour operates with a LOS of 'F', the movement operates with residual capacity. No new constraints have been identified as a result of site traffic.

7.1.5 Highway 50 & Private Access/George Bolton Parkway

The intersection capacity analysis at Highway 50 & Private Access/George Bolton Parkway under the 2028, 2033, and 2043 horizon years are summarized in **Table 7-16**, **Table 7-17**, and **Table 7-18**, respectively, for the weekday AM and PM peak hours.

Table 7-16: Intersection Capacity Analysis, Highway 50 & Private Access/George Bolton Parkway (2028)

AM	Existing Conditions (2023)				Future Background (2028)				Future Total (2028)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	Delay (LOS)	Queue 50th/ 95th
Overall	-	0.53	11 (B)	-	-	0.55	11 (B)	-	-	0.56	11 (B)	-
EBL	76	0.59	57 (E)	19/34	76	0.59	57 (E)	19/34	81	0.60	58 (E)	20/36
EBTR	104	0.09	48 (D)	0/4	104	0.09	48 (D)	0/4	109	0.10	48 (D)	0/6
WBLTR	1	0.00	47 (D)	0/0	1	0.00	47 (D)	0/0	1	0.00	47 (D)	0/0
NBL	146	0.51	7 (A)	6/15	153	0.53	8 (A)	7/15	153	0.54	8 (A)	7/16
NBTR	844	0.33	4 (A)	28/45	886	0.35	4 (A)	30/48	886	0.35	4 (A)	31/49
SBL	3	0.01	6 (A)	0/2	3	0.01	6 (A)	0/2	3	0.01	7 (A)	0/2
SBT	1125	0.52	10 (B)	68/108	1144	0.53	11 (B)	70/114	1144	0.54	11 (B)	72/116
SBR	138	0.10	7 (A)	0/9	138	0.10	7 (A)	1/9	138	0.10	7 (A)	1/9
PM	Existing Conditions (2023)				Future Background (2028)				Future Total (2028)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	Delay (LOS)	Queue 50th/ 95th
Overall	-	0.63	17 (B)	-	-	0.65	17 (B)	-	-	0.67	18 (B)	-
EBL	209	0.83	65 (E)	52/79	209	0.83	65 (E)	52/79	225	0.85	68 (E)	55/92
EBTR	193	0.14	40 (D)	0/15	193	0.17	40 (D)	2/22	209	0.22	40 (D)	5/27
WBLTR	7	0.00	39 (D)	0/0	7	0.00	39 (D)	0/0	7	0.00	38 (D)	0/0
NBL	129	0.41	8 (A)	9/18	135	0.48	9 (A)	10/19	135	0.50	10 (A)	11/19
NBTR	1257	0.55	10 (B)	79/107	1320	0.58	10 (B)	86/116	1320	0.59	11 (B)	91/116
SBL	1	0.00	9 (A)	0/1	1	0.01	9 (A)	0/1	1	0.01	10 (A)	0/1
SBT	873	0.43	13 (B)	63/81	983	0.49	14 (B)	75/95	983	0.49	15 (B)	77/95
SBR	169	0.12	10 (B)	0/10	169	0.12	10 (B)	0/10	169	0.12	11 (B)	0/10

Table 7-17: Intersection Capacity Analysis, Highway 50 & Private Access/George Bolton Parkway (2033)

AM	Existing Conditions (2023)				Future Background (2033)				Future Total (2033)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-	0.53	11 (B)	-	-	0.57	B (11)	-	-	0.60	B (12)	-
EBL	76	0.59	57 (E)	19/34	76	0.58	E (57)	19/34	93	0.65	E (60)	23/40
EBTR	104	0.09	48 (D)	0/4	104	0.09	D (48)	0/4	120	0.10	D (47)	0/9
WBTR	1	0.00	47 (D)	0/0	1	0.00	D (47)	0/0	1	0.00	D (46)	0/0
NBL	146	0.51	7 (A)	6/15	161	0.55	A (8)	7/16	165	0.57	A (9)	8/18
NBT	844	0.33	4 (A)	28/45	933	0.36	A (4)	32/52	933	0.37	A (5)	35/57
SBL	3	0.01	6 (A)	0/2	3	0.00	A (7)	0/2	3	0.00	A (7)	0/2
SBT	1125	0.52	10 (B)	68/108	1144	0.53	B (11)	71/117	1144	0.54	B (12)	76/121
SBR	138	0.10	7 (A)	0/9	138	0.10	A (7)	1/9	138	0.10	A (8)	1/10
PM	Existing Conditions (2023)				Future Background (2033)				Future Total (2033)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th

Overall	-	0.63	17 (B)	-	-	0.68	B (17)	-/-	-	0.72	C (21)	-/-
EBL	209	0.83	65 (E)	52/79	209	0.82	E (65)	52/79	253	0.91	E (77)	63/112
EBTR	193	0.14	40 (D)	0/15	193	0.16	D (40)	2/22	234	0.30	D (39)	10/36
WBTR	7	0.00	39 (D)	0/0	12	0.00	D (39)	0/0	12	0.00	D (36)	0/0
NBL	129	0.41	8 (A)	9/18	142	0.50	A (10)	11/20	144	0.54	B (12)	12/20
NBR	1257	0.55	10 (B)	79/107	1393	0.60	B (11)	94/126	1393	0.63	B (13)	104/126
SBL	1	0.00	9 (A)	0/1	1	0.00	A (9)	0/1	1	0.00	B (10)	0/1
SBT	873	0.43	13 (B)	63/81	988	0.49	B (14)	76/96	988	0.50	B (16)	78/96
SBR	169	0.12	10 (B)	0/10	169	0.12	B (10)	0/10	169	0.12	B (11)	0/10

Table 7-18: Intersection Capacity Analysis, Highway 50 & Private Access/George Bolton Parkway (2043)

AM	Existing Conditions (2023)				Future Background (2043)				Future Total (2043)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-	0.53	11 (B)	-	-	0.60	B (11)	-	-	0.62	B (12)	-
EBL	76	0.59	57 (E)	19/34	76	0.58	E (57)	19/34	93	0.65	E (60)	23/40
EBTR	104	0.09	48 (D)	0/4	104	0.09	D (48)	0/4	119	0.10	D (47)	0/9
WBL	0	0.00	(0)	0/0	-	-	- (-)	-/-	-	-	- (-)	-/-
WBTR	1	0.00	47 (D)	0/0	1	0.00	D (47)	0/0	1	0.00	D (46)	0/0
NBL	146	0.51	7 (A)	6/15	178	0.58	A (9)	8/19	178	0.60	B (10)	9/22
NBT	0	0.00	(0)	0/0	1030	0.40	A (5)	37/59	1030	0.40	A (5)	40/64
NBR	844	0.33	4 (A)	28/45	-	-	- (-)	-/-	-	-	- (-)	-/-
SBL	3	0.01	6 (A)	0/2	3	0.00	A (7)	0/2	3	0.00	A (7)	0/2
SBT	1125	0.52	10 (B)	68/108	1144	0.54	B (12)	74/121	1144	0.55	B (12)	78/121
SBR	138	0.10	7 (A)	0/9	138	0.10	A (8)	1/10	138	0.10	A (8)	1/10
PM	Existing Conditions (2023)				Future Background (2043)				Future Total (2043)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-	0.63	17 (B)	-	-	0.72	B (18)	-	-	0.77	C (21)	-
EBL	209	0.83	65 (E)	52/79	209	0.82	E (65)	52/79	253	0.91	E (77)	63/111
EBTR	193	0.14	40 (D)	0/15	193	0.16	D (40)	2/22	234	0.30	D (39)	10/36
WBL	0	0.00	(0)	0/0	-	-	- (-)	-/-	-	-	- (-)	-/-
WBTR	7	0.00	39 (D)	0/0	7	0.00	D (39)	0/0	7	0.00	D (36)	0/0
NBL	129	0.41	8 (A)	9/18	157	0.54	B (10)	12/22	157	0.58	B (13)	13/22
NBT	0	0.00	(0)	0/0	1534	0.67	B (12)	111/150	1534	0.69	B (14)	123/150
NBR	1257	0.55	10 (B)	79/107	-	-	- (-)	-/-	-	-	- (-)	-/-
SBL	1	0.00	9 (A)	0/1	1	0.00	A (10)	0/1	1	0.00	B (11)	0/1
SBT	873	0.43	13 (B)	63/81	983	0.48	B (14)	76/95	983	0.50	B (16)	77/95
SBR	169	0.12	10 (B)	0/10	169	0.12	B (10)	0/10	169	0.12	B (11)	0/10

Existing Conditions: The signalized intersection operates within capacity, with acceptable delays and an overall LOS of 'B' during both weekday AM and PM peak hours. No critical movements have been identified under existing conditions.

Future Background Conditions: The intersection is expected to operate similarly to existing conditions during both peak hours. No new constraints have been identified.

Future Total Conditions: Minor increases in delay and v/c ratio are expected under futural total conditions compared to future background conditions during both weekday peak hours. No new constraints have been identified as a result of site traffic.

7.2 FUTURE SIGNALIZED INTERSECTIONS

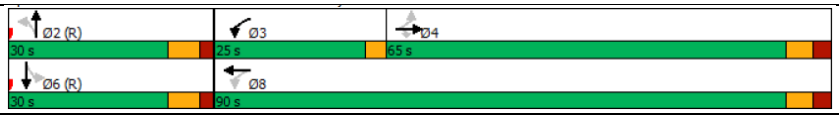
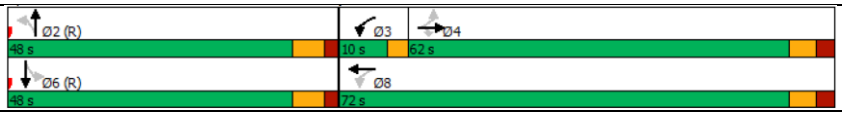
The results for the future signalized intersections under each traffic scenario during the weekday AM and PM peak hours are summarized in the sections below.

7.2.1 Humber Station Road & Healey Road

As per *Town of Caledon Transportation Master Plan (2017)*, Humber Station Road & Healey Road is planned to be signalized by 2031. However, this improvement was applied under the 2028 horizon year to accommodate future traffic volumes. The recommended signal timing plan under future conditions is summarized in **Table 7-19**.

Furthermore, consistent with the *Town of Caledon Transportation Master Plan (2024),* Humber Station Road and Healey Road were assumed to widen to 4 lanes by 2031. Exclusive left-turning lanes are recommended for all directions.

Table 7-19: Recommended Signal Timing Plan, Humber Station Road & Healey Road

Horizon	Cycle Length (s)	Signal Timing Modifications
Existing Weekday AM	-	-
2028, 2033, & 2043 Weekday AM (New)	120	
Existing Weekday PM	-	-
2028, 2033, & 2043 Weekday PM (New)	120	

The intersection capacity analysis at Humber Station Road & Healey Road under the 2028, 2033, and 2043 horizon years are summarized in **Table 7-20**, **Table 7-21**, and **Table 7-22**, respectively, for the weekday AM and PM peak hours.

Table 7-20: Intersection Capacity Analysis, Humber Station Road & Healey Road (2028)

AM	Existing Conditions (2023)				Future Background (2028)				Future Total (2028)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	Delay (LOS)	Queue 50th/ 95th
Overall	-				-	0.57	31 (C)	-	-	0.62	31 (C)	-
EBL					4	0.01	20 (C)	1/3	4	0.01	20 (C)	1/3
EBT					618	0.86	42 (D)	145/177	618	0.86	42 (D)	145/176
EBR					35	0.03	21 (C)	0/3	83	0.09	21 (C)	4/13
WBL					73	0.40	23 (C)	9 /4	149	0.65	27 (C)	17/29
WBTR					269	0.31	18 (B)	39/49	269	0.29	15 (B)	36/45
NBL					23	0.07	19 (B)	5/12	44	0.15	26 (C)	8/20
NBTR					52	0.05	15 (B)	4/15	81	0.08	23 (C)	2/17
SBL					79	0.17	25 (C)	1430	79	0.20	28 (C)	15/31
SBTR					179	0.27	26 (C)	33/59	191	0.32	30 (C)	38/65
PM	Existing Conditions (2023)				Future Background (2028)				Future Total (2028)			

Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	Delay (LOS)	Queue 50th (95th)	Vol	V/C	Delay (LOS)	Queue 50th (95th)
Overall					-	0.60	25 (C)	-	-	0.66	27 (C)	-
EBL					21	0.17	25 (C)	4/9	21	0.18	26 (C)	4/9
EBT					308	0.44	28 (C)	61/75	308	0.46	29 (C)	61/75
EBR					14	0.01	23 (C)	0/0	37	0.03	24 (C)	0/3
WBL					34	0.10	19 (B)	5/9	69	0.21	21 (C)	9/15
WBTR			-		649	0.80	34 (C)	141/161	649	0.81	35 (D)	141/161
NBL					54	0.11	8 (A)	2/6	116	0.23	16 (B)	11/24
NBTR					278	0.36	8 (A)	9/22	363	0.47	17 (B)	32/74
SBL					25	0.06	20 (B)	4/11	25	0.08	20 (B)	4/11
SBTR					53	0.06	20 (B)	7/17	59	0.07	19 (B)	8/19

Table 7-21: Intersection Capacity Analysis, Humber Station Road & Healey Road (2033)

AM	Existing Conditions (2023)				Future Background (2033)				Future Total (2033)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall					-	0.37	C (32)	-	-	0.59	C (33)	-
EBL					4	0.01	C (30)	1/3	4	0.01	C (26)	1/3
EBTR					743	0.78	D (43)	95/107	895	0.79	D (39)	109/120
WBL					73	0.40	C (28)	11/18	231	0.78	D (39)	36/59
WBTR			-		324	0.25	C (25)	30/35	333	0.19	B (15)	23/25
NBL					23	0.04	A (9)	2/7	83	0.25	C (31)	17/38
NBTR					58	0.02	A (5)	0/3	141	0.06	D (42)	4/12
SBL					79	0.13	B (16)	11/25	83	0.21	C (28)	15/34
SBTR					187	0.11	B (16)	14/25	217	0.18	C (26)	21/36
PM	Existing Conditions (2023)				Future Background (2033)				Future Total (2033)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall					-	0.37	C (30)	-	-	0.49	C (31)	-
EBL					21	0.23	D (37)	5/12	21	0.27	D (41)	5/12
EBTR					366	0.43	D (39)	43/54	443	0.60	D (44)	51/62
WBL					34	0.14	C (21)	5/6	153	0.77	D (38)	25/27
WBTR			-		778	0.74	C (31)	77/90	800	0.78	C (33)	85/86
NBL					54	0.08	C (23)	13/26	209	0.32	C (21)	40/69
NBTR					307	0.15	C (27)	35/50	407	0.18	C (21)	28/39
SBL					25	0.04	B (11)	3/8	27	0.05	B (11)	3/9
SBTR					55	0.02	B (11)	3/7	69	0.03	B (10)	3/8

Table 7-22: Intersection Capacity Analysis, Humber Station Road & Healey Road (2043)

AM	Existing Conditions (2023)				Future Background (2043)				Future Total (2043)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall					-	0.46	C (29)	-	-	0.62	C (30)	-
EBL					4	0.01	C (24)	1/3	4	0.01	C (20)	1/3
EBTR					978	0.80	D (38)	121/132	1125	0.83	D (35)	135/148
WBL					73	0.44	C (25)	10/15	184	0.77	D (43)	30/51
WBTR			-		473	0.31	C (21)	40/43	483	0.25	B (13)	33/32
NBL					23	0.05	A (8)	1/7	83	0.29	C (31)	14/37
NBTR					70	0.03	A (3)	0/3	160	0.07	C (26)	2/7
SBL					78	0.15	C (22)	13/28	82	0.24	C (32)	16/35

SBTR					207	0.14	C (21)	18/30	237	0.22	C (30)	24/41
PM	Existing Conditions (2023)				Future Background (2043)				Future Total (2043)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-				-	0.50	C (25)	-	-	0.61	C (27)	-
EBL					21	0.27	C (29)	4/12	21	0.29	C (31)	4/11
EBTR					482	0.38	C (28)	50/58	557	0.48	C (31)	56/65
WBL					34	0.11	B (15)	3/2	128	0.48	B (17)	13/10
WBTR					1130	0.77	C (25)	123/97	1152	0.79	C (25)	124/82
NBL					54	0.10	C (25)	5/20	208	0.41	C (29)	48/74
NBTR					376	0.23	C (23)	16/46	481	0.27	C (28)	43/58
SBL					26	0.06	B (18)	4/11	28	0.08	B (19)	4/12
SBTR					59	0.03	B (18)	4/9	74	0.04	B (18)	5/11

Future Background Conditions: With signalization, the intersection operates within capacity, with acceptable delays and an overall LOS of 'C' during both peak hours and under all horizons. No constraints have been identified.

Future Total Conditions: Minor increases in delay and v/c ratio are expected under futural total conditions compared to future background conditions during both weekday peak hours. No new constraints have been identified as a result of site traffic.

7.2.2 Triangle Lands Access & Mayfield Road

It was assumed that access to the Triangle Lands background development would occur off Mayfield Road. The intersection is recommended as an unsignalized intersection under the 2028 horizon year (see **Section 7.4.1**). However, in order to improve traffic conditions and accommodate future traffic growth at the intersection, signalization is recommended by the 2033 horizon year. The signal timing plan applied under future conditions for this intersection is summarized in **Table 7-23**.

Table 7-23: Recommended Signal Timing Plan, Triangle Lands Access & Mayfield Road

Horizon	Cycle Length (s)	Signal Timing
Existing and 2028 Weekday AM	-	-
2033 and 2043 Weekday AM (New)	120	
Existing and 2028 Weekday PM	-	-
2033 and 2043 Weekday PM (New)	130	

The intersection capacity analysis at Triangle Lands Access & Mayfield Road under the 2033 and 2043 horizon year is summarized in **Table 7-24** and **Table 7-25** for the weekday AM and PM peak hours.

Table 7-24: Intersection Capacity Analysis, Triangle Lands Access & Mayfield Road (2033)

AM	Existing Conditions (2023)				Future Background (2033)				Future Total (2033)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-				-	0.32	A (5)	-	-	0.35	A (5)	-
EBL					160	0.31	A (3)	5/11	160	0.34	A (4)	5/10
EBT					923	0.30	A (2)	15/22	1031	0.34	A (2)	15/23
WBTR					782	0.26	A (2)	13/22	868	0.29	A (2)	16/25
SBL					33	0.37	E (57)	8/19	33	0.37	E (57)	8/19
SBR					72	0.05	D (54)	0/15	72	0.05	D (54)	0/15
PM	Existing Conditions (2023)				Future Background (2033)				Future Total (2033)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th (95th)	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-				-	0.36	A (8)	-/-	-	0.41	A (8)	-/-
EBL					85	0.22	A (4)	4/11	85	0.27	A (5)	4/12
EBT					883	0.30	A (3)	22/36	957	0.32	A (3)	25/41
WBTR					972	0.33	A (1)	5/12	1131	0.39	A (1)	9/18
SBL					75	0.55	E (61)	20/35	75	0.55	E (61)	20/35
SBR					167	0.12	D (55)	0/22	167	0.31	E (57)	7/30

Table 7-25: Intersection Capacity Analysis, Triangle Lands Access & Mayfield Road (2043)

AM	Existing Conditions (2023)				Future Background (2043)				Future Total (2043)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-				-	0.43	A (5)	-	-	0.47	A (5)	-
EBL					160	0.43	A (9)	11/44	160	0.47	B (11)	17/31
EBT					1174	0.26	A (3)	18/50	1299	0.29	A (4)	41/58
WBTR					1051	0.24	A (2)	12/19	1137	0.26	A (2)	14/21
SBL					33	0.37	E (57)	8/19	33	0.37	E (57)	8/19
SBR					72	0.05	D (54)	0/15	72	0.05	D (54)	0/15
PM	Existing Conditions (2023)				Future Background (2043)				Future Total (2043)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-				-	0.34	A (7)	-	-	0.42	A (7)	-
EBL					85	0.31	A (6)	4/15	85	0.38	A (8)	5/20
EBT					1282	0.30	A (3)	22/39	1363	0.33	A (3)	28/48
WBTR					1242	0.29	A (1)	3/6	1402	0.34	A (1)	6/9
SBL					75	0.52	E (59)	20/34	75	0.45	E (56)	19/33
SBR					167	0.50	E (59)	14/37	167	0.63	E (64)	23/45

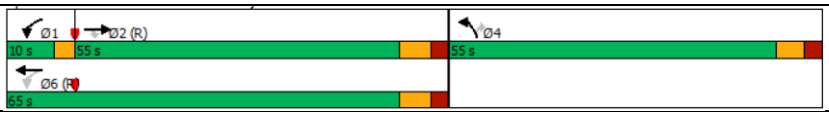
Future Background Conditions: With signalization, the intersection is expected to operate well within capacity and with acceptably delays during both peak hours and under both horizons. No constraints have been identified.

Future Total Conditions: Minor increases in delay and v/c ratio are expected under futural total conditions compared to future background conditions during both weekday peak hours. No new constraints have been identified as a result of site traffic.

7.2.3 Arterial A2 & Mayfield Road

As per the *Peel Region Long Range Transportation Plan (2019)*, a new 6-lane road connection is planned between Humber Station Road and Coleraine Drive, extending from Mayfield Road to Highway 50 by the 2043 horizon. The applied signal timing plans to reflect the new road connection and widening along Mayfield Road is summarized in **Table 7-26**. Of note, the lane configuration at A2 Arterial & Mayfield Road was based on Highway 427 Industrial Secondary Plan - Part A MCEA dated October 2022. The eastbound configuration was modified from double right turn lanes as per the MCEA study to a single right turn lane to better accommodate traffic along Mayfield Road.

Table 7-26: Recommended Signal Timing Plan, Arterial A2 & Mayfield Road

Horizon	Cycle Length (s)	Signal Timing
Existing, 2028, & 2033 Weekday AM	-	-
2043 Weekday AM (New)	120	
Existing, 2028, & 2033 Weekday PM	-	-
2043 Weekday PM (New)	120	

The intersection capacity analysis at A2 Arterial & Mayfield Road under the 2043 horizon year is summarized in **Table 7-27** for the weekday AM and PM peak hours.

Table 7-27: Intersection Capacity Analysis, Arterial A2 & Mayfield Road (2043)

AM	Existing Conditions (2023)				Future Background (2043)				Future Total (2043)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-				-	0.69	B (18)	-	-	0.88	C (23)	-
EBT					1213	0.32	A (1)	3/6	1310	0.36	A (1)	7/10
EBR					808	0.55	D (49)	95/179	841	0.58	E (59)	26/72
WBL			-		212	0.73	C (25)	30/85	226	0.93	E (61)	57/57
WBT					813	0.22	A (3)	14/28	885	0.25	A (4)	17/36
NBL					10	0.08	D (54)	1/9	84	0.46	D (54)	14/25
NBR					121	0.04	D (54)	0/16	149	0.25	D (52)	6/23
PM	**Existing Conditions (2023)**				**Future Background (2043)**				**Future Total (2043)**			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-				-	0.60	B (14)	-	-	0.63	B (16)	-
EBT					1129	0.46	A (4)	10/12	1197	0.60	A (8)	19/22
EBR					215	0.14	A (1)	0/0	297	0.22	A (1)	0/0
WBL			-		215	0.54	A (10)	15/30	251	0.56	B (15)	23/57
WBT					1163	0.36	A (8)	41/59	1287	0.41	A (9)	50/71
NBL					426	0.74	D (51)	56/70	464	0.75	D (50)	61/75
NBR					238	0.33	D (43)	13/38	251	0.38	D (42)	17/44

Future Background Conditions: The intersection is expected to operate well within capacity and with acceptably delays during both peak hours. No constraints have been identified.

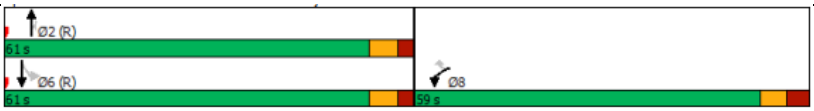
Future Total Conditions: Minor increases in delay and v/c ratio are expected under futural total conditions compared to future background conditions during both weekday peak hours. No new constraints have been identified as a result of site traffic.

7.2.4 Humber Station Road & George Bolton Parkway (Subject Lands Site Access 1)

Of note, the future intersection of George Bolton Parkway & Humber Station Road is proposed as a full movements unsignalized intersection in the 2028 horizon (see **Section 7.4.2**) and as a signalized intersection by 2033. The recommended signal timing plan under future conditions is summarized in **Table 7-28**.

As previously mentioned, the 2028 horizon year includes the partial buildout of George Bolton Parkway to facilitate access for the subject lands. As per the *Town of Caledon's Multi-Modal Transportation Master Plan (2024),* George Bolton Parkway is planned as a 4-lane connection from Humber Station Road to Coleraine Drive by 2031. However, to understand the minimum road network required to service the lands, George Bolton Parkway was analyzed as a 2-lane cross-section. A sensitivity analysis is provided in **Section 8** detailing operations for George Bolton Parkway as 4-lanes.

Table 7-28: Recommended Signal Timing Plan, Humber Station Road & George Bolton Parkway (Subject Lands Site Access 1)

Horizon	Cycle Length (s)	Signal Timing
Existing & 2028 Weekday AM	-	-
2033 & 2043 Weekday AM (New)		
Existing & 2028 Weekday PM	-	-
2033 & 2043 Weekday PM (New)		

The intersection capacity analysis at Humber Station Road & George Bolton Parkway (Subject Lands Access 1) under the 2033 and 2043 horizon years are summarized in **Table 7-29** and **Table 7-30**, respectively, for the weekday AM and PM peak hours.

Table 7-29: Intersection Capacity Analysis, Humber Station Road & George Bolton Parkway (Subject Lands Site Access 1) (2033)

AM	Existing Conditions (2023)				Future Background (2033)				Future Total (2033)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall									-	0.35	A (10)	-
WBL									106	0.58	D (54)	25/43
WBR									61	0.04	D (46)	0/12
NBT			-				-		251	0.09	A (4)	7/11
NBR									347	0.24	A (7)	0/6
SBL									230	0.30	A (4)	5/24
SBT									372	0.14	A (2)	4/8
PM	Existing Conditions (2023)				Future Background (2033)				Future Total (2033)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall									-	0.39	B (17)	-
WBL									284	0.78	D (54)	66/89
WBR									161	0.11	D (36)	0/16
NBT			-				-		445	0.20	A (3)	8/12
NBR									173	0.13	A (0)	0/0
SBL									113	0.23	A (5)	4/9
SBT									240	0.11	A (4)	5/8

Table 7-30: Intersection Capacity Analysis, Humber Station Road & George Bolton Parkway (Subject Lands Site Access 1) (2043)

AM	Existing Conditions (2023)				Future Background (2043)				Future Total (2043)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall									-	0.29	B (11)	-
WBL									106	0.58	D (54)	25/43
WBR									61	0.04	D (46)	0/12
NBT			-				-		271	0.10	A (5)	8/11
NBR									324	0.22	A (9)	4/6
SBL									181	0.24	A (4)	7/15
SBT									400	0.15	A (3)	8/14
PM	Existing Conditions (2023)				Future Background (2043)				Future Total (2043)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall									-	0.39	C (22)	-
WBL									284	0.78	D (54)	66/89
WBR									161	0.11	D (36)	0/16
NBT			-				-		515	0.23	A (10)	38/56
NBR									162	0.13	C (21)	9/16
SBL									89	0.20	A (8)	6/14
SBT									246	0.11	A (7)	8/16

Future Total Conditions: With signalization, the intersection is expected to operate well within capacity and with acceptably delays during both peak hours and under both the 2033 and 2043 horizon years. No constraints have been identified.

7.3 EXISTING UNSIGNALIZED INTERSECTIONS

The results for the studied existing unsignalized intersections under each traffic scenario during the weekday AM and PM peak hours are summarized in the sections below.

7.3.1 Humber Station Road & Healey Road

As previously mentioned, signalization of Humber Station Road & Healey Road is recommended in 2028. As such, only the existing intersection operations are provided below in **Table 7-31** for the weekday AM and PM peak hours.

Table 7-31: Intersection Capacity Analysis, Humber Station Road & Healey Road (Existing)

AM	Existing Conditions (2023)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 95th
EBLTR	522	0.87	34 (D)	-
WBLTR	287	0.51	15 (C)	-
NBLTR	53	0.11	11 (B)	-
SBLTR	238	0.46	15 (C)	-
PM	Existing Conditions (2023)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 95th
EBLTR	274	0.48	15 (B)	-
WBLTR	552	0.89	38 (E)	-
NBLTR	268	0.49	16 (C)	-
SBLTR	70	0.14	11 (B)	-

Existing Conditions: All movements at the unsignalized intersection operate within capacity and with acceptable delays during both weekday AM and PM peak hours. No critical movements have been identified.

7.4 FUTURE UNSIGNALIZED INTERSECTIONS

The results for the studied future unsignalized intersections under each traffic scenario during the weekday AM and PM peak hours are summarized in the sections below.

7.4.1 Triangle Lands Access & Mayfield Road

As previously mentioned, it was assumed that access to the Triangle Lands background development would occur off Mayfield Road. Of note, signalization at Triangle Lands Access & Mayfield Road is recommended by the 2033 horizon (see **Section 7.2.2**). As such, only the 2028 horizon year intersection operations are provided below in **Table 7-32** for the weekday AM and PM peak hours.

Table 7-32: Intersection Capacity Analysis, Triangle Lands Access & Mayfield Road (2028)

AM	Existing Conditions (2023)				Future Background (2028)				Future Total (2028)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	Delay (LOS)	Queue 50th/ 95th
EBL	-				160	0.18	10 (A)	-/5	160	0.18	10 (A)	-/5
EBT					408	0.24	0 (A)	-/0	413	0.24	0 (A)	-/0
WBT					412	0.24	0 (A)	-/0	440	0.26	0 (A)	-/0
WBTR					314	0.18	0 (A)	-/0	328	0.19	0 (A)	-/0
SBL					33	0.11	19 (C)	-/3	**33**	**0.31**	**54 (F)**	**-/10**
SBR					72	0.09	10 (B)	-/3	72	0.09	10 (B)	-/2
PM	**Existing Conditions (2023)**				**Future Background (2028)**				**Future Total (2028)**			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	Delay (LOS)	Queue 50th/ 95th
EBL	-				85	0.11	10 (B)	-/3	85	0.11	10 (B)	-/3
EBT					388	0.23	0 (A)	-/0	405	0.24	0 (A)	-/0
WBT					559	0.33	0 (A)	-/0	572	0.34	0 (A)	-/0
WBTR					336	0.20	0 (A)	-/0	343	0.20	0 (A)	-/0
SBL					75	0.24	20 (C)	-/7	**75**	**0.68**	**88 (F)**	**-/28**
SBR					167	0.23	12 (B)	-/7	167	0.23	11 (B)	-/7

Future Background Conditions: The intersection is expected to operate well within capacity and with acceptably delays during both peak hours. No constraints have been identified.

Future Total Conditions: Negligible increases in delay and v/c ratio are expected under futural total conditions compared to future background conditions during both weekday peak hours. While the SBL movement is expected to operate with a LOS of 'F' during the AM and PM peak hours, the movement operates well within capacity. No constraints have been identified as a result of site traffic.

7.4.2 Humber Station Road & George Bolton Parkway (Subject Lands Site Access 1)

As previously mentioned, the 2028 horizon year includes the partial buildout of George Bolton Parkway to facilitate access for the subject lands. Ultimate 2033 and 2043 conditions include the full western extension of George Bolton Parkway, connecting Coleraine Drive to Humber Station Road. Of note, signalization of Humber Station Road & George Bolton Parkway is recommended by the 2033 horizon (see **Section 7.2.4**). As such, only the 2028 horizon year intersection operations are provided below in **Table 7-33** for the weekday AM and PM peak hours.

Table 7-33: Intersection Capacity Analysis, Humber Station Road & George Bolton Parkway (Subject Lands Site Access 1) (2028)

AM	Existing Conditions (2023)				Future Background (2028)				Future Total (2028)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	Delay (LOS)	Queue 50th/ 95th
WBL	-				-				81	0.22	18 (C)	-/7
WBR									50	0.05	9 (A)	-/1
NBT									81	0.05	0 (A)	-/0
NBR									243	0.14	0 (A)	-/0
SBL									136	0.11	8 (A)	-/3
SBT									290	0.17	0 (A)	-/0
PM	Existing Conditions (2023)				Future Background (2028)				Future Total (2028)			
Mvmt	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	Delay (LOS)	Queue 50th/ 95th	Vol	V/C	Delay (LOS)	Queue 50th/ 95th
WBL	-				-				239	0.52	21 (C)	-/24
WBR									147	0.21	12 (B)	-/6
NBT									322	0.19	0 (A)	-/0
NBR									113	0.07	0 (A)	-/0
SBL									64	0.06	9 (A)	-/2
SBT									88	0.05	0 (A)	-/0

Future Total Conditions: The intersection is expected to operate well within capacity and with acceptably delays during both peak hours. No constraints have been identified.

7.4.3 Subject Lands Site Access 2 & Humber Station Road

As previously noted, local road connections off Humber Station Road are proposed under Phase 2 of the development to facilitate access for full buildout of the subject lands. As such, only the 2033 and 2043 horizon year intersection operations are provided below in **Table 7-34** and **Table 7-35**, respectively, for the weekday AM and PM peak hours

Table 7-34: Intersection Capacity Analysis, Subject Lands Site Access 2 & Humber Station Road (2033)

AM	Existing Conditions (2023)				Future Background (2033)				Future Total (2033)			
Mvmt	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
WBL	-				-				3	0.01	C (15)	-/0
WBR									2	0.00	A (9)	-/0
NBT									152	0.09	A (0)	-/0
NBR									9	0.01	A (0)	-/0
SBL									4	0.00	A (8)	-/0
SBT									300	0.18	A (0)	-/0
PM	Existing Conditions (2023)				Future Background (2033)				Future Total (2033)			
Mvmt	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
WBL	-				-				7	0.02	C (17)	-/1
WBR									5	0.01	B (11)	-/0
NBT									301	0.18	A (0)	-/0
NBR									5	0.00	A (0)	-/0
SBL									2	0.00	A (9)	-/0

SBT			173	0.10	A (0)	-/0

Table 7-35: Intersection Capacity Analysis, Subject Lands Site Access 2 & Humber Station Road (2043)

AM	Existing Conditions (2023)				Future Background (2043)				Future Total (2043)			
Mvmt	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
WBL	-				-				3	0.01	C (15)	-/0
WBR									2	0.00	A (9)	-/0
NBT									162	0.10	(0)	-/0
NBR									9	0.01	(0)	-/0
SBL									4	0.00	A (8)	-/0
SBT									289	0.17	(0)	-/0
PM	Existing Conditions (2023)				Future Background (2043)				Future Total (2043)			
Mvmt	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
WBL	-				-				7	0.02	C (18)	-/1
WBR									5	0.01	B (11)	-/0
NBT									336	0.20	A (0)	-/0
NBR									5	0.00	A (0)	-/0
SBL									2	0.00	A (9)	-/0
SBT									164	0.10	A (0)	-/0

Future Total Conditions: The intersection is expected to operate well within capacity and with acceptably delays during both peak hours and under both horizon years. No constraints have been identified.

7.4.4 Subject Lands Site Access 3 & Humber Station Road

As previously noted, local road connections off Humber Station Road are proposed under Phase 2 of the development to facilitate access for full buildout of the subject lands. As such, only the 2033 and 2043 horizon year intersection operations are provided below in **Table 7-36** and **Table 7-37**, respectively, for the weekday AM and PM peak hours

Table 7-36: Intersection Capacity Analysis, Subject Lands Site Access 3 & Humber Station Road (2033)

AM	Existing Conditions (2023)				Future Background (2033)				Future Total (2033)			
Mvmt	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
WBL	-				-				38	0.10	C (15)	-/3
WBR									24	0.03	A (9)	-/1
NBT									103	0.06	A (0)	-/0
NBR									100	0.06	A (0)	-/0
SBL									57	0.05	A (8)	-/1
SBT									283	0.17	A (0)	-/0
PM	Existing Conditions (2023)				Future Background (2033)				Future Total (2033)			
Mvmt	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
WBL	-				-				88	0.28	C (21)	-/9
WBR									54	0.08	B (11)	-/2
NBT									276	0.16	A (0)	-/0

NBR			54	0.03	A (0)	-/0
SBL			30	0.03	A (9)	-/1
SBT			130	0.08	A (0)	-/0

Table 7-37: Intersection Capacity Analysis, Subject Lands Site Access 3 & Humber Station Road (2043)

AM	Existing Conditions (2023)				Future Background (2043)				Future Total (2043)			
Mvmt	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
WBL									38	0.10	C (16)	-/3
WBR									24	0.03	A (9)	-/1
NBT			-				-		113	0.07	A (0)	-/0
NBR									100	0.06	A (0)	-/0
SBL									57	0.05	A (8)	-/1
SBT									272	0.16	A (0)	-/0
PM	Existing Conditions (2023)				Future Background (2043)				Future Total (2043)			
Mvmt	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
WBL									88	0.31	C (23)	-/10
WBR									54	0.08	B (11)	-/2
NBT			-				-		311	0.18	A (0)	-/0
NBR									54	0.03	A (0)	-/0
SBL									30	0.04	A (9)	-/1
SBT									121	0.07	A (0)	-/0

Future Total Conditions: The intersection is expected to operate well within capacity and with acceptably delays during both peak hours and under both horizon years. No constraints have been identified.

7.4.5 Subject Lands Site Access 4 & Healey Road

As previously noted, local road connections off Healey Road are proposed under Phase 2 of the development to facilitate access for full buildout of the subject lands. As such, only the 2033 and 2043 horizon year intersection operations are provided below in **Table 7-38** and **Table 7-39**, respectively, for the weekday AM and PM peak hours.

Table 7-38: Intersection Capacity Analysis, Subject Lands Site Access 4 & Healey Road (2033)

AM	Existing Conditions (2023)				Future Background (2033)				Future Total (2033)			
Mvmt	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
EBT									0.10	A (4)	-/3	0.10
EBTR									0.21	A (0)	-/0	0.21
WBLT			-				-		0.26	E (44)	-/8	0.26
WBT									0.05	B (12)	-/1	0.05
NBL									0.10	A (4)	-/3	0.10
NBR									0.21	A (0)	-/0	0.21
PM	Existing Conditions (2023)				Future Background (2033)				Future Total (2033)			
Mvmt	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
EBT			-				-		351	0.21	A (0)	-/0
EBTR									218	0.13	A (0)	-/0

WBLT			38	0.04	A (1)	-/1
WBT			587	0.35	A (0)	-/0
NBL			73	0.38	E (35)	-/13
NBR			63	0.09	B (11)	-/3

Table 7-39: Intersection Capacity Analysis, Subject Lands Site Access 4 & Healey Road (2043)

AM	Existing Conditions (2023)				Future Background (2043)				Future Total (2043)			
Mvmt	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
EBT									731	0.43	A (0)	-/0
EBTR									449	0.26	A (0)	-/0
WBLT			-				-		67	0.12	A (4)	-/3
WBT									423	0.25	A (0)	-/0
NBL									**32**	**0.41**	**F (81)**	**-/13**
NBR									27	0.06	B (14)	-/2
PM	Existing Conditions (2023)				Future Background (2043)				Future Total (2043)			
Mvmt	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
EBT									442	0.26	A (0)	-/0
EBTR									266	0.16	A (0)	-/0
WBLT			-				-		35	0.04	A (1)	-/1
WBT									805	0.47	A (0)	-/0
NBL									**72**	**0.60**	**F (72)**	**-/24**
NBR									64	0.11	B (12)	-/3

Future Total Conditions: The intersection is expected to operate well within capacity and with acceptably delays during both peak hours. While the NBL movement is expected to operate with a LOS of 'F' during under the 2043 horizon, the movement operates with residual capacity. No constraints have been identified.

7.4.6 Subject Lands Site Access 5 & Mayfield Road

As previously noted, a local road connection off Mayfield Road is proposed under Phase 2 of the development to facilitate access for full buildout of the subject lands. As such, only the 2033 and 2043 horizon year intersection operations are provided below in **Table 7-40** and **Table 7-41**, respectively, for the weekday AM and PM peak hours.

Table 7-40: Intersection Capacity Analysis, Subject Lands Site Access 5 & Mayfield Road (2033)

AM	Existing Conditions (2023)				Future Background (2033)				Future Total (2033)			
Mvmt	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
EBL									25	0.03	A (10)	-/1
EBT									593	0.35	A (0)	-/0
WBT			-				-		547	0.32	A (0)	-/0
WBTR									285	0.17	A (0)	-/0
SBL									5	0.03	D (31)	-/1
SBR									10	0.02	B (11)	-/0
PM	Existing Conditions (2023)				Future Background (2033)				Future Total (2033)			
Mvmt	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th

EBL	-	-	14	0.02	B (12)	-/1
EBT			516	0.30	A (0)	-/0
WBT			823	0.48	A (0)	-/0
WBTR			418	0.25	A (0)	-/0
SBL			**11**	**0.13**	**F (52)**	**-/3**
SBR			23	0.05	B (14)	-/1

Table 7-41: Intersection Capacity Analysis, Subject Lands Site Access 5 & Mayfield Road (2043)

AM	Existing Conditions (2023)				Future Background (2043)				Future Total (2043)			
Mvmt	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
EBL	-				-				22	0.03	A (10)	-/1
EBT									715	0.42	A (0)	-/0
WBT									382	0.22	A (0)	-/0
WBTR									206	0.12	A (0)	-/0
SBL									6	0.02	B (15)	-/0
SBR									9	0.01	A (9)	-/0
PM	**Existing Conditions (2023)**				**Future Background (2043)**				**Future Total (2043)**			
Mvmt	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
EBL	-				-				12	0.03	B (13)	-/1
EBT									493	0.29	A (0)	-/0
WBT									697	0.41	A (0)	-/0
WBTR									357	0.21	A (0)	-/0
SBL									14	0.08	D (27)	-/2
SBR									20	0.02	A (9)	-/1

Future Total Conditions: The intersection is expected to operate well within capacity and with acceptably delays during both peak hours and under both horizon years. While the SBL movement is expected to operate with a LOS of 'F' during under the 2033 horizon during the PM peak hour, the movement operates with residual capacity. No constraints have been identified. No constraints have been identified.

7.5 SUMMARY OF INTERSECTION CAPACITY ANALYSIS RESULTS

With signal optimizations, the realignment of the Clarkway Drive/Humber Station Road & Mayfield Road intersection, and planned widenings along adjacent regional and local roads, the intersection capacity analysis results indicate that site traffic is expected to have an acceptable impact on the surrounding road network. In addition, the proposed site accesses to the subject lands are expected to operate sufficiently under future horizons. A small number of capacity constraints have been identified due to high volumes of background development and growth traffic at study area intersections; however, none are attributed to site traffic. Furthermore, signalization is recommended at Humber Station Road & Healey Road by the 2028 horizon to accommodate future traffic growth, a recommendation which is irrespective of site traffic given that the intersection operates poorly under future background conditions. Overall, the subject lands are expected to have an acceptable impact on the road network operations in the surrounding area. Of note, timing of the planned infrastructure improvements detailed within this section could be advanced to further the development of the ultimate road network.

8 SENSITIVITY ANALYSIS

The intersection capacity analysis undertaken in **Section 7** assume a 2-lane widening of George Bolton Parkway by 2031 to understand the minimum road network improvements required to service the lands. It is understood that as per the *Town of Caledon's Multi-Modal Transportation Master Plan (2024),* George Bolton Parkway is planned as a 4-lane connection. As such, the following sensitivity analysis has been prepared to compare the traffic operations between a George Bolton Parkway extension as 2 lanes vs. 4 lanes. The following intersections were included in the sensitivity analysis:

- Coleraine Drive & Private Access/George Bolton Parkway
- Humber Station Road & George Bolton Parkway (Subject Lands Site Access 1)

Figure 8-1 and **Figure 8-2** illustrate the lane configurations assumed under each scenario.

Figure 8-1: George Bolton Parkway Extension (2-lanes) Lane Configuration

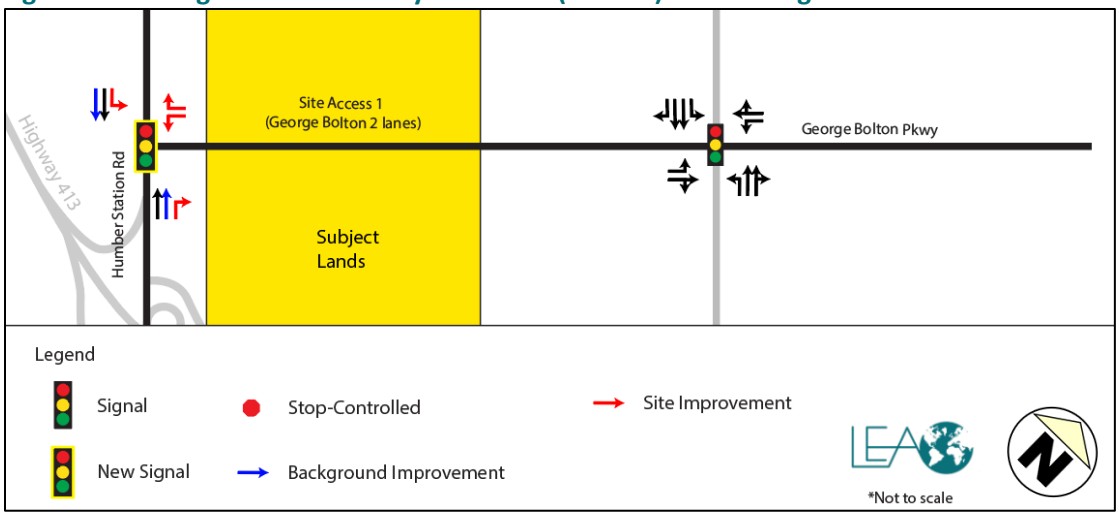
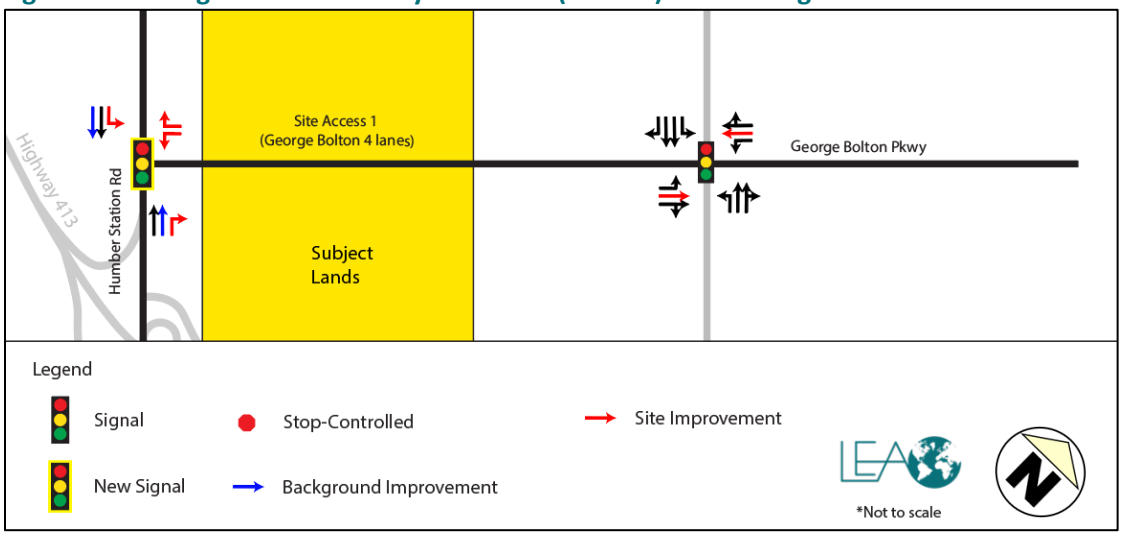


Figure 8-2: George Bolton Parkway Extension (4-lanes) Lane Configuration



A comparison of the intersection capacity analysis between the 2-lane vs. 4-lane George Bolton Parkway extension for the intersection of Coleraine Drive & Private Access/George Bolton Parkway for the 2033 and 2043 horizons are provided in **Table 8-1** and **Table 8-2** below.

Table 8-1: Sensitivity Analysis – Coleraine Drive & Private Access/George Bolton Parkway (2033)

AM	George Bolton Parkway (2-lanes) Future Total (2033)				George Bolton Parkway (4-lanes) Sensitivity Future Total (2033)			
Mvmt	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-	0.46	B (13)	-/-	-	0.46	B (13)	-/-
EBL	30	0.28	D (39)	7/14	30	0.23	D (38)	7/14
EBTR	121	0.26	D (38)	8/22	121	0.14	D (37)	4/11
WBL	63	0.54	D (44)	14/26	63	0.54	D (44)	14/26
WBTR	168	0.24	D (38)	5/21	168	0.12	D (37)	3/10
NBL	188	0.44	A (9)	15/37	188	0.44	A (9)	16/37
NBTR	508	0.27	A (6)	17/30	508	0.27	A (6)	17/30
SBL	94	0.21	A (6)	6/16	94	0.21	A (6)	6/16
SBT	499	0.26	A (6)	18/31	499	0.26	A (6)	18/31
SBR	66	0.05	A (5)	0/4	66	0.05	A (5)	0/4
PM	George Bolton Parkway (2-lanes) Future Total (2033)				George Bolton Parkway (4-lanes) Sensitivity Future Total (2033)			
Mvmt	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-	0.68	C (20)	-/-	-	0.56	B (17)	-/-
EBL	76	0.46	D (36)	16/25	76	0.57	D (44)	18/29
EBTR	300	0.75	D (46)	44/59	300	0.44	D (39)	17/25
WBL	**61**	**0.86**	**F (94)**	**15/29**	61	0.64	D (51)	14/25
WBTR	166	0.26	C (33)	9/21	166	0.17	D (37)	5/12
NBL	84	0.27	A (10)	8/21	84	0.24	A (7)	6/16
NBTR	686	0.41	A (10)	38/61	686	0.37	A (7)	29/47
SBL	169	0.61	B (19)	22/63	169	0.53	B (13)	17/42
SBT	537	0.32	A (9)	28/47	537	0.29	A (6)	22/36
SBR	28	0.02	A (7)	0/3	28	0.02	A (5)	0/2

Table 8-2: Sensitivity Analysis – Coleraine Drive & Private Access/George Bolton Parkway (2043)

AM	George Bolton Parkway (2-lanes) Future Total (2033)				George Bolton Parkway (4-lanes) Sensitivity Future Total (2033)			
Mvmt	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-	0.51	B (13)	-/-	-	0.51	B (13)	-/-
EBL	30	0.28	D (39)	7/14	30	0.23	D (38)	7/14
EBTR	121	0.26	D (38)	8/22	121	0.14	D (37)	4/11
WBL	63	0.54	D (44)	14/26	63	0.54	D (44)	14/26
WBTR	164	0.24	D (38)	5/21	164	0.12	D (37)	3/10
NBL	213	0.50	B (10)	19/45	213	0.50	B (10)	19/45
NBTR	581	0.30	A (6)	21/35	581	0.30	A (6)	21/36
SBL	93	0.23	A (6)	6/16	93	0.23	A (6)	6/16
SBT	499	0.26	A (6)	18/31	499	0.26	A (6)	18/31
SBR	113	0.09	A (5)	0/6	113	0.09	A (5)	0/6

	George Bolton Parkway (2-lanes)				George Bolton Parkway (4-lanes) Sensitivity			
PM	Future Total (2033)				Future Total (2033)			
Mvmt	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-	0.62	C (20)	-/-	-	0.50	B (17)	-/-
EBL	76	0.46	D (36)	16/25	76	0.57	D (44)	18/29
EBTR	301	0.75	D (46)	44/59	301	0.44	D (39)	17/25
WBL	**61**	**0.87**	**F (97)**	**15/29**	61	0.65	D (52)	14/25
WBTR	164	0.15	C (32)	2/14	164	0.09	D (36)	1/8
NBL	95	0.30	B (10)	10/24	95	0.27	A (7)	7/18
NBTR	592	0.35	A (9)	31/52	592	0.32	A (6)	24/39
SBL	169	0.53	B (15)	21/50	169	0.47	B (10)	15/37
SBT	538	0.32	A (9)	29/47	538	0.29	A (6)	22/36
SBR	52	0.04	A (7)	0/5	52	0.04	A (5)	0/4

A comparison of the intersection capacity analysis between the 2-lane vs. 4-lane George Bolton Parkway extension for the intersection of Humber Station Road & George Bolton Parkway (Subject Lands Site Access 1) for the 2033 and 2043 horizons are provided in **Table 8-1** and **Table 8-2** below.

Table 8-3: Sensitivity Analysis – Humber Station Road & George Bolton Parkway (Subject Lands Site Access 1) (2033)

AM	George Bolton Parkway (2-lanes)				George Bolton Parkway (4-lanes) Sensitivity			
	Future Total (2033)				Future Total (2033)			
Mvmt	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-	0.35	A (10)	-	-	0.35	A (10)	-/-
WBL	106	0.58	D (54)	25/43	106	0.58	D (54)	25/43
WBR	61	0.04	D (46)	0/12	61	0.04	D (46)	0/12
NBT	251	0.09	A (4)	7/11	251	0.09	A (4)	7/11
NBR	347	0.24	A (7)	0/6	347	0.24	A (7)	0/6
SBL	230	0.30	A (4)	5/24	230	0.30	A (4)	5/24
SBT	372	0.14	A (2)	4/8	372	0.14	A (2)	4/8
	George Bolton Parkway (2-lanes)				George Bolton Parkway (4-lanes) Sensitivity			
PM	Future Total (2033)				Future Total (2033)			
Mvmt	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-	0.39	B (17)	-	-	0.39	B (17)	-/-
WBL	284	0.78	D (54)	66/89	284	0.78	D (54)	66/89
WBR	161	0.11	D (36)	0/16	161	0.11	D (36)	0/16
NBT	445	0.20	A (3)	8/12	445	0.20	A (3)	8/12
NBR	173	0.13	A (0)	0/0	173	0.13	A (0)	0/0
SBL	113	0.23	A (5)	4/9	113	0.23	A (5)	4/9
SBT	240	0.11	A (4)	5/8	240	0.11	A (4)	5/8

Table 8-4: Sensitivity Analysis – Humber Station Road & George Bolton Parkway (Subject Lands Site Access 1) (2043)

AM	George Bolton Parkway (2-lanes) Future Total (2043)				George Bolton Parkway (4-lanes) Sensitivity Future Total (2043)			
Mvmt	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-	0.29	B (11)	-	-	0.29	B (11)	-/-
WBL	106	0.58	D (54)	25/43	106	0.58	D (54)	25/43
WBR	61	0.04	D (46)	0/12	61	0.04	D (46)	0/12
NBT	271	0.10	A (5)	8/11	271	0.10	A (5)	8/11
NBR	324	0.22	A (9)	4/6	324	0.22	A (9)	4/6
SBL	181	0.24	A (4)	7/15	181	0.24	A (4)	7/15
SBT	400	0.15	A (3)	8/14	400	0.15	A (3)	8/14
	George Bolton Parkway (2-lanes)				George Bolton Parkway (4-lanes) Sensitivity			
PM	Future Total (2043)				Future Total (2043)			
Mvmt	Vol	V/C	(Delay) LOS	Queue 50th/ 95th	Vol	V/C	(Delay) LOS	Queue 50th/ 95th
Overall	-	0.39	C (22)	-	-	0.39	C (22)	-/-
WBL	284	0.78	D (54)	66/89	284	0.78	D (54)	66/89
WBR	161	0.11	D (36)	0/16	161	0.11	D (36)	0/16
NBT	515	0.23	A (10)	38/56	515	0.23	A (10)	38/56
NBR	162	0.13	C (21)	9/16	162	0.13	C (21)	9/16
SBL	89	0.20	A (8)	6/14	89	0.20	A (8)	6/14
SBT	246	0.11	A (7)	8/16	246	0.11	A (7)	8/16

Based on the sensitivity analysis above, both intersections operate similarly under the 2033 and 2043 horizons with a 2-lane or 4-lane George Bolton cross-section. The WBL during the PM peak hour at Coleraine Drive & Private Access/George Bolton Parkway is anticipated to improve under the 4-lane scenario. Overall, both scenarios operate similarly and well within capacity.

9 TRANSPORTATION DEMAND MANAGEMENT

A Transportation Demand Management (TDM) Strategy is necessary to ensure successful implementation of initiatives that act to reduce automobile use and increase the use of active and sustainable modes of transportation. The following section provides an overview of what Transportation Demand Management is and how it can be applied to reduce dependency on single occupancy vehicles (SOV) and encourage other methods of travel throughout the study area.

9.1 WHAT IS TDM?

Transportation Demand Management seeks to apply behaviour change tools and incentives to align transport demand with supply. TDM is a toolkit of strategies that facilitates a more efficient transportation network by influencing travel behaviour. Effective implementation of TDM strategies may improve the supply or reduce the demand on a transportation network, resulting in reduced congestion. These strategies provide methods to reduce, re-mode, re-time, and/or re-route trips, also known as the 4 R's of TDM.

9.2 HOW ARE TDM GOALS ACHIEVED?

TDM strategies generally fall into 3 categories:

1. **Land Use and Urban Design Strategies:** Utilizing the streetscape and land use development to support a more efficient transport network by prioritizing efficient modes such as walking, cycling, transit, or carpooling.
2. **Incentive and Disincentive Strategies:** A "carrot and stick" approach to TDM that influences travel choices by making a particular mode or travel choice more attractive (incentive) and/or another mode less attractive (disincentive).
3. **Educational, Promotional, and Outreach Strategies:** Utilizing information and events to improve understanding, raise awareness, and raise positive sentiment to sustainable travel.

The most effective TDM strategy is well-planned, customized, and coordinated, utilizing a comprehensive suite of TDM strategies to target workplaces within the study area.

9.3 TDM BENEFITS

Transportation studies generally have an overall vision for their transportation network in which certain TDM benefits are prioritized and TDM strategies are selected to complement the area vision to the greatest extent possible. Some TDM benefits are as follows:

- Congestion reduction for all users by managing travel demand thus improving the experience for all modes;
- Energy/emission reduction through fewer or more efficient vehicle trips;
- Improving health and fitness by increasing active transportation trips and improving air quality;
- Improving the livability of an area by providing more attractive streetscaping, encouraging livable urban design, and increasing street animation;

- Parking management solutions that reduce the overall developable space dedicated to parking; and
- Improving safety for all users through the design and prioritization of alternative modes.

9.4 TDM GOALS

- Potential goals for TDM initiatives
- Establish a complete community that has a variety of reliable and connected transportation options.
- Support active modes of transportation.
- Develop TDM programs (programming/marketing).
- Enhance the safety, comfort, and accessibility for pedestrians and cyclists.

9.5 POLICY CONTEXT

The Regional of Peel Official Plan, Town of Caledon Official Plan, and Caledon Transportation Master Plan contain policies outlining guiding principles for Transportation Demand Management to promote alternative forms of transportation and increase the modal share of alternatives to the automobile.

9.5.1 Region of Peel Official Plan, 2022

The Peel Region Official Plan 2022 provides the strategic policy planning framework for managing future growth within the Region. The policies outlined within Section 5.10 of the Plan address growth by providing a transportation network that balances the needs of all road users through the emphasis of sustainable transportation infrastructure and maintaining levels of service while shifting travel modes, avoiding the need to widen roads. The aim is to develop an integrated and multi-modal transportation system, optimize existing regional transportation infrastructure by prioritizing the safe, sustainable, and efficient movement of people by all modes, as well as to avoid or minimize the emission of transportation related greenhouse gases. The following policies outline the transportation demand management efforts from the Region:

- *Policy 5.10.20 - Work with the relevant municipalities and the Province to develop enhanced tools and techniques for assessing the impacts of new development on sustainable transportation modes and on transportation demand management measures.*
- *Policy 5.10.23 - Work with the relevant municipalities, other orders of government and non-governmental agencies to develop and implement transportation demand management programs to reduce trip distance and travel time and increase the sustainable transportation modal share.*
- *Policy 5.10.34.14 - Work with the local municipalities to promote and support the development and implementation of transportation demand management strategies and programs within the Regional and local municipal governments.*
- *Policy 5.10.34.16 - Encourage the local municipalities to update their parking and zoning by-laws to support and facilitate transportation demand management measures.*

- *Policy 5.10.34.18 - Work with the local municipalities and the GTHA municipalities to develop tools to integrate transportation demand management requirements into the planning and development approvals process.*
- *Policy 5.10.34.48 - Encourage efficient fuel use and conservation by promoting transportation demand management programs, linked trips, the use of Intelligent Transportation Systems and the use of public transit and active transportation.*

9.5.2 Caledon Official Plan, 2024

The Town of Caledon Official Plan acknowledges the growth in vehicular trips within the Town which has further pressurized the existing transportation infrastructure. Section 5 of the Plan outlines policies to attain more sustainable and diverse transportation systems that are safe, affordable, efficient, and energy conserving. Section 5.9.5.5 of the Plan outline policies relating to transportation demand management which focus on augmenting the capacity of the existing transportation system to ensure an optimal mix of both supply and demand rather than adding costly new facilities. The following are policies relating to TDM outlined by the Town's Official Plan:

- *Policy 5.9.5.5.2 - The Town shall strive to achieve a significant increase in vehicle occupancy rates on an overall basis by continuing to work with Brampton-Caledon Smart Commute Transport Management Association (TMA) to encourage employers/employees to choose sustainable modes of transportation for their daily commutes.*
- *Policy 5.9.5.5.3 - The Town will support/work as appropriate with the Region, Metrolinx and other stakeholders to undertake an awareness and marketing initiative to encourage employers and residents to use sustainable modes which are viable alternatives to the private automobile.*

9.5.3 Caledon Transportation Master Plan, 2017

The Caledon Transportation Master Plan (TMP) *Section 4.4* outlines several measures focused on education, promotion and outreach, and travel incentives and disincentives. To reduce single occupant vehicle trips, recommended initiatives include active transportation and transit in the rural service centres and carpooling in areas where fixed transit routes are not practical. Policies regarding the development of TDM plans provided in the TMP include:

- *The Town should develop and implement, in conjunction with Peel Region, Metrolinx and the Province, Transportation Demand Management initiatives to reduce single-occupant vehicle travel, increase vehicle occupancy rates, lessen congestion on the Town's road system, especially during peak periods, facilitate more sustainable travel behavior, and endeavour to create street configurations, densities and urban form that support walking, cycling and the early integration and sustained viability of transit services.*

The Town also recommends that new develops explore promoting the Brampton-Caledon Smart Commute services and encouraging employers to participate in the Employer Individualized Marketing campaign which reduces single-occupancy vehicle travel by providing marketing messages tailored to the traveling needs of individuals.

9.6 HUMBER STATION EMPLOYMENT AREA LANDS PROPOSED TDM MEASURES

It is recommended that developments within the Humber Station Employment Area lands be required to submit and implement a Transportation Demand Management Plan that demonstrates how the proposed development will support a shift to more sustainable travel modes. The following section provides a list of potential TDM measures to be explored and applied by each subsequent planning application and confirmed at the site plan stage by the individual landowners. The set of TDM measures would also be determined on a site-by-site basis based on the specific proposed uses.

9.6.1 Pedestrian-Based Strategies

Development within the Humber Station Employment Area lands should ensure safe, comfortable, and convenient pedestrian connections to key destinations within the surrounding area. Pedestrian strategies to encourage walking as a mode of travel include:

- Orient building entrances close to the street with direct connections to pedestrian pathways.
- Provide landscaping and pedestrian amenities such as trees, sidewalks, benches, and marked crossings to create an attractive public realm and encourage walking.
- Provide green space and outdoor amenities that are within convenient walking distance.

9.6.2 Cycling-Based Strategies

Development within the Humber Station Employment Area lands should promote cycling as a potential travel option. Cycling strategies to encourage biking as a mode of travel include:

- Avoid barriers to cyclists such as curbs or stairs, where possible. Where they exist, stairways leading to and from station areas should be outfitted with bike ramps.
- Provide cycling infrastructure and end-of-trip infrastructure such as secure bicycle racks, bicycle storage, and shower and change room facilities. Bicycle parking rates will be determined on a site-specific basis during subsequent applications. General bicycle parking rates should be proposed in line with nearby municipalities.
- Provide bike rental or bike share facilities within future mobility hubs or key transit locations.
- Provide cyclists with sheltered and secure bicycle storage facilities.

9.6.3 Transit-Based Strategies

Development within the Humber Station Employment Area lands should prioritize connections and access to transit while encouraging transit as a desirable mode choice. Transit strategies to encourage transit trips include:

- Prioritize bus traffic over motorized vehicles in the vicinity of the proposed bus terminal.
- Provide weather-protected transit stops.
- Provide real-time information displays at major transfer points or within building common areas to minimize waiting uncertainty.

- Subsidize transit passes or pre-loaded transit cards for new residents and/or employees.
- Enhance the comfort of outdoor pedestrian waiting areas through year-round planting that provide shelter from the wind in the winter months and shade during the summer months.

9.6.4 Travel and Parking Management Strategies

Development within the Humber Station Employment Area lands should increase awareness of sustainable transportation opportunities and avoid an oversupply of parking. Travel and parking strategies to reduce private vehicle trips include:

- Encourage participation in Smart Commute Workplace programs to expand travel opportunities for employees in sustainable ways.
- Permit reductions in maximum and minimum parking requirements once TDM measures are adopted as part of a development approval.
- Reduce minimum parking standards for small-scale retail and employment uses near transit routes.
- Encourage shared parking arrangements between uses to reduce the need for parking spaces within a development.
- Provide dedicated and/or preferential, publicly accessible car-share or carpooling parking spaces.

As an incentive to encourage TDM within the Humber Station Employment Area lands, the Town may permit reduced parking standards for developments that demonstrate through a TDM plan and implementation strategy, that a reduction in parking standards is appropriate.

10 CONCLUSION

- This Transportation Mobility Plan Update has been prepared to support the Secondary Plan study and development of the transportation network in the Humber Station Employment Area lands. The Humber Station Employment Area lands are planned for employment consisting of Prestige Employment and predominately General Employment land use designations and are planned for a minimum density of 26 jobs per hectare to achieve the employment density targets as outlined in the Town's Draft Official Plan (August 2023).
- The goals and objectives for the Humber Station Employment Area study area are influenced by policy documents at the provincial, regional, and local levels. From a transportation perspective, these documents encourage development of a multimodal network to support the efficient movement of people and goods. Objectives include developing a long-term strategy to accommodate the needs of all road users while enhancing connectivity and accessibility.
- The Humber Station Employment study area is serviced by Peel Region, Town of Caledon, and City of Brampton roads. There are 3 regional roadways and 4 municipal roadways comprising the arterial, collector, and local road network in the study area.
- Local transit service for the Bolton area is provided by Brampton Transit while inter-regional commuter bus service is operated by GO Transit between Malton and the area of Highway 50 & Columbia Way. Bike lanes are provided on both sides of George Bolton Parkway, east of Coleraine Drive. However, no cycling facilities are available along the remaining study area roadways. The study area also exhibits poor pedestrian connectivity which can be attributed to the lack of collector/local streets, missing facilities, and discontinuous sidewalks.
- This assessment considers the 5, 10, and 20-year horizon from the existing year 2023. The future background conditions include traffic added to the network from other future developments, corridor growth, and road network improvements.
- Full buildout of the subject lands is anticipated to generate 1,430 two-way auto vehicle trips during the AM peak hour (1,065 inbound, 365 outbound) and 1,435 two-way auto vehicle trips during the PM peak hour (479 inbound, 956 outbound). In addition, 148 two-way truck trips (83 inbound, 65 outbound) are anticipated during the AM peak hour and 238 two-way truck trips (103 inbound, 135 outbound) are anticipated during the PM peak hour.
- A network of collector and/or local roads is required to provide servicing, frontage, and connectivity to the external road network. The Future Caledon Official Plan and MMTMP recommended a collector road network for the SABE consisting of a westerly extension of George Bolton Parkway to Humber Station, a northly extension of Arterial A2 through the site to the rail corridor, and two (2) east-west collectors to connect the SABE employment and community areas. Based on a review of the conceptual collector road network, several environmental and development constraints were identified with the collector road network north of George Bolton Parkway. Based on the traffic modelling completed in **Section 7**, the George Bolton Parkway extension provides a sufficient road network for the anticipated traffic. The collector road network north of George Bolton Parkway is not required from a traffic capacity perspective.

- The recommendation for the internal road network under the 2028 interim horizon includes the partial buildout of George Bolton Parkway to facilitate access for Parcel 1. The ultimate 2033 and 2043 conditions include the full western extension of George Bolton Parkway, connecting Coleraine Drive to Humber Station Road as well as local connections to Humber Station Road, Healey Road, and Mayfield Road are proposed to accommodate full buildout of the subject lands. All five site accesses are proposed as unsignalized intersections in the interim. The future intersection of George Bolton Parkway & Humber Station Road is proposed as a full-movement signalized intersection under ultimate conditions.
- The intersection capacity analysis was conducted for the AM and PM peak hours under the existing, future background (2028, 2033, 2043) and future total (2028, 2033, 2043) horizons. With signal optimizations, the realignment of the Clarkway Drive/Humber Station Road & Mayfield Road intersection, and planned widenings along adjacent regional and local roads, the intersection capacity analysis results indicate that site traffic is expected to have an acceptable impact on the surrounding road network. In addition, the proposed site accesses to the subject lands are expected to operate sufficiently under future horizons.
- A small number of capacity constraints have been identified due to high volumes of background development and growth traffic at study area intersections; however, none are attributed to site traffic. Furthermore, signalization is recommended at Humber Station Road & Healey Road by the 2028 horizon to accommodate future traffic growth, a recommendation which is irrespective of site traffic given that the intersection operates poorly under future background conditions. Overall, the subject lands are expected to have an acceptable impact on the road network operations in the surrounding area. Of note, timing of the planned infrastructure improvements could be advanced to further the development of the ultimate road network.
- A list of TDM strategies have been recommended to reduce single-occupant vehicle trips and encourage multi-modal travel alternatives for the subject lands.

APPENDIX A

MMLOS

Exhibit 4 – PLOS Segment Evaluation Table

Sidewalk Width (m)	Boulevard Width (m)	Motor Vehicle Traffic Volume (AADT)	Presence of On-street Parking	Segment PLOS			
				Operating Speed (km/h)			
				≤30	>30 or 50	>50 or 60	>60 [1]
2.0 or more	> 2	≤ 3000	N/A	A	A	A	B
		> 3000	Yes	A	B	B	N/A
			No	A	B	C	D
	0.5 to 2	≤ 3000	N/A	A	A	A	B
		> 3000	Yes	A	B	C	N/A
			No	A	C	D	E
	0	≤ 3000	NA	A	B	C	D
		> 3000	Yes	B	B	D	N/A
			No	B	C	E	F
1.8	> 2	≤ 3000	N/A	A	A	A	B
		> 3000	Yes	A	B	C	N/A
			No	A	C	D	E
	0.5 to 2	≤ 3000	N/A	A	B	B	D
		> 3000	Yes	A	C	C	N/A
			No	B	C	E	E
	0	≤ 3000	N/A	A	B	C	D
		> 3000	Yes	B	C	D	N/A
			No	C	D	F	F
1.5	> 2	≤ 3000	N/A	C	C	C	C
		> 3000	Yes	C	C	D	N/A
			No	C	D	E	E
	0.5 to 2	≤ 3000	N/A	C	C	C	D
		> 3000	Yes	C	C	D	N/A
			No	D	E	E	E
	0	N/A		D	E	F [2]	F [2]
<1.5	N/A			F [3]	F [3]	F [3]	F [3]
No sidewalk	N/A			C [4]	F [3]	F [3]	F [3]

Notes:
1. On-street parking not provided on roadways with posted speed of 70 km/h or more
2. Sidewalk must be 1.8 m wide if no separation is provided (curb-face sidewalk) where speeds are high
3. Sidewalk must be 1.5 m wide to meet Provincial accessiblity standards
4. Ottawa Pedestrian Plan, 2014: “all new and reconstructed urban local roads where pedestrian facilities are required in accordance with these policies but no dedicated pedestrian facility is provided, require that roads be designed for a speed of 30 km/h or lower (pending development of a new 30 km/h roadway design standard).” Where a roadway is specifically designed as 'shared space', with appropriate design controls and features, it can achieve LOS A.
5. Where a multi-use path is provided in lieu of sidewalks, the MUP can be evaluated using the same methodology.

Exhibit 11 – BLOS Segment Evaluation Table

Type of Bikeway		LOS
Physically Separated Bikeway (cycle tracks, protected bike lanes and multi-use paths). Physical separation refers to, but is not limited to, curbs, raised medians, bollards and parking lanes (adjacent to the bike lane along the travelled way i.e. not curbside).		A
Bike Lanes Not Adjacent Parking Lane - Select Worst Scoring Criteria		
No. of Travel Lanes	1 travel lane in each direction	A
	2 travel lanes in each direction separated by a raised median	B
	2 travel lanes in each direction without a separating median	C
	More than 2 travel lanes in each direction	D
Bike Lane Width	≥ 1.8 m wide bike lane (includes marked buffer and paved gutter width)	A
	≥1.5 m to <1.8 m wide bike lane (includes marked buffer and paved gutter width)	B
	≥1.2 m to <1.5 m wide bike lane (includes marked buffer and paved gutter width)	C
Operating Speed	≤ 50 km/h operating speed	A
	60 km/h operating speed	C
	≥ 70 km/h operating speed	E
Bike lane blockage (commercial areas)	Rare	A
	Frequent	C
Bike Lanes Adjacent to curbside Parking Lane - Select Worst Scoring Criteria		
No. of Travel Lanes	1 travel lane in each direction	A
	2 or more travel lanes in each direction	C
Bike Lane and Parking Lane Width	4.5 m wide bike lane plus parking lane (includes marked buffer and paved gutter width)	A
	4.25 m wide bike lane plus parking lane (includes marked buffer and paved gutter width)	B
	≤ 4.0 m wide bike lane plus parking lane (includes marked buffer and paved gutter width)	C
Operating Speed	≤ 40 km/h operating speed	A
	50 km/h operating speed	B
	60 km/h operating speed	D
	≥ 70 km/h operating speed	F
Bike lane blockage (commercial areas)	Rare	A
	Frequent	C
Mixed Traffic		
No. of Travel Lanes and Operating Speed	2 travel lanes; ≤ 40 km/h; no marked centerline or classified as residential	A
	2 to 3 travel lanes; ≤ 40 km/h	B
	2 travel lanes; 50 km/h; no marked centerline or classified as residential	B
	2 to 3 travel lanes; 50 km/h	D
	4 to 5 travel lanes; ≤ 40 km/h	D
	4 to 5 travel lanes; ≥ 50 km/h	E
	6 or more travel lanes; ≤ 40 km/h	E
	≥ 60 km/h	F
Unsignalized Crossing along Route: no median refuge		
No. of Travel Lanes on Side Street and Operating Speed	3 or less lanes being crossed; ≤ 40 km/h	A
	4 to 5 lanes being crossed; ≤ 40 km/h	B
	3 or less lanes being crossed; 50 km/h	B
	4 to 5 lanes being crossed; 50 km/h	C
	3 or less lanes being crossed; 60 km/h	C
	4 to 5 lanes being crossed; 60 km/h	D
	6 or more lanes being crossed; ≤ 40 km/h	E
	3 or less lanes being crossed; ≥ 65 km/h	E
	6 or more lanes being crossed; ≥ 50 km/h	F
	4 to 5 lanes being crossed; ≥ 65 km/h	F
Unsignalized Crossing along Route: with median refuge (≥ 1.8 m wide)		
No. of Travel Lanes on Side Street and Operating Speed	5 or less lanes being crossed; ≤ 40 km/h	A
	3 or less lanes being crossed; 50 km/h	A
	6 or more lanes being crossed; ≤ 40 km/h	B
	4 to 5 lanes being crossed; 50 km/h	B
	3 or less lanes being crossed; 60 km/h	B
	6 or more lanes being crossed; 50 km/h	C
	4 to 5 lanes being crossed; 60 km/h	C
	3 or less lanes being crossed; ≥ 65 km/h	D
	6 or more lanes being crossed; 60 km/h	E
	4 to 5 lanes being crossed; ≥ 65 km/h	E
	6 or more lanes being crossed; ≥ 65 km/h	F

Pedestrian Level of Service

Segment	From	To	Side	Sidewalk Width	Blvd Width	AADT per lane	Parking?	Speed	Segment PLOS
Healey Road	Humber Station Road	Coleraine Drive	North	No Sidewalk	0	>3000	No	60	F
			South	No Sidewalk	0	>3000	No	60	F
Humber Station Road	Healey Road	Mayfield Road	East	No Sidewalk	0	>3000	No	80	F
			West	No Sidewalk	0	>3000	No	80	F
Mayfield Road	Humber Station Road	Coleraine Drive	North	No Sidewalk	0	>3000	No	80	F
			South	No Sidewalk	0	>3000	No	80	F
Coleraine Drive	Mayfield Road	George Bolton Parkway	East	No Sidewalk	0	>3000	No	70	F
			West	No Sidewalk	0	>3000	No	70	F
Coleraine Drive	George Bolton Parkway	Healey Road	East	<1.5	0	>3000	No	70	F
			West	<1.5	0	>3000	No	70	F
George Bolton Parkway	Coleraine Drive	Highway 50	North	1.5	>2.0	<3000	No	50	C
			South	<1.5	0	<3000	No	50	F

Bicycle Level of Service

Segment	From	To	Side	Type	No. of Lanes	Bike Lane Width	Operating Speed	Centreline?	Segment BLOS
Healey Road	Humber Station Road	Coleraine Drive	North	Mixed	2 travel lanes	-	60	Yes	F
			South	Mixed	2 travel lanes	-	60	Yes	F
Humber Station Road	Healey Road	Mayfield Road	East	Mixed	2 travel lanes	-	80	Yes	F
			West	Mixed	2 travel lanes	-	80	Yes	F
Mayfield Road	Humber Station Road	Coleraine Drive	North	Mixed	2 travel lanes	-	80	Yes	F
			South	Mixed	2 travel lanes	-	80	Yes	F
Coleraine Drive	Mayfield Road	George Bolton Parkway	East	Mixed	4 travel lanes	-	70	Yes	F
			West	Mixed	4 travel lanes	-	70	Yes	F
Coleraine Drive	George Bolton Parkway	Healey Road	East	Mixed	4 travel lanes	-	70	Yes	F
			West	Mixed	4 travel lanes	-	70	Yes	F
George Bolton Parkway	Coleraine Drive	Highway 50	North	Bike Lane wo Parking	2 travel lanes	1.5-1.8	50	Yes	B
			South	Bike Lane wo Parking	2 travel lanes	1.5-1.8	50	Yes	B

APPENDIX B

TMCs & STPs

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 idinsmore@lea.ca

Count Name: 23347_Coleraine Dr & Healy Rd-AM
Site Code: 23347
Start Date: 05/03/2023

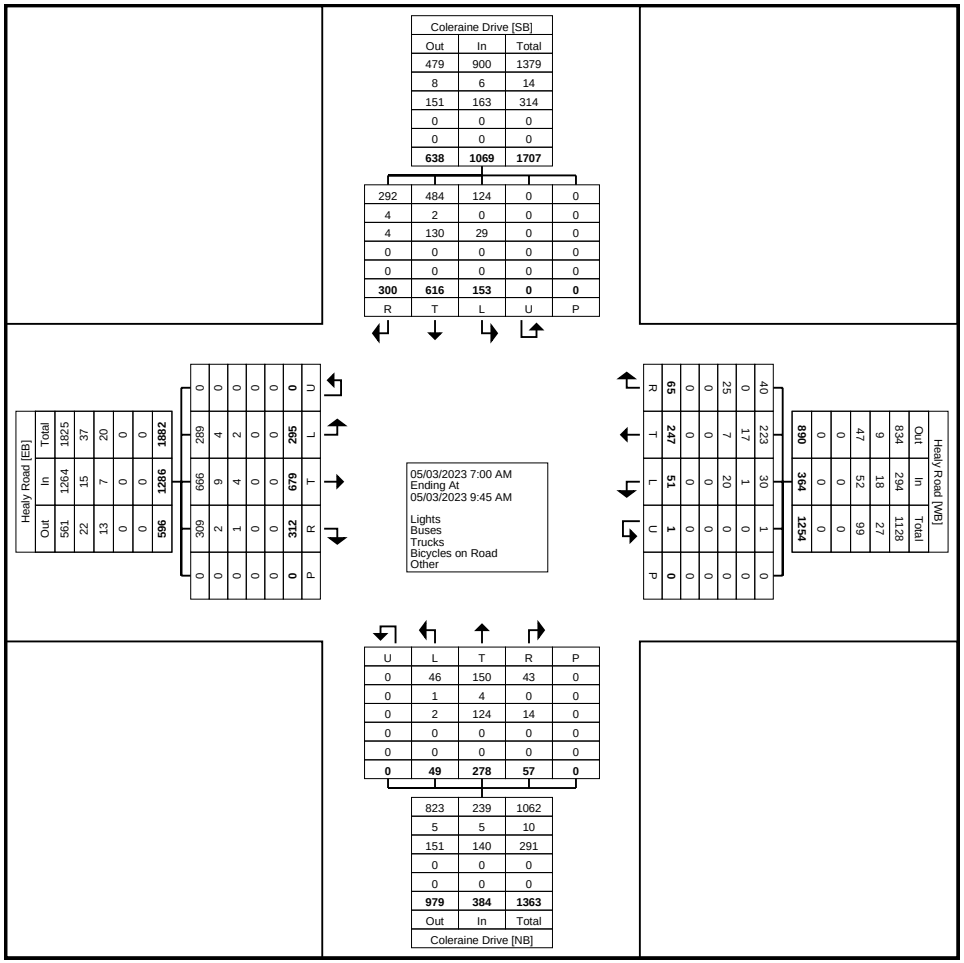
Turning Movement Data

Start Time	Coleraine Drive Southbound						Healy Road Westbound						Coleraine Drive Northbound						Healy Road Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
7:00 AM	41	71	19	0	0	131	6	20	7	0	0	33	4	26	6	0	0	36	69	54	25	0	0	148	348
7:15 AM	51	60	12	0	0	123	6	26	6	0	0	38	9	33	6	0	0	48	56	69	30	0	0	155	364
7:30 AM	49	71	17	0	0	137	5	31	6	1	0	43	5	21	7	0	0	33	42	82	38	0	0	162	375
7:45 AM	21	63	16	0	0	100	5	24	5	0	0	34	4	21	7	0	0	32	29	91	28	0	0	148	314
Hourly Total	162	265	64	0	0	491	22	101	24	1	0	148	22	101	26	0	0	149	196	296	121	0	0	613	1401
8:00 AM	42	64	18	0	0	124	7	23	6	0	0	36	5	31	7	0	0	43	24	73	33	0	0	130	333
8:15 AM	27	70	6	0	0	103	9	18	9	0	0	36	6	32	3	0	0	41	14	72	34	0	0	120	300
8:30 AM	30	55	15	0	0	100	10	20	3	0	0	33	5	21	7	0	0	33	21	60	27	0	0	108	274
8:45 AM	12	52	20	0	0	84	7	36	4	0	0	47	4	25	1	0	0	30	37	66	36	0	0	139	300
Hourly Total	111	241	59	0	0	411	33	97	22	0	0	152	20	109	18	0	0	147	96	271	130	0	0	497	1207
9:00 AM	11	60	13	0	0	84	9	26	2	0	0	37	7	39	2	0	0	48	9	59	20	0	0	88	257
9:15 AM	16	50	17	0	0	83	1	23	3	0	0	27	8	29	3	0	0	40	11	53	24	0	0	88	238
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	300	616	153	0	0	1069	65	247	51	1	0	364	57	278	49	0	0	384	312	679	295	0	0	1286	3103
Approach %	28.1	57.6	14.3	0.0	-	-	17.9	67.9	14.0	0.3	-	-	14.8	72.4	12.8	0.0	-	-	24.3	52.8	22.9	0.0	-	-	-
Total %	9.7	19.9	4.9	0.0	-	34.5	2.1	8.0	1.6	0.0	-	11.7	1.8	9.0	1.6	0.0	-	12.4	10.1	21.9	9.5	0.0	-	41.4	-
Lights	292	484	124	0	-	900	40	223	30	1	-	294	43	150	46	0	-	239	309	666	289	0	-	1264	2697
% Lights	97.3	78.6	81.0	-	-	84.2	61.5	90.3	58.8	100.0	-	80.8	75.4	54.0	93.9	-	-	62.2	99.0	98.1	98.0	-	-	98.3	86.9
Buses	4	2	0	0	-	6	0	17	1	0	-	18	0	4	1	0	-	5	2	9	4	0	-	15	44
% Buses	1.3	0.3	0.0	-	-	0.6	0.0	6.9	2.0	0.0	-	4.9	0.0	1.4	2.0	-	-	1.3	0.6	1.3	1.4	-	-	1.2	1.4
Trucks	4	130	29	0	-	163	25	7	20	0	-	52	14	124	2	0	-	140	1	4	2	0	-	7	362
% Trucks	1.3	21.1	19.0	-	-	15.2	38.5	2.8	39.2	0.0	-	14.3	24.6	44.6	4.1	-	-	36.5	0.3	0.6	0.7	-	-	0.5	11.7
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 idinsmore@lea.ca

Count Name: 23347_Coleraine Dr & Healy Rd-AM
Site Code: 23347
Start Date: 05/03/2023



Turning Movement Data Plot

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 idinsmore@lea.ca

Count Name: 23347_Coleraine Dr & Healy Rd-AM
Site Code: 23347
Start Date: 05/03/2023

Turning Movement Peak Hour Data (7:00 AM)

Start Time	Coleraine Drive Southbound						Healy Road Westbound						Coleraine Drive Northbound						Healy Road Eastbound						
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Int. Total
7:00 AM	41	71	19	0	0	131	6	20	7	0	0	33	4	26	6	0	0	36	69	54	25	0	0	148	348
7:15 AM	51	60	12	0	0	123	6	26	6	0	0	38	9	33	6	0	0	48	56	69	30	0	0	155	364
7:30 AM	49	71	17	0	0	137	5	31	6	1	0	43	5	21	7	0	0	33	42	82	38	0	0	162	375
7:45 AM	21	63	16	0	0	100	5	24	5	0	0	34	4	21	7	0	0	32	29	91	28	0	0	148	314
Total	162	265	64	0	0	491	22	101	24	1	0	148	22	101	26	0	0	149	196	296	121	0	0	613	1401
Approach %	33.0	54.0	13.0	0.0	-	-	14.9	68.2	16.2	0.7	-	-	14.8	67.8	17.4	0.0	-	-	32.0	48.3	19.7	0.0	-	-	-
Total %	11.6	18.9	4.6	0.0	-	35.0	1.6	7.2	1.7	0.1	-	10.6	1.6	7.2	1.9	0.0	-	10.6	14.0	21.1	8.6	0.0	-	43.8	-
PHF	0.794	0.933	0.842	0.000	-	0.896	0.917	0.815	0.857	0.250	-	0.860	0.611	0.765	0.929	0.000	-	0.776	0.710	0.813	0.796	0.000	-	0.946	0.934
Lights	159	216	46	0	-	421	7	98	16	1	-	122	17	56	26	0	-	99	196	290	117	0	-	603	1245
% Lights	98.1	81.5	71.9	-	-	85.7	31.8	97.0	66.7	100.0	-	82.4	77.3	55.4	100.0	-	-	66.4	100.0	98.0	96.7	-	-	98.4	88.9
Buses	1	0	0	0	-	1	0	2	0	0	-	2	0	3	0	0	-	3	0	5	3	0	-	8	14
% Buses	0.6	0.0	0.0	-	-	0.2	0.0	2.0	0.0	0.0	-	1.4	0.0	3.0	0.0	-	-	2.0	0.0	1.7	2.5	-	-	1.3	1.0
Trucks	2	49	18	0	-	69	15	1	8	0	-	24	5	42	0	0	-	47	0	1	1	0	-	2	142
% Trucks	1.2	18.5	28.1	-	-	14.1	68.2	1.0	33.3	0.0	-	16.2	22.7	41.6	0.0	-	-	31.5	0.0	0.3	0.8	-	-	0.3	10.1
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
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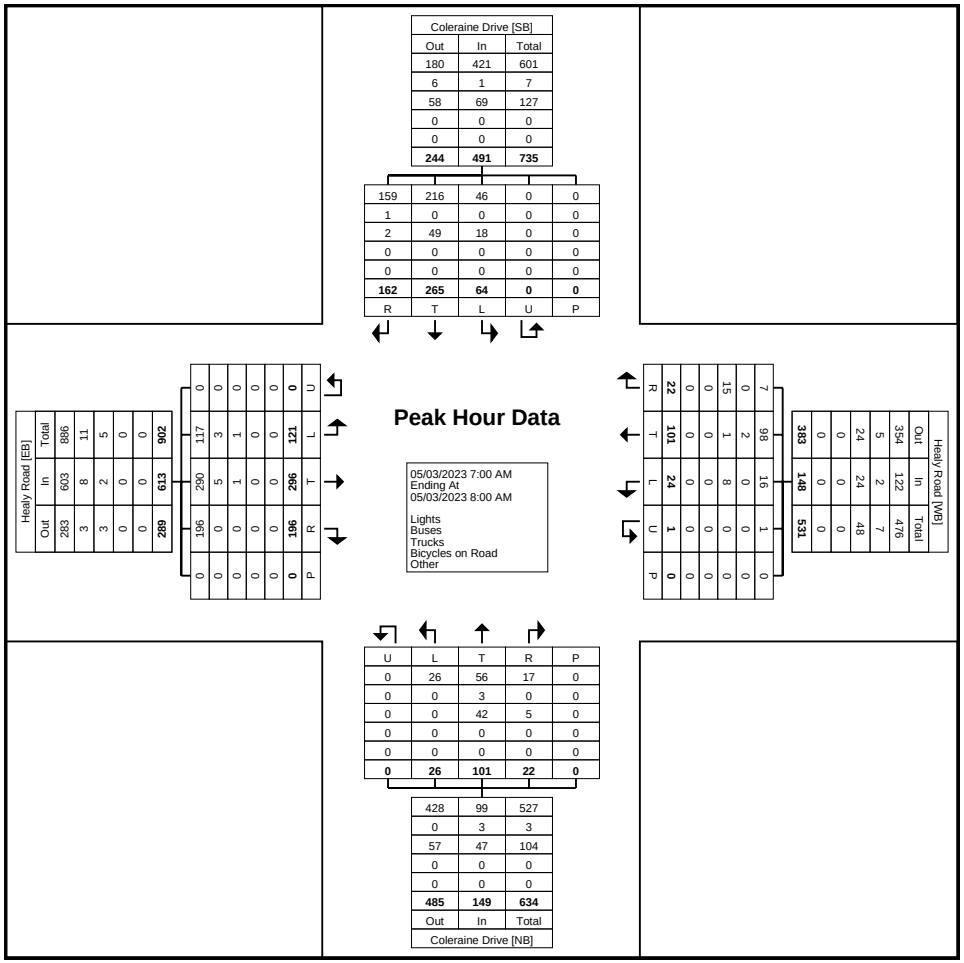
Count Name: 23347_Coleraine Dr & Healy Rd-AM
Site Code: 23347
Start Date: 05/03/2023



Turning Movement Peak Hour Data Plot (7:00 AM)

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 idinsmore@lea.ca

Count Name: 23347_Coleraine Dr & Healy Rd-PM
Site Code: 23347
Start Date: 05/03/2023

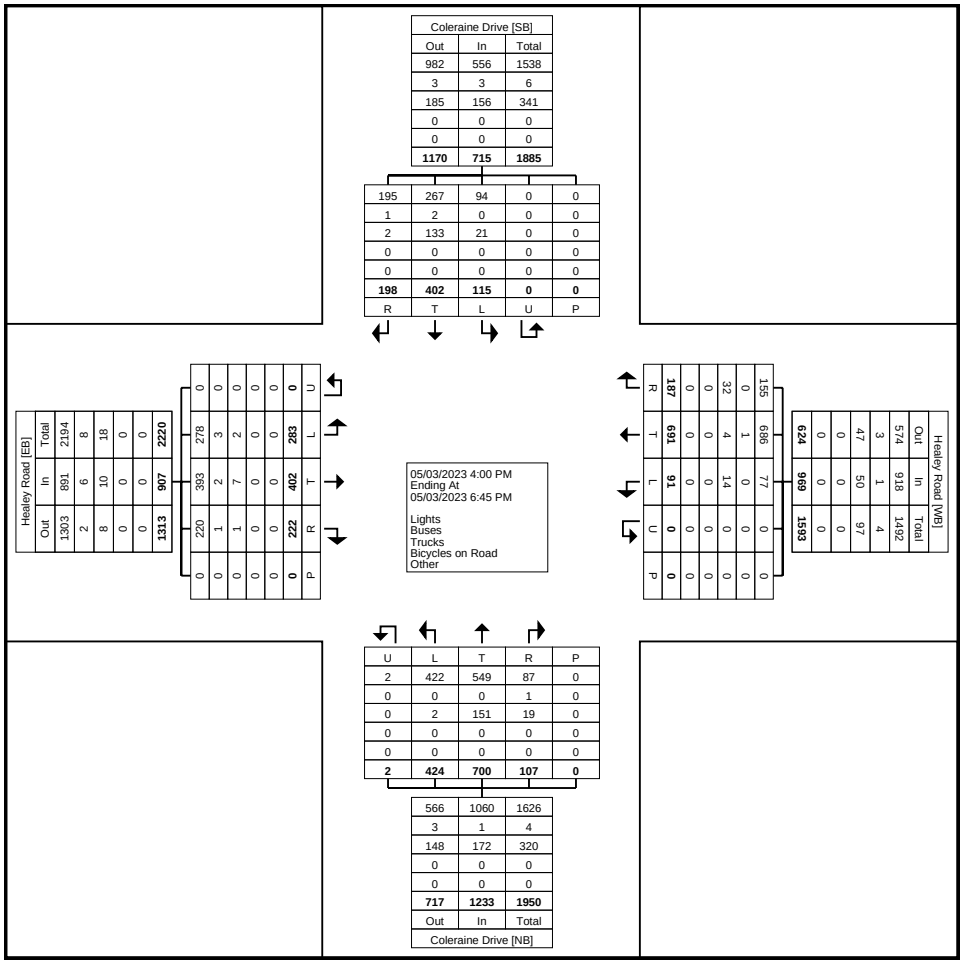
Turning Movement Data

Start Time	Coleraine Drive Southbound						Healey Road Westbound						Coleraine Drive Northbound						Healey Road Eastbound						
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Int. Total
4:00 PM	21	51	11	0	0	83	34	53	20	0	0	107	13	73	23	1	0	110	27	51	40	0	0	118	418
4:15 PM	19	52	13	0	0	84	18	60	5	0	0	83	11	58	25	0	0	94	9	52	28	0	0	89	350
4:30 PM	22	39	12	0	0	73	15	90	2	0	0	107	12	64	27	1	0	104	3	51	25	0	0	79	363
4:45 PM	19	32	10	0	0	61	15	85	7	0	0	107	7	59	31	0	0	97	12	49	38	0	0	99	364
Hourly Total	81	174	46	0	0	301	82	288	34	0	0	404	43	254	106	2	0	405	51	203	131	0	0	385	1495
5:00 PM	29	33	9	0	0	71	13	113	7	0	0	133	13	78	39	0	0	130	3	17	32	0	0	52	386
5:15 PM	22	37	18	0	0	77	28	78	6	0	0	112	7	78	48	0	0	133	13	49	26	0	0	88	410
5:30 PM	16	32	10	0	0	58	24	73	15	0	0	112	11	82	89	0	0	182	36	36	24	0	0	96	448
5:45 PM	5	42	10	0	0	57	20	40	10	0	0	70	8	65	35	0	0	108	40	36	28	0	0	104	339
Hourly Total	72	144	47	0	0	263	85	304	38	0	0	427	39	303	211	0	0	553	92	138	110	0	0	340	1583
6:00 PM	26	46	9	0	0	81	13	65	12	0	0	90	14	84	82	0	0	180	35	27	23	0	0	85	436
6:15 PM	19	37	13	0	0	69	7	34	7	0	0	48	11	59	25	0	0	95	44	34	19	0	0	97	309
6:30 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Grand Total	198	402	115	0	0	715	187	691	91	0	0	969	107	700	424	2	0	1233	222	402	283	0	0	907	3824
Approach %	27.7	56.2	16.1	0.0	-	-	19.3	71.3	9.4	0.0	-	-	8.7	56.8	34.4	0.2	-	-	24.5	44.3	31.2	0.0	-	-	-
Total %	5.2	10.5	3.0	0.0	-	18.7	4.9	18.1	2.4	0.0	-	25.3	2.8	18.3	11.1	0.1	-	32.2	5.8	10.5	7.4	0.0	-	23.7	-
Lights	195	267	94	0	-	556	155	686	77	0	-	918	87	549	422	2	-	1060	220	393	278	0	-	891	3425
% Lights	98.5	66.4	81.7	-	-	77.8	82.9	99.3	84.6	-	-	94.7	81.3	78.4	99.5	100.0	-	86.0	99.1	97.8	98.2	-	-	98.2	89.6
Buses	1	2	0	0	-	3	0	1	0	0	-	1	1	0	0	0	-	1	1	2	3	0	-	6	11
% Buses	0.5	0.5	0.0	-	-	0.4	0.0	0.1	0.0	-	-	0.1	0.9	0.0	0.0	0.0	-	0.1	0.5	0.5	1.1	-	-	0.7	0.3
Trucks	2	133	21	0	-	156	32	4	14	0	-	50	19	151	2	0	-	172	1	7	2	0	-	10	388
% Trucks	1.0	33.1	18.3	-	-	21.8	17.1	0.6	15.4	-	-	5.2	17.8	21.6	0.5	0.0	-	13.9	0.5	1.7	0.7	-	-	1.1	10.1
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 idinsmore@lea.ca

Count Name: 23347_Coleraine Dr & Healy Rd-PM
Site Code: 23347
Start Date: 05/03/2023
Page No: 2



Turning Movement Data Plot

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 idinsmore@lea.ca

Count Name: 23347_Coleraine Dr & Healy Rd-PM
Site Code: 23347
Start Date: 05/03/2023

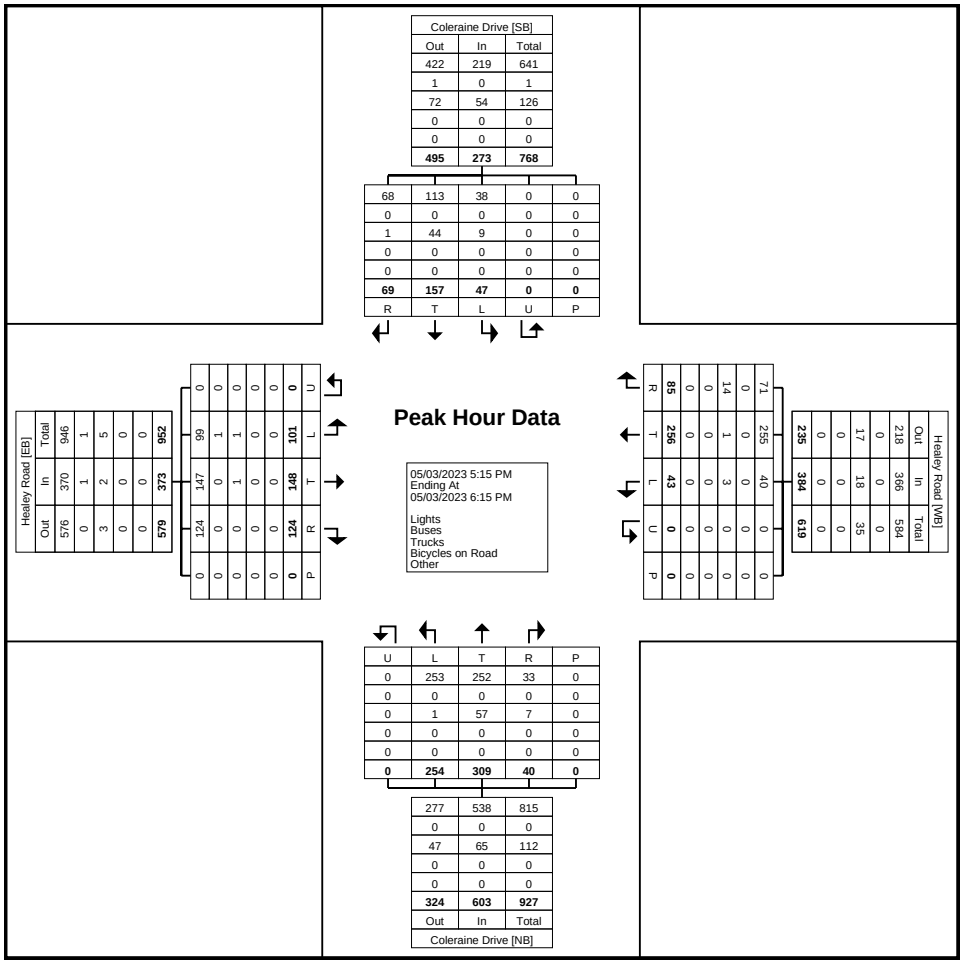
Turning Movement Peak Hour Data (5:15 PM)

Start Time	Coleraine Drive Southbound						Healey Road Westbound						Coleraine Drive Northbound						Healey Road Eastbound						
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Int. Total
5:15 PM	22	37	18	0	0	77	28	78	6	0	0	112	7	78	48	0	0	133	13	49	26	0	0	88	410
5:30 PM	16	32	10	0	0	58	24	73	15	0	0	112	11	82	89	0	0	182	36	36	24	0	0	96	448
5:45 PM	5	42	10	0	0	57	20	40	10	0	0	70	8	65	35	0	0	108	40	36	28	0	0	104	339
6:00 PM	26	46	9	0	0	81	13	65	12	0	0	90	14	84	82	0	0	180	35	27	23	0	0	85	436
Total	69	157	47	0	0	273	85	256	43	0	0	384	40	309	254	0	0	603	124	148	101	0	0	373	1633
Approach %	25.3	57.5	17.2	0.0	-	-	22.1	66.7	11.2	0.0	-	-	6.6	51.2	42.1	0.0	-	-	33.2	39.7	27.1	0.0	-	-	-
Total %	4.2	9.6	2.9	0.0	-	16.7	5.2	15.7	2.6	0.0	-	23.5	2.4	18.9	15.6	0.0	-	36.9	7.6	9.1	6.2	0.0	-	22.8	-
PHF	0.663	0.853	0.653	0.000	-	0.843	0.759	0.821	0.717	0.000	-	0.857	0.714	0.920	0.713	0.000	-	0.828	0.775	0.755	0.902	0.000	-	0.897	0.911
Lights	68	113	38	0	-	219	71	255	40	0	-	366	33	252	253	0	-	538	124	147	99	0	-	370	1493
% Lights	98.6	72.0	80.9	-	-	80.2	83.5	99.6	93.0	-	-	95.3	82.5	81.6	99.6	-	-	89.2	100.0	99.3	98.0	-	-	99.2	91.4
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	1	0	-	1	1
% Buses	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	1.0	-	-	0.3	0.1
Trucks	1	44	9	0	-	54	14	1	3	0	-	18	7	57	1	0	-	65	0	1	1	0	-	2	139
% Trucks	1.4	28.0	19.1	-	-	19.8	16.5	0.4	7.0	-	-	4.7	17.5	18.4	0.4	-	-	10.8	0.0	0.7	1.0	-	-	0.5	8.5
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 idinsmore@lea.ca

Count Name: 23347_Coleraine Dr & Healy Rd-PM
Site Code: 23347
Start Date: 05/03/2023



Turning Movement Peak Hour Data Plot (5:15 PM)

LEA Consulting Ltd.

625 Cochrane Drive, 5th Floor
Markham, ON L3R 9R9

Project No.: 23347
Intersection: Humber Station Rd & Healey
Weather: Rain
Surveyor(s): ID

File Name : Humber Station Rd & Healey Rd - AM
Site Code : 00023347
Start Date : 2023-05-03
Page No : 1

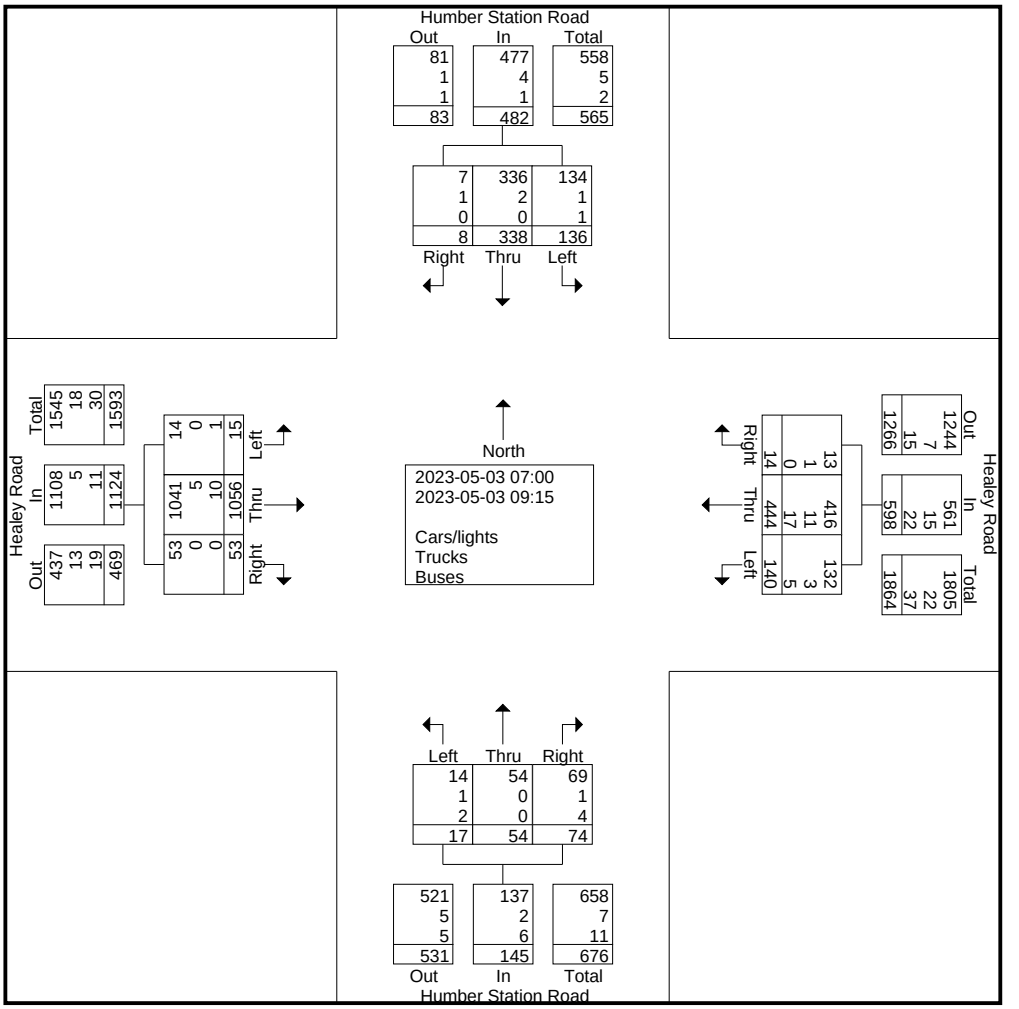
Groups Printed- Cars/lights - Trucks - Buses

	Humber Station Road Southbound					Healey Road Westbound					Humber Station Road Northbound					Healey Road Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00	15	34	0	[0]	49	23	46	0	[0]	69	0	3	4	[0]	7	2	131	2	[0]	135	0	260	260
07:15	21	46	2	[0]	69	18	60	0	[0]	78	2	7	8	[0]	17	1	129	3	[0]	133	0	297	297
07:30	15	43	1	[0]	59	21	60	2	[0]	83	2	2	10	[0]	14	0	117	10	[0]	127	0	283	283
07:45	21	39	1	[0]	61	11	44	2	[0]	57	2	4	9	[0]	15	1	122	4	[0]	127	0	260	260
Total	72	162	4	[0]	238	73	210	4	[0]	287	6	16	31	[0]	53	4	499	19	[0]	522	0	1100	1100
08:00	6	33	0	[0]	39	17	45	1	[0]	63	1	10	10	[0]	21	1	99	3	[0]	103	0	226	226
08:15	15	54	0	[0]	69	16	35	2	[0]	53	1	5	5	[0]	11	1	103	13	[0]	117	0	250	250
08:30	9	26	2	[0]	37	16	42	4	[0]	62	1	4	7	[0]	12	3	96	5	[0]	104	0	215	215
08:45	14	17	1	[0]	32	7	41	0	[0]	48	4	3	8	[0]	15	1	109	6	[0]	116	0	211	211
Total	44	130	3	[0]	177	56	163	7	[0]	226	7	22	30	[0]	59	6	407	27	[0]	440	0	902	902
09:00	10	22	0	[0]	32	3	31	2	[0]	36	0	9	8	[0]	17	4	79	2	[0]	85	0	170	170
09:15	10	24	1	[0]	35	8	40	1	[0]	49	4	7	5	[0]	16	1	71	5	[0]	77	0	177	177
Grand Total	136	338	8	[0]	482	140	444	14	[0]	598	17	54	74	[0]	145	15	1056	53	[0]	1124	0	2349	2349
Apprch %	28.2	70.1	1.7			23.4	74.2	2.3			11.7	37.2	51			1.3	94	4.7					
Total %	5.8	14.4	0.3		20.5	6	18.9	0.6		25.5	0.7	2.3	3.2		6.2	0.6	45	2.3		47.9	0	100	
Cars/lights	134	336	7		477	132	416	13		561	14	54	69		137	14	1041	53		1108	0	0	2283
% Cars/lights	98.5	99.4	87.5	0	99	94.3	93.7	92.9	0	93.8	82.4	100	93.2	0	94.5	93.3	98.6	100	0	98.6	0	0	97.2
Trucks	1	2	1		4	3	11	1		15	1	0	1		2	0	5	0		5	0	0	26
% Trucks	0.7	0.6	12.5	0	0.8	2.1	2.5	7.1	0	2.5	5.9	0	1.4	0	1.4	0	0.5	0	0	0.4	0	0	1.1
Buses	1	0	0		1	5	17	0		22	2	0	4		6	1	10	0		11	0	0	40
% Buses	0.7	0	0	0	0.2	3.6	3.8	0	0	3.7	11.8	0	5.4	0	4.1	6.7	0.9	0	0	1	0	0	1.7

LEA Consulting Ltd.

625 Cochrane Drive, 5th Floor
Markham, ON L3R 9R9

File Name : Humber Station Rd & Healey Rd - AM
Site Code : 00023347
Start Date : 2023-05-03
Page No : 2

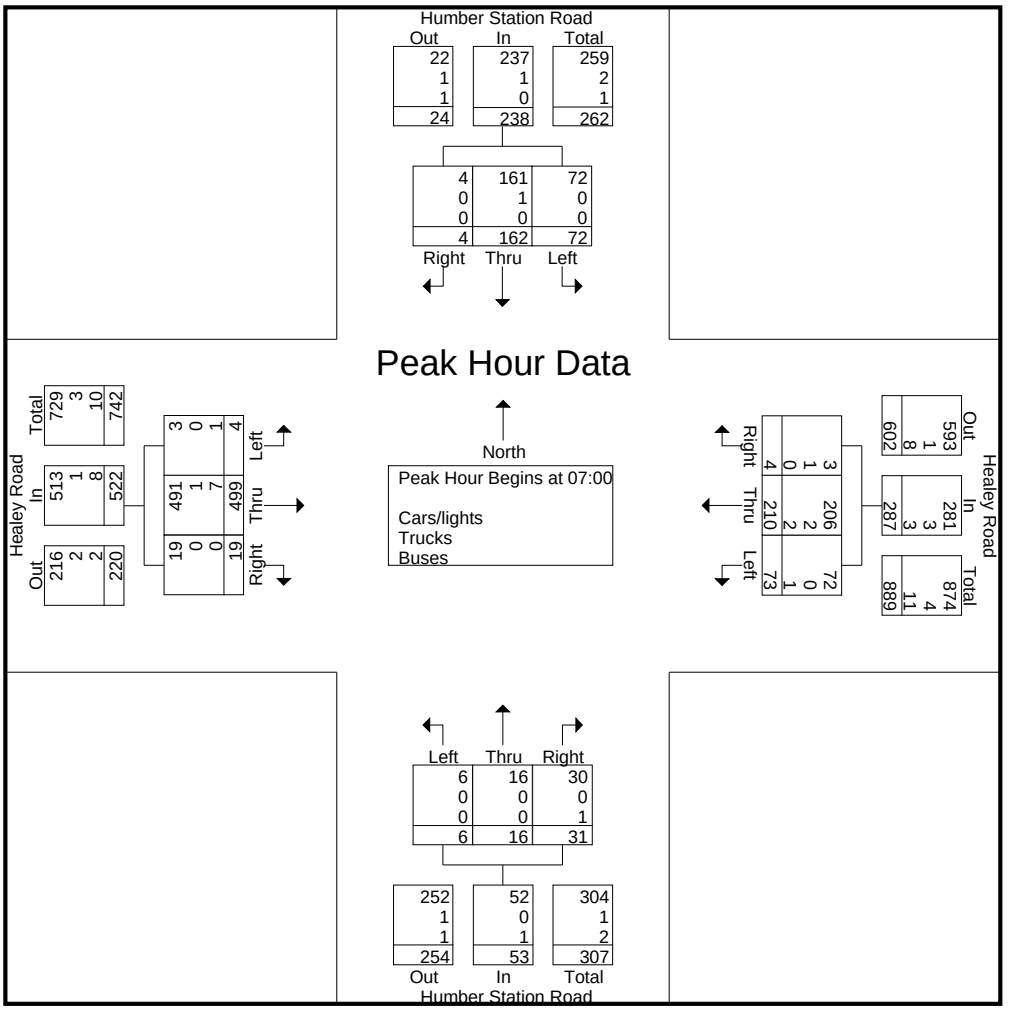


LEA Consulting Ltd.

625 Cochrane Drive, 5th Floor
Markham, ON L3R 9R9

File Name : Humber Station Rd & Healey Rd - AM
Site Code : 00023347
Start Date : 2023-05-03
Page No : 3

	Humber Station Road Southbound				Healey Road Westbound				Humber Station Road Northbound				Healey Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 09:15 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00																	
07:00	15	34	0	49	**23**	46	0	69	0	3	4	7	**2**	**131**	2	**135**	260
07:15	**21**	**46**	**2**	**69**	18	**60**	0	78	**2**	**7**	8	**17**	1	129	3	133	**297**
07:30	15	43	1	59	21	60	**2**	**83**	2	2	**10**	14	0	117	**10**	127	283
07:45	21	39	1	61	11	44	2	57	2	4	9	15	1	122	4	127	260
Total Volume	72	162	4	238	73	210	4	287	6	16	31	53	4	499	19	522	1100
% App. Total	30.3	68.1	1.7		25.4	73.2	1.4		11.3	30.2	58.5		0.8	95.6	3.6		
PHF	.857	.880	.500	.862	.793	.875	.500	.864	.750	.571	.775	.779	.500	.952	.475	.967	.926
Cars/lights	72	161	4	237	72	206	3	281	6	16	30	52	3	491	19	513	1083
% Cars/lights	100	99.4	100	99.6	98.6	98.1	75.0	97.9	100	100	96.8	98.1	75.0	98.4	100	98.3	98.5
Trucks	0	1	0	1	0	2	1	3	0	0	0	0	0	1	0	1	5
% Trucks	0	0.6	0	0.4	0	1.0	25.0	1.0	0	0	0	0	0	0.2	0	0.2	0.5
Buses	0	0	0	0	1	2	0	3	0	0	1	1	1	7	0	8	12
% Buses	0	0	0	0	1.4	1.0	0	1.0	0	0	3.2	1.9	25.0	1.4	0	1.5	1.1



LEA Consulting Ltd.
625 Cochrane Drive, 5th Floor
Markham, ON L3R 9R9

LEA Consulting Ltd.

625 Cochrane Drive, 5th Floor
Markham, ON L3R 9R9

Project No.: 23347
Intersection: Humber Station Rd & Healey
Weather: Rain
Surveyor(s): ID

File Name : Humber Station Rd & Healey Rd - PM
Site Code : 00023347
Start Date : 2023-05-03
Page No : 1

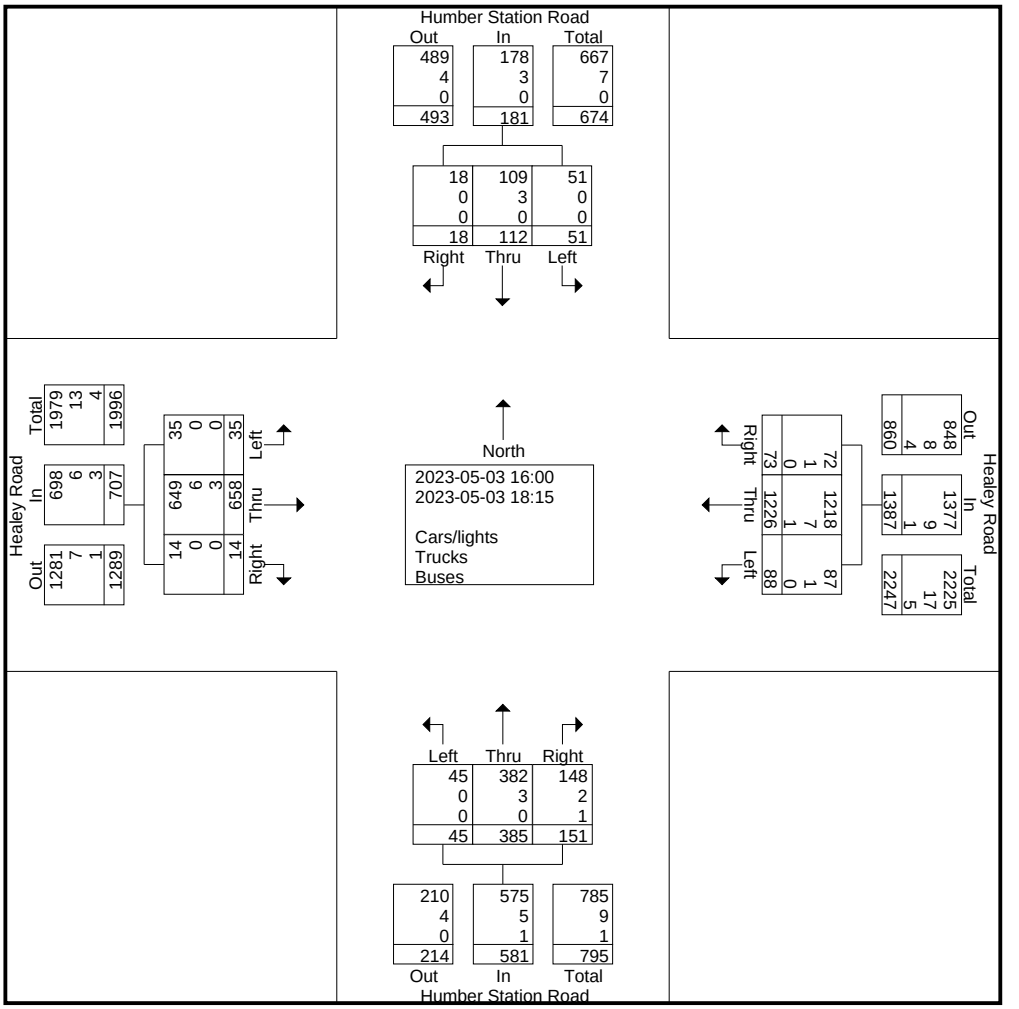
Groups Printed- Cars/lights - Trucks - Buses

	Humber Station Road Southbound					Healey Road Westbound					Humber Station Road Northbound					Healey Road Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
16:00	5	14	5	[0]	24	9	109	11	[0]	129	11	37	11	[0]	59	1	69	2	[0]	72	0	284	284
16:15	3	16	0	[0]	19	12	121	7	[0]	140	7	34	16	[0]	57	6	64	3	[0]	73	0	289	289
16:30	5	11	2	[0]	18	9	129	8	[0]	146	4	38	14	[0]	56	0	60	2	[0]	62	0	282	282
16:45	6	6	1	[0]	13	7	123	14	[0]	144	4	35	18	[0]	57	2	73	0	[0]	75	0	289	289
Total	19	47	8	[0]	74	37	482	40	[0]	559	26	144	59	[0]	229	9	266	7	[0]	282	0	1144	1144
17:00	4	14	3	[0]	21	10	124	6	[0]	140	5	53	20	[0]	78	9	51	1	[0]	61	0	300	300
17:15	6	13	3	[0]	22	5	132	6	[0]	143	1	44	15	[0]	60	1	64	1	[0]	66	0	291	291
17:30	8	7	0	[0]	15	10	123	5	[0]	138	6	35	13	[0]	54	4	62	2	[0]	68	0	275	275
17:45	4	8	0	[0]	12	9	117	5	[0]	131	4	55	17	[0]	76	7	70	2	[0]	79	0	298	298
Total	22	42	6	[0]	70	34	496	22	[0]	552	16	187	65	[0]	268	21	247	6	[0]	274	0	1164	1164
18:00	2	9	1	[0]	12	10	135	7	[0]	152	2	34	18	[0]	54	1	63	0	[0]	64	0	282	282
18:15	8	14	3	[0]	25	7	113	4	[0]	124	1	20	9	[0]	30	4	82	1	[0]	87	0	266	266
Grand Total	51	112	18	[0]	181	88	1226	73	[0]	1387	45	385	151	[0]	581	35	658	14	[0]	707	0	2856	2856
Apprch %	28.2	61.9	9.9			6.3	88.4	5.3			7.7	66.3	26			5	93.1	2					
Total %	1.8	3.9	0.6		6.3	3.1	42.9	2.6		48.6	1.6	13.5	5.3		20.3	1.2	23	0.5		24.8	0	100	
Cars/lights	51	109	18		178	87	1218	72		1377	45	382	148		575	35	649	14		698	0	0	2828
% Cars/lights	100	97.3	100	0	98.3	98.9	99.3	98.6	0	99.3	100	99.2	98	0	99	100	98.6	100	0	98.7	0	0	99
Trucks	0	3	0		3	1	7	1		9	0	3	2		5	0	6	0		6	0	0	23
% Trucks	0	2.7	0	0	1.7	1.1	0.6	1.4	0	0.6	0	0.8	1.3	0	0.9	0	0.9	0	0	0.8	0	0	0.8
Buses	0	0	0		0	0	1	0		1	0	0	1		1	0	3	0		3	0	0	5
% Buses	0	0	0	0	0	0	0.1	0	0	0.1	0	0	0.7	0	0.2	0	0.5	0	0	0.4	0	0	0.2

LEA Consulting Ltd.

625 Cochrane Drive, 5th Floor
Markham, ON L3R 9R9

File Name : Humber Station Rd & Healey Rd - PM
Site Code : 00023347
Start Date : 2023-05-03
Page No : 2

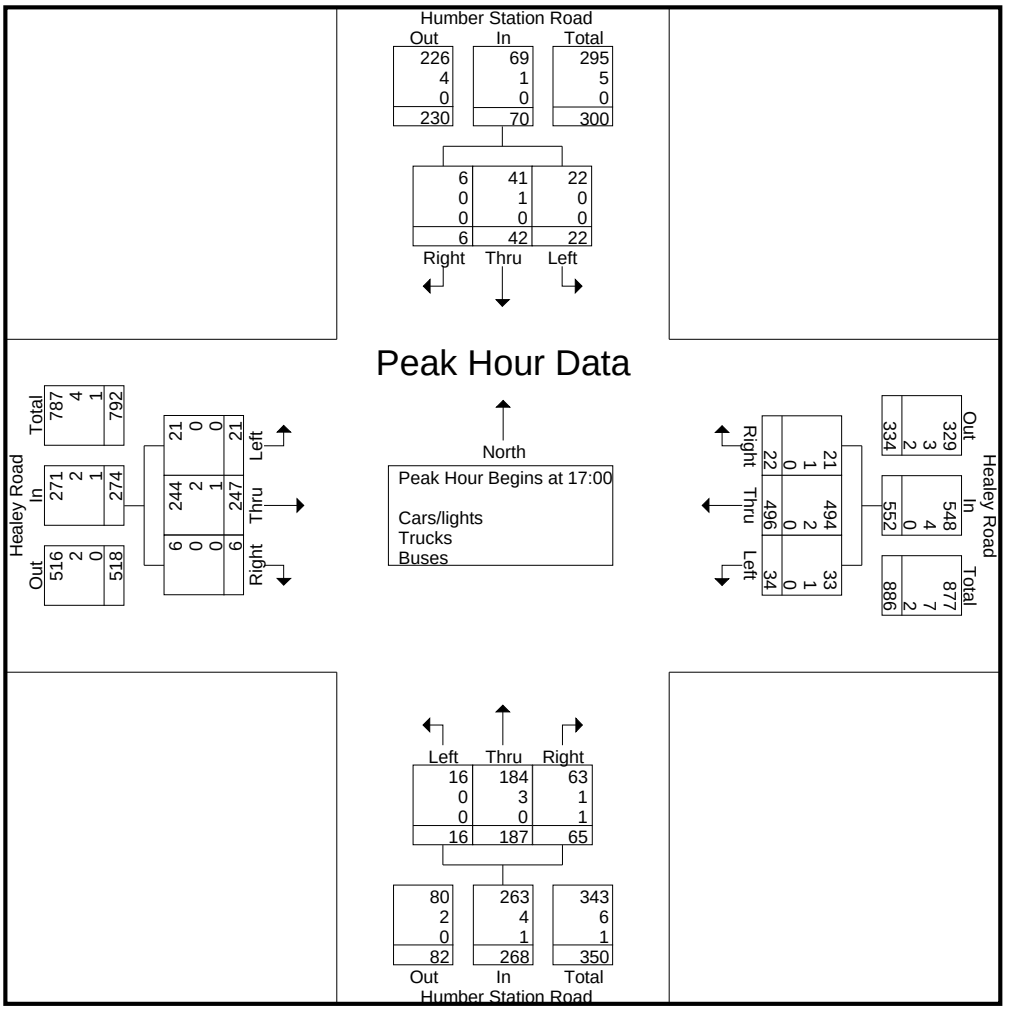


LEA Consulting Ltd.

625 Cochrane Drive, 5th Floor
Markham, ON L3R 9R9

File Name : Humber Station Rd & Healey Rd - PM
Site Code : 00023347
Start Date : 2023-05-03
Page No : 3

	Humber Station Road Southbound				Healey Road Westbound				Humber Station Road Northbound				Healey Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 18:15 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	4	**14**	**3**	21	**10**	124	**6**	140	5	53	**20**	**78**	**9**	51	1	61	**300**
17:15	6	13	3	**22**	5	**132**	6	**143**	1	44	15	60	1	64	1	66	291
17:30	**8**	7	0	15	10	123	5	138	**6**	35	13	54	4	62	**2**	68	275
17:45	4	8	0	12	9	117	5	131	4	**55**	17	76	7	**70**	2	**79**	298
Total Volume	22	42	6	70	34	496	22	552	16	187	65	268	21	247	6	274	1164
% App. Total	31.4	60	8.6		6.2	89.9	4		6	69.8	24.3		7.7	90.1	2.2		
PHF	.688	.750	.500	.795	.850	.939	.917	.965	.667	.850	.813	.859	.583	.882	.750	.867	.970
Cars/lights	22	41	6	69	33	494	21	548	16	184	63	263	21	244	6	271	1151
% Cars/lights	100	97.6	100	98.6	97.1	99.6	95.5	99.3	100	98.4	96.9	98.1	100	98.8	100	98.9	98.9
Trucks	0	1	0	1	1	2	1	4	0	3	1	4	0	2	0	2	11
% Trucks	0	2.4	0	1.4	2.9	0.4	4.5	0.7	0	1.6	1.5	1.5	0	0.8	0	0.7	0.9
Buses	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	2
% Buses	0	0	0	0	0	0	0	0	0	0	1.5	0.4	0	0.4	0	0.4	0.2



LEA Consulting Ltd.
625 Cochrane Drive, 5th Floor
Markham, ON L3R 9R9

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 idinsmore@lea.ca

Count Name: 23347_Humber Station Rd & Mayfield Rd-AM
Site Code: 23347
Start Date: 05/03/2023

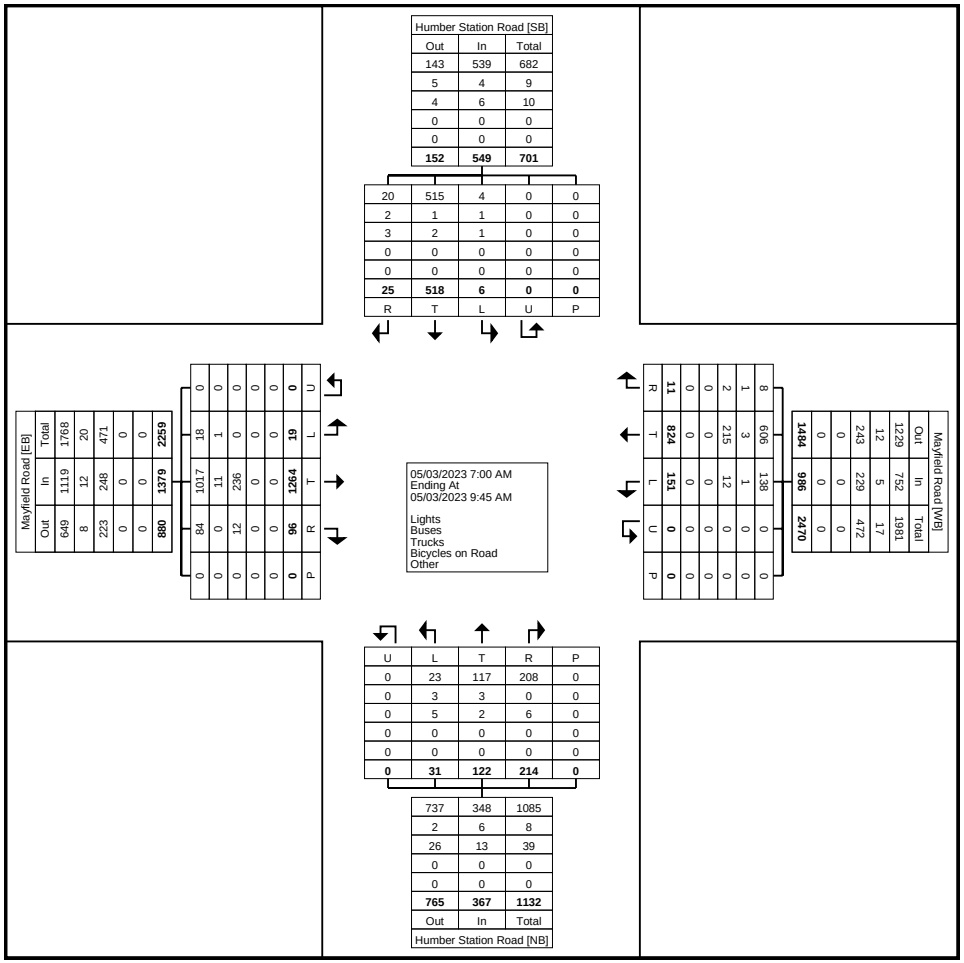
Turning Movement Data

Start Time	Humber Station Road Southbound						Mayfield Road Westbound						Humber Station Road Northbound						Mayfield Road Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
7:00 AM	5	55	1	0	0	61	1	104	23	0	0	128	41	9	2	0	0	52	4	131	0	0	0	135	376
7:15 AM	0	52	0	0	0	52	0	99	18	0	0	117	25	13	2	0	0	40	4	155	1	0	0	160	369
7:30 AM	1	77	0	0	0	78	1	88	13	0	0	102	21	13	5	0	0	39	10	98	2	0	0	110	329
7:45 AM	2	63	1	0	0	66	2	92	13	0	0	107	25	12	2	0	0	39	10	139	5	0	0	154	366
Hourly Total	8	247	2	0	0	257	4	383	67	0	0	454	112	47	11	0	0	170	28	523	8	0	0	559	1440
8:00 AM	4	51	0	0	0	55	0	75	19	0	0	94	17	16	4	0	0	37	17	140	2	0	0	159	345
8:15 AM	3	77	0	0	0	80	0	82	11	0	0	93	15	11	2	0	0	28	16	129	1	0	0	146	347
8:30 AM	5	53	0	0	0	58	4	71	28	0	0	103	22	17	3	0	0	42	12	110	0	0	0	122	325
8:45 AM	2	27	3	0	0	32	0	77	15	0	0	92	24	7	3	0	0	34	11	128	1	0	0	140	298
Hourly Total	14	208	3	0	0	225	4	305	73	0	0	382	78	51	12	0	0	141	56	507	4	0	0	567	1315
9:00 AM	1	28	0	0	0	29	1	80	5	0	0	86	17	17	7	0	0	41	6	127	2	0	0	135	291
9:15 AM	2	35	1	0	0	38	2	56	6	0	0	64	7	7	1	0	0	15	6	107	5	0	0	118	235
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	25	518	6	0	0	549	11	824	151	0	0	986	214	122	31	0	0	367	96	1264	19	0	0	1379	3281
Approach %	4.6	94.4	1.1	0.0	-	-	1.1	83.6	15.3	0.0	-	-	58.3	33.2	8.4	0.0	-	-	7.0	91.7	1.4	0.0	-	-	-
Total %	0.8	15.8	0.2	0.0	-	16.7	0.3	25.1	4.6	0.0	-	30.1	6.5	3.7	0.9	0.0	-	11.2	2.9	38.5	0.6	0.0	-	42.0	-
Lights	20	515	4	0	-	539	8	606	138	0	-	752	208	117	23	0	-	348	84	1017	18	0	-	1119	2758
% Lights	80.0	99.4	66.7	-	-	98.2	72.7	73.5	91.4	-	-	76.3	97.2	95.9	74.2	-	-	94.8	87.5	80.5	94.7	-	-	81.1	84.1
Buses	2	1	1	0	-	4	1	3	1	0	-	5	0	3	3	0	-	6	0	11	1	0	-	12	27
% Buses	8.0	0.2	16.7	-	-	0.7	9.1	0.4	0.7	-	-	0.5	0.0	2.5	9.7	-	-	1.6	0.0	0.9	5.3	-	-	0.9	0.8
Trucks	3	2	1	0	-	6	2	215	12	0	-	229	6	2	5	0	-	13	12	236	0	0	-	248	496
% Trucks	12.0	0.4	16.7	-	-	1.1	18.2	26.1	7.9	-	-	23.2	2.8	1.6	16.1	-	-	3.5	12.5	18.7	0.0	-	-	18.0	15.1
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 idinsmore@lea.ca

Count Name: 23347_Humber Station Rd & Mayfield Rd-AM
Site Code: 23347
Start Date: 05/03/2023



Turning Movement Data Plot

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 idinsmore@lea.ca

Count Name: 23347_Humber Station Rd & Mayfield Rd-AM
Site Code: 23347
Start Date: 05/03/2023

Turning Movement Peak Hour Data (7:00 AM)

Start Time	Humber Station Road Southbound						Mayfield Road Westbound						Humber Station Road Northbound						Mayfield Road Eastbound						
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Int. Total
7:00 AM	5	55	1	0	0	61	1	104	23	0	0	128	41	9	2	0	0	52	4	131	0	0	0	135	376
7:15 AM	0	52	0	0	0	52	0	99	18	0	0	117	25	13	2	0	0	40	4	155	1	0	0	160	369
7:30 AM	1	77	0	0	0	78	1	88	13	0	0	102	21	13	5	0	0	39	10	98	2	0	0	110	329
7:45 AM	2	63	1	0	0	66	2	92	13	0	0	107	25	12	2	0	0	39	10	139	5	0	0	154	366
Total	8	247	2	0	0	257	4	383	67	0	0	454	112	47	11	0	0	170	28	523	8	0	0	559	1440
Approach %	3.1	96.1	0.8	0.0	-	-	0.9	84.4	14.8	0.0	-	-	65.9	27.6	6.5	0.0	-	-	5.0	93.6	1.4	0.0	-	-	-
Total %	0.6	17.2	0.1	0.0	-	17.8	0.3	26.6	4.7	0.0	-	31.5	7.8	3.3	0.8	0.0	-	11.8	1.9	36.3	0.6	0.0	-	38.8	-
PHF	0.400	0.802	0.500	0.000	-	0.824	0.500	0.921	0.728	0.000	-	0.887	0.683	0.904	0.550	0.000	-	0.817	0.700	0.844	0.400	0.000	-	0.873	0.957
Lights	8	245	1	0	-	254	4	288	64	0	-	356	109	46	9	0	-	164	21	418	7	0	-	446	1220
% Lights	100.0	99.2	50.0	-	-	98.8	100.0	75.2	95.5	-	-	78.4	97.3	97.9	81.8	-	-	96.5	75.0	79.9	87.5	-	-	79.8	84.7
Buses	0	0	1	0	-	1	0	1	0	0	-	1	0	1	2	0	-	3	0	9	1	0	-	10	15
% Buses	0.0	0.0	50.0	-	-	0.4	0.0	0.3	0.0	-	-	0.2	0.0	2.1	18.2	-	-	1.8	0.0	1.7	12.5	-	-	1.8	1.0
Trucks	0	2	0	0	-	2	0	94	3	0	-	97	3	0	0	0	-	3	7	96	0	0	-	103	205
% Trucks	0.0	0.8	0.0	-	-	0.8	0.0	24.5	4.5	-	-	21.4	2.7	0.0	0.0	-	-	1.8	25.0	18.4	0.0	-	-	18.4	14.2
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
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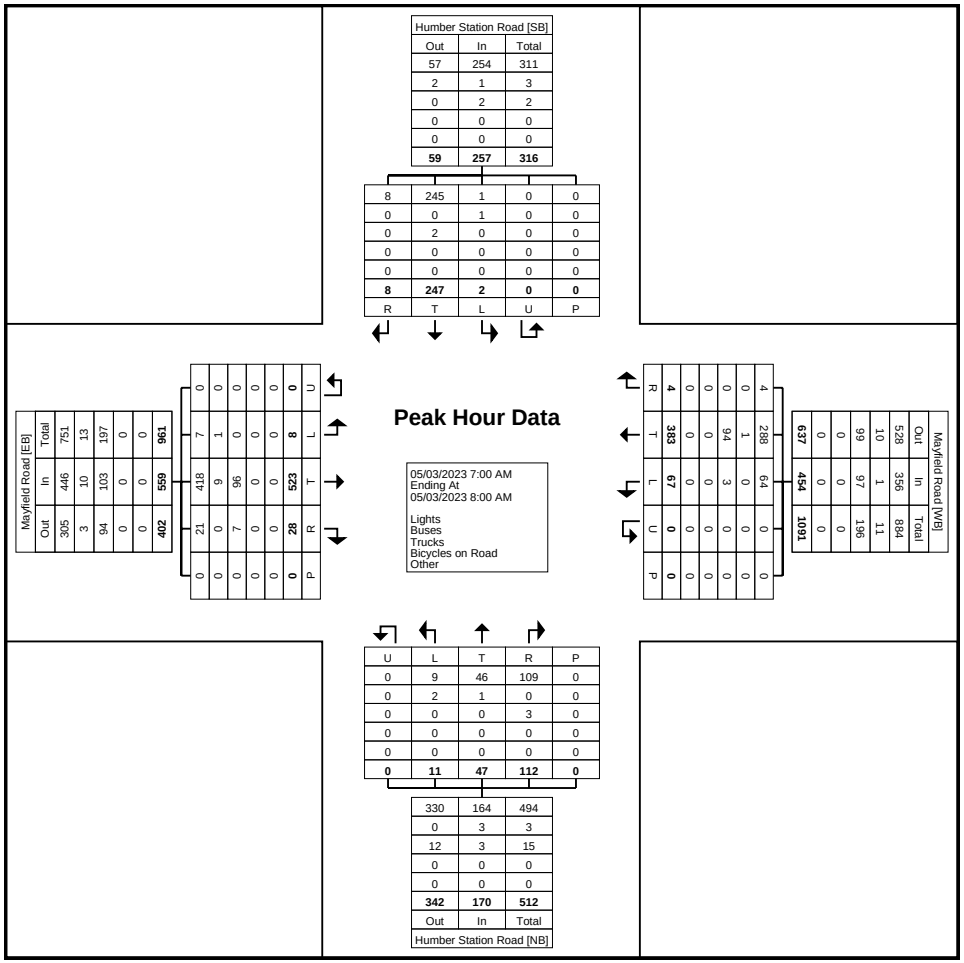
Count Name: 23347_Humber Station Rd & Mayfield Rd-AM
Site Code: 23347
Start Date: 05/03/2023



Turning Movement Peak Hour Data Plot (7:00 AM)

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 idinsmore@lea.ca

Count Name: 23347_Humber Station Rd & Mayfield Rd-PM
Site Code: 23347
Start Date: 05/03/2023

Turning Movement Data

Start Time	Humber Station Road Southbound						Mayfield Road Westbound						Humber Station Road Northbound						Mayfield Road Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
4:00 PM	4	26	0	0	0	30	1	112	8	0	0	121	30	60	10	0	0	100	3	87	1	0	0	91	342
4:15 PM	2	26	2	0	0	30	1	122	11	0	0	134	20	50	7	0	0	77	7	99	0	0	0	106	347
4:30 PM	2	20	1	0	0	23	0	72	16	0	0	88	20	58	8	0	0	86	7	108	0	0	0	115	312
4:45 PM	2	12	1	0	0	15	0	93	20	0	0	113	24	63	16	0	0	103	6	112	0	0	0	118	349
Hourly Total	10	84	4	0	0	98	2	399	55	0	0	456	94	231	41	0	0	366	23	406	1	0	0	430	1350
5:00 PM	1	15	0	0	0	16	0	79	17	0	0	96	34	73	13	0	0	120	6	110	1	0	0	117	349
5:15 PM	5	18	0	0	0	23	0	115	19	0	0	134	31	48	15	0	0	94	4	108	2	0	0	114	365
5:30 PM	4	18	0	0	0	22	3	108	6	0	0	117	25	69	22	0	0	116	5	99	1	0	0	105	360
5:45 PM	2	11	0	0	0	13	1	127	10	0	0	138	19	55	9	0	0	83	4	131	6	0	0	141	375
Hourly Total	12	62	0	0	0	74	4	429	52	0	0	485	109	245	59	0	0	413	19	448	10	0	0	477	1449
6:00 PM	2	16	1	0	0	19	2	94	17	0	0	113	29	61	10	0	0	100	3	108	2	0	0	113	345
6:15 PM	5	20	2	0	0	27	3	128	22	0	0	153	31	28	9	0	0	68	4	108	1	0	0	113	361
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	29	182	7	0	0	218	11	1050	146	0	0	1207	263	565	119	0	0	947	49	1070	14	0	0	1133	3505
Approach %	13.3	83.5	3.2	0.0	-	-	0.9	87.0	12.1	0.0	-	-	27.8	59.7	12.6	0.0	-	-	4.3	94.4	1.2	0.0	-	-	-
Total %	0.8	5.2	0.2	0.0	-	6.2	0.3	30.0	4.2	0.0	-	34.4	7.5	16.1	3.4	0.0	-	27.0	1.4	30.5	0.4	0.0	-	32.3	-
Lights	29	179	7	0	-	215	9	875	137	0	-	1021	254	560	99	0	-	913	42	895	11	0	-	948	3097
% Lights	100.0	98.4	100.0	-	-	98.6	81.8	83.3	93.8	-	-	84.6	96.6	99.1	83.2	-	-	96.4	85.7	83.6	78.6	-	-	83.7	88.4
Buses	0	2	0	0	-	2	1	4	0	0	-	5	0	0	0	0	-	0	1	3	1	0	-	5	12
% Buses	0.0	1.1	0.0	-	-	0.9	9.1	0.4	0.0	-	-	0.4	0.0	0.0	0.0	-	-	0.0	2.0	0.3	7.1	-	-	0.4	0.3
Trucks	0	1	0	0	-	1	1	171	9	0	-	181	9	5	20	0	-	34	6	172	2	0	-	180	396
% Trucks	0.0	0.5	0.0	-	-	0.5	9.1	16.3	6.2	-	-	15.0	3.4	0.9	16.8	-	-	3.6	12.2	16.1	14.3	-	-	15.9	11.3
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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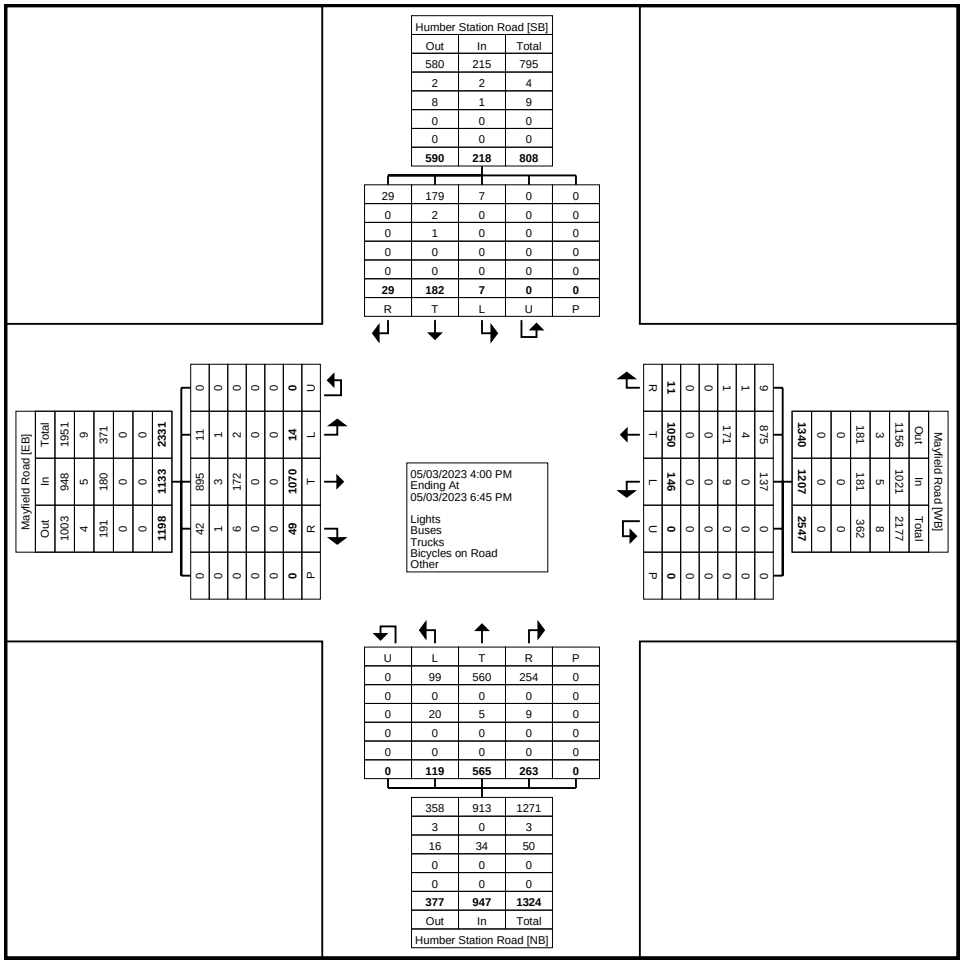
Count Name: 23347_Humber Station Rd & Mayfield Rd-PM
Site Code: 23347
Start Date: 05/03/2023



Turning Movement Data Plot

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 idinsmore@lea.ca

Count Name: 23347_Humber Station Rd & Mayfield Rd-PM
Site Code: 23347
Start Date: 05/03/2023

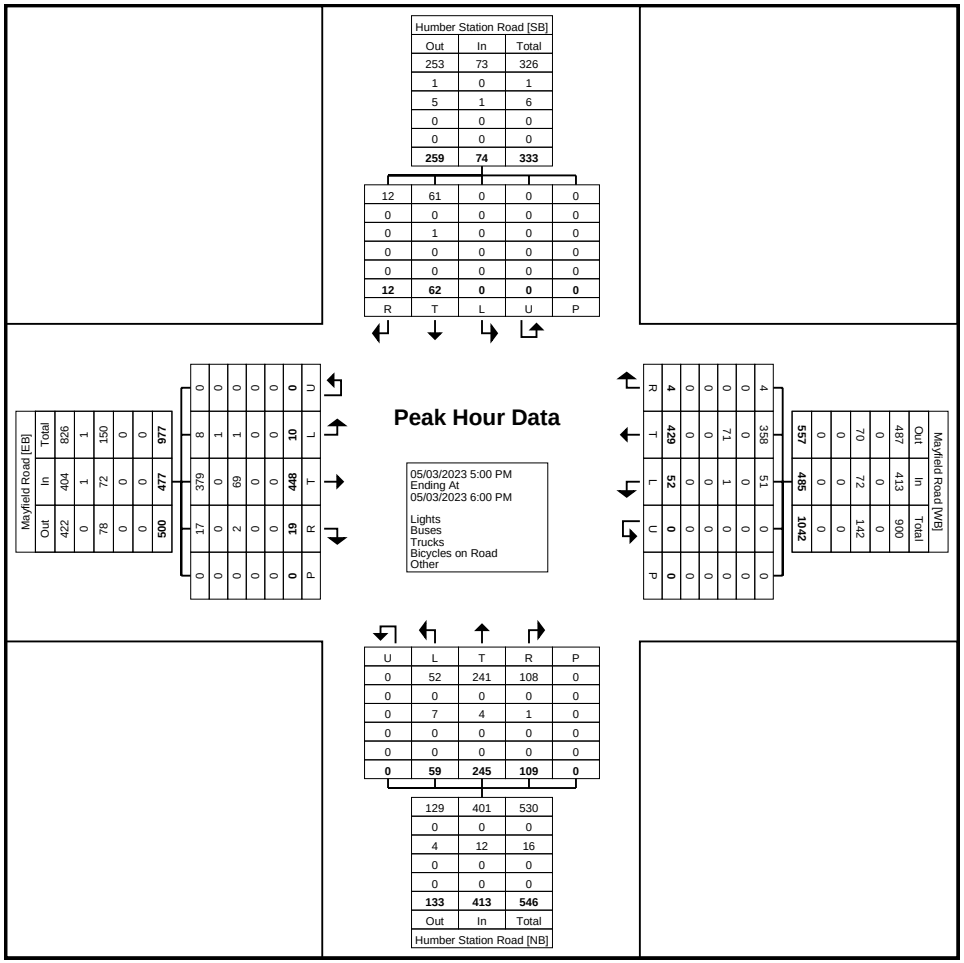
Turning Movement Peak Hour Data (5:00 PM)

Start Time	Humber Station Road Southbound						Mayfield Road Westbound						Humber Station Road Northbound						Mayfield Road Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
5:00 PM	1	15	0	0	0	16	0	79	17	0	0	96	34	73	13	0	0	120	6	110	1	0	0	117	349
5:15 PM	5	18	0	0	0	23	0	115	19	0	0	134	31	48	15	0	0	94	4	108	2	0	0	114	365
5:30 PM	4	18	0	0	0	22	3	108	6	0	0	117	25	69	22	0	0	116	5	99	1	0	0	105	360
5:45 PM	2	11	0	0	0	13	1	127	10	0	0	138	19	55	9	0	0	83	4	131	6	0	0	141	375
Total	12	62	0	0	0	74	4	429	52	0	0	485	109	245	59	0	0	413	19	448	10	0	0	477	1449
Approach %	16.2	83.8	0.0	0.0	-	-	0.8	88.5	10.7	0.0	-	-	26.4	59.3	14.3	0.0	-	-	4.0	93.9	2.1	0.0	-	-	-
Total %	0.8	4.3	0.0	0.0	-	5.1	0.3	29.6	3.6	0.0	-	33.5	7.5	16.9	4.1	0.0	-	28.5	1.3	30.9	0.7	0.0	-	32.9	-
PHF	0.600	0.861	0.000	0.000	-	0.804	0.333	0.844	0.684	0.000	-	0.879	0.801	0.839	0.670	0.000	-	0.860	0.792	0.855	0.417	0.000	-	0.846	0.966
Lights	12	61	0	0	-	73	4	358	51	0	-	413	108	241	52	0	-	401	17	379	8	0	-	404	1291
% Lights	100.0	98.4	-	-	-	98.6	100.0	83.4	98.1	-	-	85.2	99.1	98.4	88.1	-	-	97.1	89.5	84.6	80.0	-	-	84.7	89.1
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	1	0	-	1	1
% Buses	0.0	0.0	-	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	10.0	-	-	0.2	0.1
Trucks	0	1	0	0	-	1	0	71	1	0	-	72	1	4	7	0	-	12	2	69	1	0	-	72	157
% Trucks	0.0	1.6	-	-	-	1.4	0.0	16.6	1.9	-	-	14.8	0.9	1.6	11.9	-	-	2.9	10.5	15.4	10.0	-	-	15.1	10.8
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 idinsmore@lea.ca

Count Name: 23347_Humber Station Rd & Mayfield Rd-PM
Site Code: 23347
Start Date: 05/03/2023



Turning Movement Peak Hour Data Plot (5:00 PM)

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 idinsmore@lea.ca

Count Name: 23347_Coleraine Dr & George Bolton Pkwy-AM
Site Code: 23347
Start Date: 05/03/2023

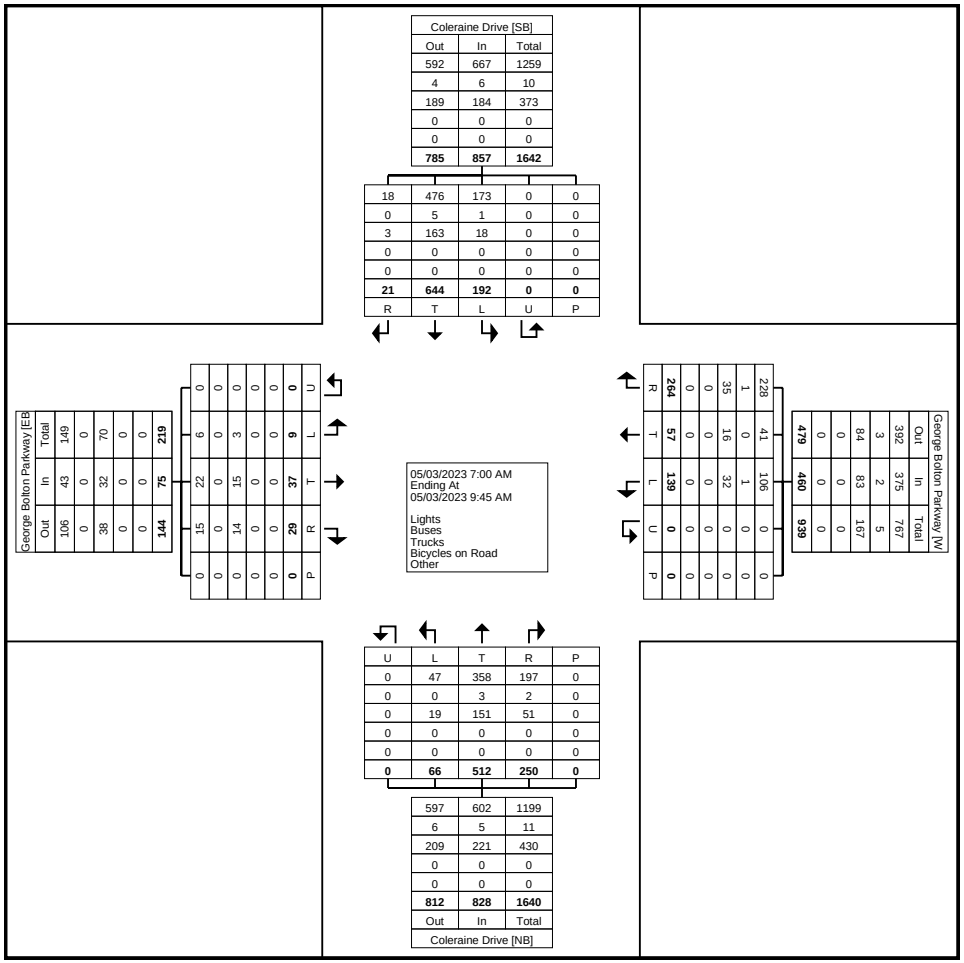
Turning Movement Data

Start Time	Coleraine Drive Southbound						George Bolton Parkway Westbound						Coleraine Drive Northbound						George Bolton Parkway Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
7:00 AM	1	74	23	0	0	98	52	4	14	0	0	70	28	87	4	0	0	119	7	5	2	0	0	14	301
7:15 AM	4	60	21	0	0	85	42	4	19	0	0	65	19	117	6	0	0	142	3	3	1	0	0	7	299
7:30 AM	1	68	23	0	0	92	23	7	22	0	0	52	20	40	10	0	0	70	1	1	0	0	0	2	216
7:45 AM	5	78	17	0	0	100	24	8	8	0	0	40	29	34	10	0	0	73	2	3	1	0	0	6	219
Hourly Total	11	280	84	0	0	375	141	23	63	0	0	227	96	278	30	0	0	404	13	12	4	0	0	29	1035
8:00 AM	2	57	23	0	0	82	20	4	6	0	0	30	32	50	7	0	0	89	2	7	0	0	0	9	210
8:15 AM	0	71	19	0	0	90	16	6	13	0	0	35	33	51	4	0	0	88	2	3	0	0	0	5	218
8:30 AM	1	61	20	0	0	82	22	4	12	0	0	38	25	28	5	0	0	58	3	2	3	0	0	8	186
8:45 AM	4	62	16	0	0	82	20	4	11	0	0	35	22	38	8	0	0	68	4	6	2	0	0	12	197
Hourly Total	7	251	78	0	0	336	78	18	42	0	0	138	112	167	24	0	0	303	11	18	5	0	0	34	811
9:00 AM	1	57	15	0	0	73	20	13	17	0	0	50	20	39	10	0	0	69	1	4	0	0	0	5	197
9:15 AM	2	56	15	0	0	73	25	3	17	0	0	45	22	28	2	0	0	52	4	3	0	0	0	7	177
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	21	644	192	0	0	857	264	57	139	0	0	460	250	512	66	0	0	828	29	37	9	0	0	75	2220
Approach %	2.5	75.1	22.4	0.0	-	-	57.4	12.4	30.2	0.0	-	-	30.2	61.8	8.0	0.0	-	-	38.7	49.3	12.0	0.0	-	-	-
Total %	0.9	29.0	8.6	0.0	-	38.6	11.9	2.6	6.3	0.0	-	20.7	11.3	23.1	3.0	0.0	-	37.3	1.3	1.7	0.4	0.0	-	3.4	-
Lights	18	476	173	0	-	667	228	41	106	0	-	375	197	358	47	0	-	602	15	22	6	0	-	43	1687
% Lights	85.7	73.9	90.1	-	-	77.8	86.4	71.9	76.3	-	-	81.5	78.8	69.9	71.2	-	-	72.7	51.7	59.5	66.7	-	-	57.3	76.0
Buses	0	5	1	0	-	6	1	0	1	0	-	2	2	3	0	0	-	5	0	0	0	0	-	0	13
% Buses	0.0	0.8	0.5	-	-	0.7	0.4	0.0	0.7	-	-	0.4	0.8	0.6	0.0	-	-	0.6	0.0	0.0	0.0	-	-	0.0	0.6
Trucks	3	163	18	0	-	184	35	16	32	0	-	83	51	151	19	0	-	221	14	15	3	0	-	32	520
% Trucks	14.3	25.3	9.4	-	-	21.5	13.3	28.1	23.0	-	-	18.0	20.4	29.5	28.8	-	-	26.7	48.3	40.5	33.3	-	-	42.7	23.4
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 idinsmore@lea.ca

Count Name: 23347_Coleraine Dr & George Bolton Pkwy-AM
Site Code: 23347
Start Date: 05/03/2023



Turning Movement Data Plot

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 idinsmore@lea.ca

Count Name: 23347_Coleraine Dr & George Bolton Pkwy-AM
Site Code: 23347
Start Date: 05/03/2023

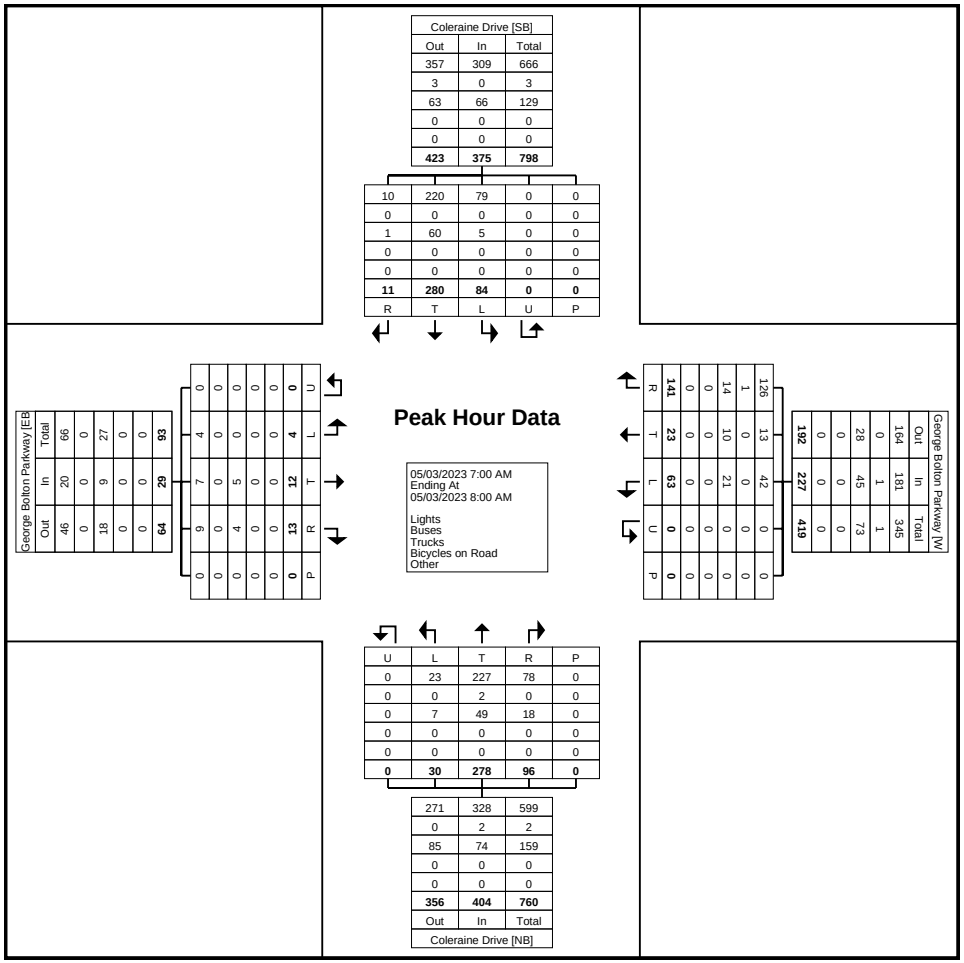
Turning Movement Peak Hour Data (7:00 AM)

Start Time	Coleraine Drive Southbound						George Bolton Parkway Westbound						Coleraine Drive Northbound						George Bolton Parkway Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
7:00 AM	1	74	23	0	0	98	52	4	14	0	0	70	28	87	4	0	0	119	7	5	2	0	0	14	301
7:15 AM	4	60	21	0	0	85	42	4	19	0	0	65	19	117	6	0	0	142	3	3	1	0	0	7	299
7:30 AM	1	68	23	0	0	92	23	7	22	0	0	52	20	40	10	0	0	70	1	1	0	0	0	2	216
7:45 AM	5	78	17	0	0	100	24	8	8	0	0	40	29	34	10	0	0	73	2	3	1	0	0	6	219
Total	11	280	84	0	0	375	141	23	63	0	0	227	96	278	30	0	0	404	13	12	4	0	0	29	1035
Approach %	2.9	74.7	22.4	0.0	-	-	62.1	10.1	27.8	0.0	-	-	23.8	68.8	7.4	0.0	-	-	44.8	41.4	13.8	0.0	-	-	-
Total %	1.1	27.1	8.1	0.0	-	36.2	13.6	2.2	6.1	0.0	-	21.9	9.3	26.9	2.9	0.0	-	39.0	1.3	1.2	0.4	0.0	-	2.8	-
PHF	0.550	0.897	0.913	0.000	-	0.938	0.678	0.719	0.716	0.000	-	0.811	0.828	0.594	0.750	0.000	-	0.711	0.464	0.600	0.500	0.000	-	0.518	0.860
Lights	10	220	79	0	-	309	126	13	42	0	-	181	78	227	23	0	-	328	9	7	4	0	-	20	838
% Lights	90.9	78.6	94.0	-	-	82.4	89.4	56.5	66.7	-	-	79.7	81.3	81.7	76.7	-	-	81.2	69.2	58.3	100.0	-	-	69.0	81.0
Buses	0	0	0	0	-	0	1	0	0	0	-	1	0	2	0	0	-	2	0	0	0	0	-	0	3
% Buses	0.0	0.0	0.0	-	-	0.0	0.7	0.0	0.0	-	-	0.4	0.0	0.7	0.0	-	-	0.5	0.0	0.0	0.0	-	-	0.0	0.3
Trucks	1	60	5	0	-	66	14	10	21	0	-	45	18	49	7	0	-	74	4	5	0	0	-	9	194
% Trucks	9.1	21.4	6.0	-	-	17.6	9.9	43.5	33.3	-	-	19.8	18.8	17.6	23.3	-	-	18.3	30.8	41.7	0.0	-	-	31.0	18.7
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 idinsmore@lea.ca

Count Name: 23347_Coleraine Dr & George Bolton Pkwy-AM
Site Code: 23347
Start Date: 05/03/2023



Turning Movement Peak Hour Data Plot (7:00 AM)

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 idinsmore@lea.ca

Count Name: 23347_Coleraine Dr & George Bolton Pkwy-PM
Site Code: 23347
Start Date: 05/03/2023

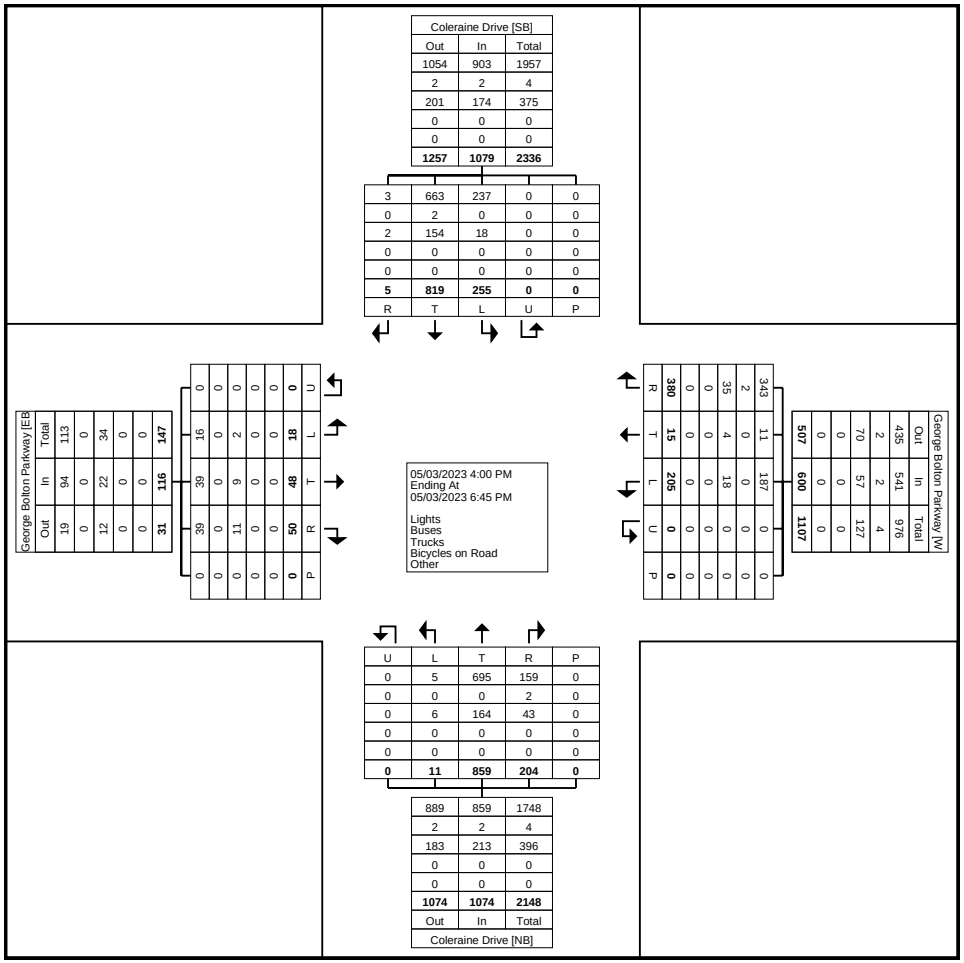
Turning Movement Data

Start Time	Coleraine Drive Southbound						George Bolton Parkway Westbound						Coleraine Drive Northbound						George Bolton Parkway Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
4:00 PM	0	111	21	0	0	132	32	2	28	0	0	62	25	55	1	0	0	81	5	5	1	0	0	11	286
4:15 PM	2	66	16	0	0	84	27	1	22	0	0	50	24	58	1	0	0	83	5	1	0	0	0	6	223
4:30 PM	0	47	20	0	0	67	31	1	29	0	0	61	24	58	1	0	0	83	9	7	2	0	0	18	229
4:45 PM	0	41	19	0	0	60	42	0	20	0	0	62	26	63	1	0	0	90	5	5	4	0	0	14	226
Hourly Total	2	265	76	0	0	343	132	4	99	0	0	235	99	234	4	0	0	337	24	18	7	0	0	49	964
5:00 PM	1	57	17	0	0	75	53	0	33	0	0	86	20	90	0	0	0	110	3	3	3	0	0	9	280
5:15 PM	0	62	17	0	0	79	45	1	19	0	0	65	20	96	3	0	0	119	2	8	2	0	0	12	275
5:30 PM	0	144	45	0	0	189	38	2	7	0	0	47	17	108	0	0	0	125	6	4	0	0	0	10	371
5:45 PM	1	70	35	0	0	106	32	3	24	0	0	59	11	96	2	0	0	109	11	11	5	0	0	27	301
Hourly Total	2	333	114	0	0	449	168	6	83	0	0	257	68	390	5	0	0	463	22	26	10	0	0	58	1227
6:00 PM	0	155	48	0	0	203	40	3	11	0	0	54	22	122	1	0	0	145	3	3	0	0	0	6	408
6:15 PM	1	66	16	0	0	83	40	2	12	0	0	54	15	113	1	0	0	129	1	1	1	0	0	3	269
6:30 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Grand Total	5	819	255	0	0	1079	380	15	205	0	0	600	204	859	11	0	0	1074	50	48	18	0	0	116	2869
Approach %	0.5	75.9	23.6	0.0	-	-	63.3	2.5	34.2	0.0	-	-	19.0	80.0	1.0	0.0	-	-	43.1	41.4	15.5	0.0	-	-	-
Total %	0.2	28.5	8.9	0.0	-	37.6	13.2	0.5	7.1	0.0	-	20.9	7.1	29.9	0.4	0.0	-	37.4	1.7	1.7	0.6	0.0	-	4.0	-
Lights	3	663	237	0	-	903	343	11	187	0	-	541	159	695	5	0	-	859	39	39	16	0	-	94	2397
% Lights	60.0	81.0	92.9	-	-	83.7	90.3	73.3	91.2	-	-	90.2	77.9	80.9	45.5	-	-	80.0	78.0	81.3	88.9	-	-	81.0	83.5
Buses	0	2	0	0	-	2	2	0	0	0	-	2	2	0	0	0	-	2	0	0	0	0	-	0	6
% Buses	0.0	0.2	0.0	-	-	0.2	0.5	0.0	0.0	-	-	0.3	1.0	0.0	0.0	-	-	0.2	0.0	0.0	0.0	-	-	0.0	0.2
Trucks	2	154	18	0	-	174	35	4	18	0	-	57	43	164	6	0	-	213	11	9	2	0	-	22	466
% Trucks	40.0	18.8	7.1	-	-	16.1	9.2	26.7	8.8	-	-	9.5	21.1	19.1	54.5	-	-	19.8	22.0	18.8	11.1	-	-	19.0	16.2
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 idinsmore@lea.ca

Count Name: 23347_Coleraine Dr & George Bolton Pkwy-PM
Site Code: 23347
Start Date: 05/03/2023
Page No: 2



Turning Movement Data Plot

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 idinsmore@lea.ca

Count Name: 23347_Coleraine Dr & George Bolton Pkwy-PM
Site Code: 23347
Start Date: 05/03/2023

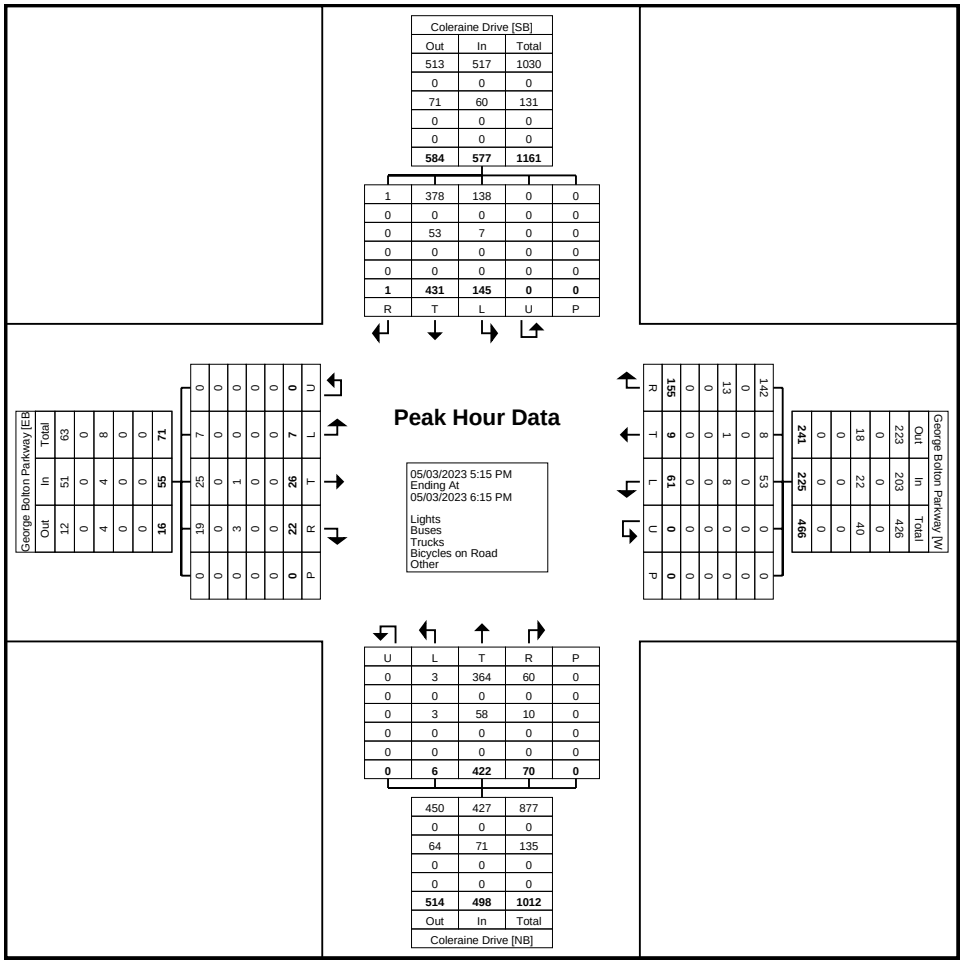
Turning Movement Peak Hour Data (5:15 PM)

Start Time	Coleraine Drive Southbound						George Bolton Parkway Westbound						Coleraine Drive Northbound						George Bolton Parkway Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
5:15 PM	0	62	17	0	0	79	45	1	19	0	0	65	20	96	3	0	0	119	2	8	2	0	0	12	275
5:30 PM	0	144	45	0	0	189	38	2	7	0	0	47	17	108	0	0	0	125	6	4	0	0	0	10	371
5:45 PM	1	70	35	0	0	106	32	3	24	0	0	59	11	96	2	0	0	109	11	11	5	0	0	27	301
6:00 PM	0	155	48	0	0	203	40	3	11	0	0	54	22	122	1	0	0	145	3	3	0	0	0	6	408
Total	1	431	145	0	0	577	155	9	61	0	0	225	70	422	6	0	0	498	22	26	7	0	0	55	1355
Approach %	0.2	74.7	25.1	0.0	-	-	68.9	4.0	27.1	0.0	-	-	14.1	84.7	1.2	0.0	-	-	40.0	47.3	12.7	0.0	-	-	-
Total %	0.1	31.8	10.7	0.0	-	42.6	11.4	0.7	4.5	0.0	-	16.6	5.2	31.1	0.4	0.0	-	36.8	1.6	1.9	0.5	0.0	-	4.1	-
PHF	0.250	0.695	0.755	0.000	-	0.711	0.861	0.750	0.635	0.000	-	0.865	0.795	0.865	0.500	0.000	-	0.859	0.500	0.591	0.350	0.000	-	0.509	0.830
Lights	1	378	138	0	-	517	142	8	53	0	-	203	60	364	3	0	-	427	19	25	7	0	-	51	1198
% Lights	100.0	87.7	95.2	-	-	89.6	91.6	88.9	86.9	-	-	90.2	85.7	86.3	50.0	-	-	85.7	86.4	96.2	100.0	-	-	92.7	88.4
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Buses	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Trucks	0	53	7	0	-	60	13	1	8	0	-	22	10	58	3	0	-	71	3	1	0	0	-	4	157
% Trucks	0.0	12.3	4.8	-	-	10.4	8.4	11.1	13.1	-	-	9.8	14.3	13.7	50.0	-	-	14.3	13.6	3.8	0.0	-	-	7.3	11.6
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 idinsmore@lea.ca

Count Name: 23347_Coleraine Dr & George Bolton Pkwy-PM
Site Code: 23347
Start Date: 05/03/2023



Turning Movement Peak Hour Data Plot (5:15 PM)

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 idinsmore@lea.ca

Count Name: 23347_Highway 50 & George Bolton Pkwy-AM
Site Code: 23347
Start Date: 05/03/2023

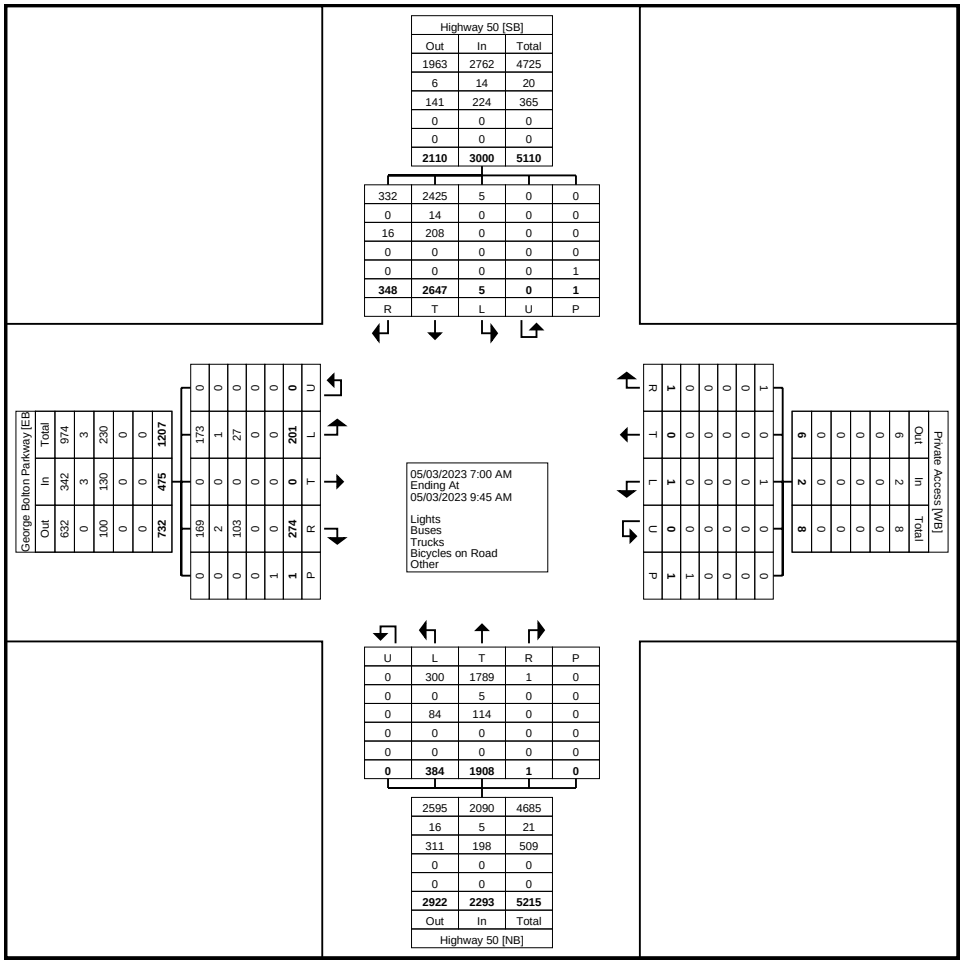
Turning Movement Data

Start Time	Highway 50 Southbound						Private Access Westbound						Highway 50 Northbound						George Bolton Parkway Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
7:00 AM	25	264	1	0	0	290	0	0	0	0	0	0	0	156	52	0	0	208	42	0	18	0	0	60	558
7:15 AM	41	254	0	0	0	295	0	0	0	0	0	0	0	170	41	0	0	211	20	0	16	0	0	36	542
7:30 AM	36	266	0	0	0	302	0	0	0	0	0	0	0	159	40	0	0	199	37	0	14	0	1	51	552
7:45 AM	38	291	1	0	0	330	0	0	0	0	0	0	0	234	44	0	0	278	11	0	14	0	0	25	633
Hourly Total	140	1075	2	0	0	1217	0	0	0	0	0	0	0	719	177	0	0	896	110	0	62	0	1	172	2285
8:00 AM	36	291	1	0	0	328	0	0	0	0	0	0	0	214	38	0	0	252	36	0	15	0	0	51	631
8:15 AM	31	282	0	0	0	313	0	0	0	0	0	0	0	196	27	0	0	223	24	0	31	0	0	55	591
8:30 AM	33	261	1	0	0	295	1	0	0	0	0	1	0	200	37	0	0	237	33	0	16	0	0	49	582
8:45 AM	39	278	1	0	0	318	0	0	0	0	0	0	0	217	34	0	0	251	24	0	26	0	0	50	619
Hourly Total	139	1112	3	0	0	1254	1	0	0	0	0	1	0	827	136	0	0	963	117	0	88	0	0	205	2423
9:00 AM	33	240	0	0	0	273	0	0	0	0	0	0	0	191	50	0	0	241	21	0	15	0	0	36	550
9:15 AM	36	219	0	0	1	255	0	0	1	0	1	1	1	170	21	0	0	192	26	0	36	0	0	62	510
9:30 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2
Grand Total	348	2647	5	0	1	3000	1	0	1	0	1	2	1	1908	384	0	0	2293	274	0	201	0	1	475	5770
Approach %	11.6	88.2	0.2	0.0	-	-	50.0	0.0	50.0	0.0	-	-	0.0	83.2	16.7	0.0	-	-	57.7	0.0	42.3	0.0	-	-	-
Total %	6.0	45.9	0.1	0.0	-	52.0	0.0	0.0	0.0	0.0	-	0.0	0.0	33.1	6.7	0.0	-	39.7	4.7	0.0	3.5	0.0	-	8.2	-
Lights	332	2425	5	0	-	2762	1	0	1	0	-	2	1	1789	300	0	-	2090	169	0	173	0	-	342	5196
% Lights	95.4	91.6	100.0	-	-	92.1	100.0	-	100.0	-	-	100.0	100.0	93.8	78.1	-	-	91.1	61.7	-	86.1	-	-	72.0	90.1
Buses	0	14	0	0	-	14	0	0	0	0	-	0	0	5	0	0	-	5	2	0	1	0	-	3	22
% Buses	0.0	0.5	0.0	-	-	0.5	0.0	-	0.0	-	-	0.0	0.0	0.3	0.0	-	-	0.2	0.7	-	0.5	-	-	0.6	0.4
Trucks	16	208	0	0	-	224	0	0	0	0	-	0	0	114	84	0	-	198	103	0	27	0	-	130	552
% Trucks	4.6	7.9	0.0	-	-	7.5	0.0	-	0.0	-	-	0.0	0.0	6.0	21.9	-	-	8.6	37.6	-	13.4	-	-	27.4	9.6
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 idinsmore@lea.ca

Count Name: 23347_Highway 50 & George Bolton Pkwy-AM
Site Code: 23347
Start Date: 05/03/2023
Page No: 2



Turning Movement Data Plot

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 idinsmore@lea.ca

Count Name: 23347_Highway 50 & George Bolton Pkwy-AM
Site Code: 23347
Start Date: 05/03/2023

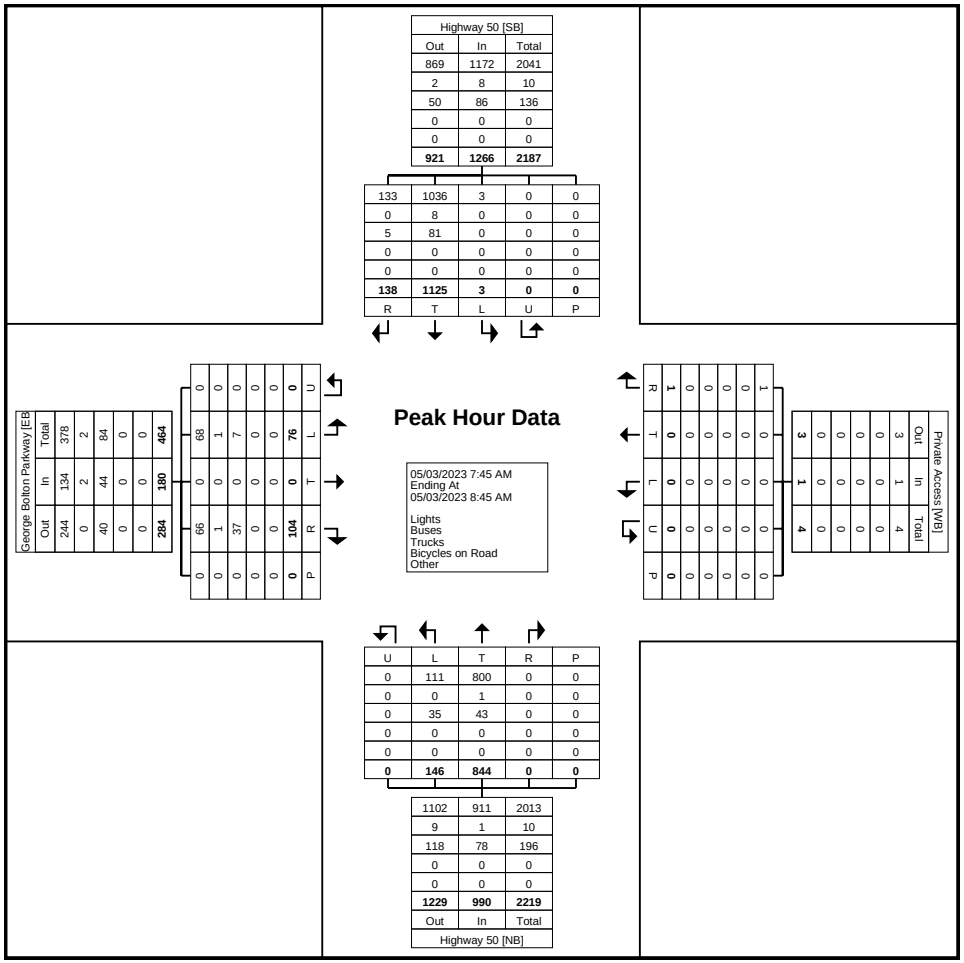
Turning Movement Peak Hour Data (7:45 AM)

Start Time	Highway 50 Southbound						Private Access Westbound						Highway 50 Northbound						George Bolton Parkway Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
7:45 AM	38	291	1	0	0	330	0	0	0	0	0	0	0	234	44	0	0	278	11	0	14	0	0	25	633
8:00 AM	36	291	1	0	0	328	0	0	0	0	0	0	0	214	38	0	0	252	36	0	15	0	0	51	631
8:15 AM	31	282	0	0	0	313	0	0	0	0	0	0	0	196	27	0	0	223	24	0	31	0	0	55	591
8:30 AM	33	261	1	0	0	295	1	0	0	0	0	1	0	200	37	0	0	237	33	0	16	0	0	49	582
Total	138	1125	3	0	0	1266	1	0	0	0	0	1	0	844	146	0	0	990	104	0	76	0	0	180	2437
Approach %	10.9	88.9	0.2	0.0	-	-	100.0	0.0	0.0	0.0	-	-	0.0	85.3	14.7	0.0	-	-	57.8	0.0	42.2	0.0	-	-	-
Total %	5.7	46.2	0.1	0.0	-	51.9	0.0	0.0	0.0	0.0	-	0.0	0.0	34.6	6.0	0.0	-	40.6	4.3	0.0	3.1	0.0	-	7.4	-
PHF	0.908	0.966	0.750	0.000	-	0.959	0.250	0.000	0.000	0.000	-	0.250	0.000	0.902	0.830	0.000	-	0.890	0.722	0.000	0.613	0.000	-	0.818	0.962
Lights	133	1036	3	0	-	1172	1	0	0	0	-	1	0	800	111	0	-	911	66	0	68	0	-	134	2218
% Lights	96.4	92.1	100.0	-	-	92.6	100.0	-	-	-	-	100.0	-	94.8	76.0	-	-	92.0	63.5	-	89.5	-	-	74.4	91.0
Buses	0	8	0	0	-	8	0	0	0	0	-	0	0	1	0	0	-	1	1	0	1	0	-	2	11
% Buses	0.0	0.7	0.0	-	-	0.6	0.0	-	-	-	-	0.0	-	0.1	0.0	-	-	0.1	1.0	-	1.3	-	-	1.1	0.5
Trucks	5	81	0	0	-	86	0	0	0	0	-	0	0	43	35	0	-	78	37	0	7	0	-	44	208
% Trucks	3.6	7.2	0.0	-	-	6.8	0.0	-	-	-	-	0.0	-	5.1	24.0	-	-	7.9	35.6	-	9.2	-	-	24.4	8.5
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	-	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 idinsmore@lea.ca

Count Name: 23347_Highway 50 & George Bolton Pkwy-AM
Site Code: 23347
Start Date: 05/03/2023



Turning Movement Peak Hour Data Plot (7:45 AM)

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 idinsmore@lea.ca

Count Name: 23347_Highway 50 & George Bolton Pkwy-PM
Site Code: 23347
Start Date: 05/03/2023

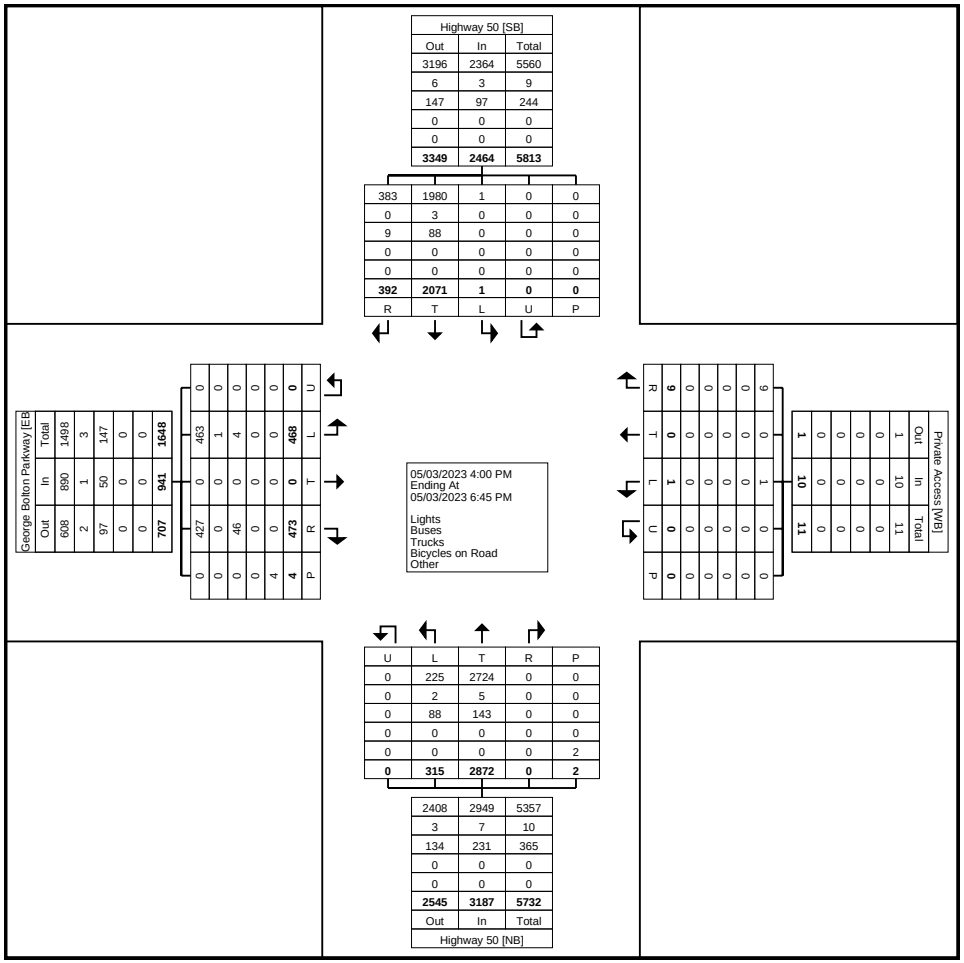
Turning Movement Data

Start Time	Highway 50 Southbound						Private Access Westbound						Highway 50 Northbound						George Bolton Parkway Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
4:00 PM	63	213	0	0	0	276	1	0	1	0	0	2	0	296	19	0	0	315	61	0	68	0	1	129	722
4:15 PM	40	235	0	0	0	275	0	0	0	0	0	0	0	251	30	0	0	281	50	0	32	0	1	82	638
4:30 PM	35	240	0	0	0	275	0	0	0	0	0	0	0	273	25	0	0	298	35	0	47	0	1	82	655
4:45 PM	36	225	1	0	0	262	6	0	0	0	0	6	0	317	36	0	0	353	44	0	43	0	0	87	708
Hourly Total	174	913	1	0	0	1088	7	0	1	0	0	8	0	1137	110	0	0	1247	190	0	190	0	3	380	2723
5:00 PM	45	234	0	0	0	279	1	0	0	0	0	1	0	323	24	0	2	347	53	0	59	0	0	112	739
5:15 PM	40	209	0	0	0	249	0	0	0	0	0	0	0	323	31	0	0	354	40	0	60	0	1	100	703
5:30 PM	48	205	0	0	0	253	0	0	0	0	0	0	0	294	38	0	0	332	56	0	47	0	0	103	688
5:45 PM	28	168	0	0	0	196	0	0	0	0	0	0	0	315	32	0	0	347	43	0	51	0	0	94	637
Hourly Total	161	816	0	0	0	977	1	0	0	0	0	1	0	1255	125	0	2	1380	192	0	217	0	1	409	2767
6:00 PM	22	176	0	0	0	198	0	0	0	0	0	0	0	272	39	0	0	311	58	0	36	0	0	94	603
6:15 PM	35	166	0	0	0	201	1	0	0	0	0	1	0	208	41	0	0	249	33	0	25	0	0	58	509
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	392	2071	1	0	0	2464	9	0	1	0	0	10	0	2872	315	0	2	3187	473	0	468	0	4	941	6602
Approach %	15.9	84.1	0.0	0.0	-	-	90.0	0.0	10.0	0.0	-	-	0.0	90.1	9.9	0.0	-	-	50.3	0.0	49.7	0.0	-	-	-
Total %	5.9	31.4	0.0	0.0	-	37.3	0.1	0.0	0.0	0.0	-	0.2	0.0	43.5	4.8	0.0	-	48.3	7.2	0.0	7.1	0.0	-	14.3	-
Lights	383	1980	1	0	-	2364	9	0	1	0	-	10	0	2724	225	0	-	2949	427	0	463	0	-	890	6213
% Lights	97.7	95.6	100.0	-	-	95.9	100.0	-	100.0	-	-	100.0	-	94.8	71.4	-	-	92.5	90.3	-	98.9	-	-	94.6	94.1
Buses	0	3	0	0	-	3	0	0	0	0	-	0	0	5	2	0	-	7	0	0	1	0	-	1	11
% Buses	0.0	0.1	0.0	-	-	0.1	0.0	-	0.0	-	-	0.0	-	0.2	0.6	-	-	0.2	0.0	-	0.2	-	-	0.1	0.2
Trucks	9	88	0	0	-	97	0	0	0	0	-	0	0	143	88	0	-	231	46	0	4	0	-	50	378
% Trucks	2.3	4.2	0.0	-	-	3.9	0.0	-	0.0	-	-	0.0	-	5.0	27.9	-	-	7.2	9.7	-	0.9	-	-	5.3	5.7
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	25.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	3	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	75.0	-	-

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 idinsmore@lea.ca

Count Name: 23347_Highway 50 & George Bolton Pkwy-PM
Site Code: 23347
Start Date: 05/03/2023



Turning Movement Data Plot

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 idinsmore@lea.ca

Count Name: 23347_Highway 50 & George Bolton Pkwy-PM
Site Code: 23347
Start Date: 05/03/2023

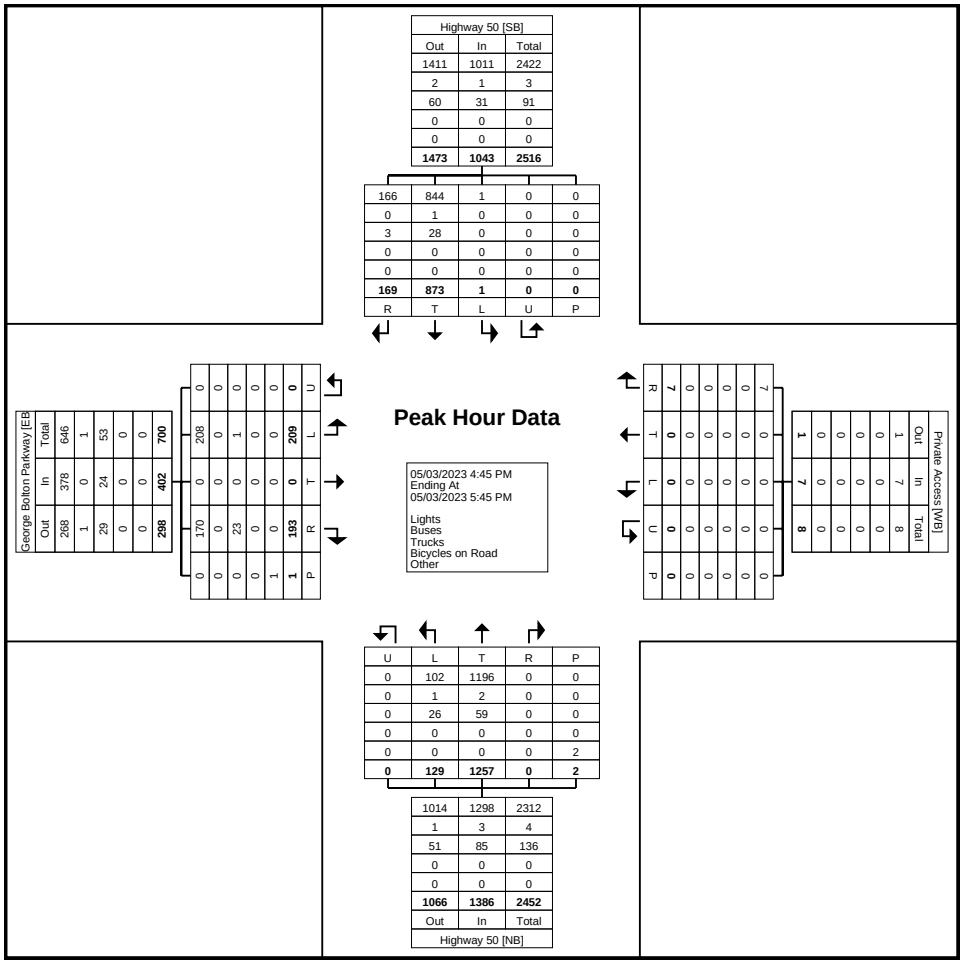
Turning Movement Peak Hour Data (4:45 PM)

Start Time	Highway 50 Southbound						Private Access Westbound						Highway 50 Northbound						George Bolton Parkway Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
4:45 PM	36	225	1	0	0	262	6	0	0	0	0	6	0	317	36	0	0	353	44	0	43	0	0	87	708
5:00 PM	45	234	0	0	0	279	1	0	0	0	0	1	0	323	24	0	2	347	53	0	59	0	0	112	739
5:15 PM	40	209	0	0	0	249	0	0	0	0	0	0	0	323	31	0	0	354	40	0	60	0	1	100	703
5:30 PM	48	205	0	0	0	253	0	0	0	0	0	0	0	294	38	0	0	332	56	0	47	0	0	103	688
Total	169	873	1	0	0	1043	7	0	0	0	0	7	0	1257	129	0	2	1386	193	0	209	0	1	402	2838
Approach %	16.2	83.7	0.1	0.0	-	-	100.0	0.0	0.0	0.0	-	-	0.0	90.7	9.3	0.0	-	-	48.0	0.0	52.0	0.0	-	-	-
Total %	6.0	30.8	0.0	0.0	-	36.8	0.2	0.0	0.0	0.0	-	0.2	0.0	44.3	4.5	0.0	-	48.8	6.8	0.0	7.4	0.0	-	14.2	-
PHF	0.880	0.933	0.250	0.000	-	0.935	0.292	0.000	0.000	0.000	-	0.292	0.000	0.973	0.849	0.000	-	0.979	0.862	0.000	0.871	0.000	-	0.897	0.960
Lights	166	844	1	0	-	1011	7	0	0	0	-	7	0	1196	102	0	-	1298	170	0	208	0	-	378	2694
% Lights	98.2	96.7	100.0	-	-	96.9	100.0	-	-	-	-	100.0	-	95.1	79.1	-	-	93.7	88.1	-	99.5	-	-	94.0	94.9
Buses	0	1	0	0	-	1	0	0	0	0	-	0	0	2	1	0	-	3	0	0	0	0	-	0	4
% Buses	0.0	0.1	0.0	-	-	0.1	0.0	-	-	-	-	0.0	-	0.2	0.8	-	-	0.2	0.0	-	0.0	-	-	0.0	0.1
Trucks	3	28	0	0	-	31	0	0	0	0	-	0	0	59	26	0	-	85	23	0	1	0	-	24	140
% Trucks	1.8	3.2	0.0	-	-	3.0	0.0	-	-	-	-	0.0	-	4.7	20.2	-	-	6.1	11.9	-	0.5	-	-	6.0	4.9
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	-	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

LEA Consulting Ltd.
625 Cochrane Drive

Markam, Ontario, Canada L3R 9R9
905-470-0015 x240 idinsmore@lea.ca

Count Name: 23347_Highway 50 & George Bolton Pkwy-PM
Site Code: 23347
Start Date: 05/03/2023



Turning Movement Peak Hour Data Plot (4:45 PM)

MG8 ENG

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 7:00:00
To: 8:00:00

Municipality: Region of Peel
Site #: 0001401354
Intersection: Mayfield Road & Coleraine Drive
TFR File #: 1
Count date: 7-May-2013

Weather conditions:

Person(s) who counted:
PREDO

**** Signalized Intersection ****

Major Road: Mayfield Road runs W/E

North Leg Total:	850								East Leg Total:	808	
North Entering:	488	Cyclists	0	1	0	1	Cyclists	1	East Entering:	467	
North Peds:	0	Trucks	26	8	7	41	Trucks	30	East Peds:	0	
Peds Cross:		Cars	108	330	8	446	Cars	331	Peds Cross:		
		Totals	134	339	15		Totals	362			

Coleraine Drive

Cyclists	Trucks	Cars	Totals
3	71	483	557

Cars	Trucks	Cyclists	Totals
12	8	0	20
357	43	3	403
44	0	0	44
413	51	3	

N

Mayfield Road

W E

Cyclists	Trucks	Cars	Totals
1	17	216	234
0	38	279	317
1	1	48	50
2	56	543	

S

Mayfield Road

Cars	Trucks	Cyclists	Totals
295	46	0	341

Coleraine Drive

Peds Cross:									Peds Cross:		
West Peds:	0	Cars	422	Cars	18	103	8	129	South Peds:	0	
West Entering:	601	Trucks	9	Trucks	2	5	1	8	South Entering:	137	
West Leg Total:	1158	Cyclists	2	Cyclists	0	0	0	0	South Leg Total:	570	
		Totals	433	Totals	20	108	9				

Comments

MG8 ENG

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 17:00:00
To: 18:00:00

Municipality: Region of Peel
Site #: 0001401354
Intersection: Mayfield Road & Coleraine Drive
TFR File #: 1
Count date: 7-May-2013

Weather conditions:

Person(s) who counted:
PREDO

**** Signalized Intersection ****

Major Road: Mayfield Road runs W/E

North Leg Total: 865
North Entering: 401
North Peds: 0
Peds Cross: ⋈

Cyclists	1	0	0	1
Trucks	27	2	9	38
Cars	191	155	16	362
Totals	219	157	25	

Cyclists	1
Trucks	45
Cars	418
Totals	464

East Leg Total: 1013
East Entering: 509
East Peds: 0
Peds Cross: ⧖

Coleraine Drive

Cyclists	Trucks	Cars	Totals
3	75	651	729

Cars	Trucks	Cyclists	Totals
26	12	0	38
408	48	2	458
12	1	0	13
446	61	2	

Mayfield Road

N
W E
S

Cyclists	Trucks	Cars	Totals
1	32	135	168
2	48	408	458
0	0	29	29
3	80	572	

Mayfield Road

Cars	Trucks	Cyclists	Totals
445	57	2	504

Coleraine Drive

Peds Cross: ⧖
West Peds: 0
West Entering: 655
West Leg Total: 1384

Cars	196
Trucks	3
Cyclists	0
Totals	199

Cars	52	257	21	330
Trucks	0	1	0	1
Cyclists	0	0	0	0
Totals	52	258	21	

Peds Cross: ⋈
South Peds: 0
South Entering: 331
South Leg Total: 530

Comments

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

Database Date	**August 31, 2020**		**Prepared Date**	**July 4, 2023**
Database Rev	**-**		**Completed By**	**TF**
Timing Card / Field rev	**1**		**Checked By**	**MH**
Location	**Coleraine Drive at George Bolton Parkway**			

Phase #	Street Name - Direction	Vehicle Minimum (s)	Pedestrian Minimum (s)		Amber (s)	All Red (s)	TIME PERIOD (s)		
			WALK	FDWALK			AM SPLITS	OFF SPLITS	PM SPLITS
1	Not In Use	-	-	-	-	-	-	-	-
2	Coleraine Drive - SB	12.0	8.0	19.0	4.2	2.5	55.0	65.7	55.0
3	Not In Use	-	-	-	-	-	-	-	-
4	George Bolton Parkway - WB	12.0	8.0	17.0	4.0	3.5	45.0	19.5 (min), 47.5 (max)	45.0
5	Not In Use	-	-	-	-	-	-	-	-
6	Coleraine Drive - NB	12.0	8.0	19.0	4.2	2.5	55.0	65.7	55.0
7	Not In Use	-	-	-	-	-	-	-	-
8	George Bolton Parkway - EB	12.0	8.0	17.0	4.0	3.5	45.0	19.5 (min), 47.5 (max)	45.0

System Control
Yes

Semi-Actuated Mode
Yes

TIME (M-F)	PEAK	CYCLE LENGTH (s)	OFFSET (s)
06:00 - 09:00	AM	100	0
09:00 - 15:00 19:00 - 00:00	OFF	0	0
15:00 - 19:00	PM	100	0

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

Database Date	**June 27, 2023**		**Prepared Date**	**June 30, 2023**
Database Rev	**iNET**		**Completed By**	**TF**
Timing Card / Field rev	**8**		**Checked By**	**MH**
Location	**Coleraine Drive at Healey Road**			

Phase #	Street Name - Direction	Vehicle Minimum (s)	Pedestrian Minimum (s)		Amber (s)	All Red (s)	TIME PERIOD (s)		
			WALK	FDWALK			AM SPLITS	OFF SPLITS	PM SPLITS
1	Not In Use	-	-	-	-	-	-	-	-
2	Coleraine Drive - SB	8.0	8.0	25.0	4.2	2.4	37.0	37.0	37.0
3	Healey Road - EB Prot. Perm. LT	5.0	0.0	0.0	3.0	0.0	10.0	10.0	10.0
4	Healey Road - WB	8.0	8.0	25.0	4.0	2.8	33.0	33.0	33.0
5	Not In Use	-	-	-	-	-	-	-	-
6	Coleraine Drive - NB	8.0	8.0	25.0	4.2	2.4	37.0	37.0	37.0
7	Not In Use	-	-	-	-	-	-	-	-
8	Healey Road - EB	8.0	8.0	25.0	4.0	2.8	43.0	43.0	43.0

System Control
Yes

Semi-Actuated Mode
Yes

TIME (M-F)	PEAK	CYCLE LENGTH (s)	OFFSET (s)
06:00 - 09:00	AM	80	6
09:00 - 15:00	OFF	80	3
15:00 - 19:00	PM	80	12

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

Database Date	**June 27, 2023**		**Prepared Date**	**June 30, 2023**
Database Rev	**iNET**		**Completed By**	**TF**
Timing Card / Field rev	**6**		**Checked By**	**MH**
Location	**Highway 50 at George Bolton Parkway**			

Phase #	Street Name - Direction	Vehicle Minimum (s)	Pedestrian Minimum (s)		Amber (s)	All Red (s)	TIME PERIOD (s)		
			WALK	FDWALK			AM SPLITS	OFF SPLITS	PM SPLITS
1	Highway 50 - NB Prot. Perm. LT	5.0	0.0	0.0	3.0	0.0	10.0	10.0	10.0
2	Highway 50 - SB	12.0	8.0	13.0	4.0	2.3	75.0	65.0	75.0
3	Not In Use	-	-	-	-	-	-	-	-
4	George Bolton Parkway - WB	8.0	8.0	18.0	4.0	2.6	35.0	35.0	35.0
5	Not In Use	-	-	-	-	-	-	-	-
6	Highway 50 - NB	12.0	8.0	13.0	4.0	2.3	85.0	75.0	85.0
7	Not In Use	-	-	-	-	-	-	-	-
8	George Bolton Parkway - EB	8.0	8.0	18.0	4.0	2.6	35.0	35.0	35.0

System Control

Yes

Semi-Actuated Mode

Yes

TIME (M-F)	PEAK	CYCLE LENGTH (s)	OFFSET (s)
06:00 - 09:00	AM	120	113
09:00 - 15:00	OFF	110	73
15:00 - 19:00	PM	120	116

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

Database Date	**June 27, 2023**	**Prepared Date**	**June 30, 2023**
Database Rev	**Maxview**	**Completed By**	**TF**
Timing Card / Field rev	**-**	**Checked By**	**MH**
Location	**Mayfield Road at Clarkway Drive / Humber Station Road**		

Phase #	Street Name - Direction	Vehicle Minimum (s)	Pedestrian Minimum (s)		Amber (s)	All Red (s)	TIME PERIOD (s)		
			WALK	FDWALK			AM SPLITS	OFF SPLITS	PM SPLITS
1	Not In Use	-	-	-	-	-	-	-	-
2	Mayfield Road - EB	12.0	12.0	8.0	4.6	2.7	70.0	50.0	55.0
3	Humber Station Road - SB	8.0	12.0	7.0	4.2	2.8	30.0	20.0	20.0
4	Clarkway Drive - NB	8.0	12.0	7.0	4.2	2.8	20.0	30.0	45.0
5	Not In Use	-	-	-	-	-	-	-	-
6	Mayfield Road - WB	12.0	12.0	8.0	4.6	2.7	70.0	50.0	55.0
7	Not In Use	-	-	-	-	-	-	-	-
8	Computer Phase	8.0	12.0	7.0	4.2	2.8	50.0	50.0	65.0

System Control

Yes

Semi-Actuated Mode

No

TIME (M-F)	PEAK	CYCLE LENGTH (s)	OFFSET (s)
06:30 - 09:00	AM	120	31
09:00 - 15:00	OFF	100	45
15:00 - 19:30	PM	120	43

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

Database Date	**February 3, 2023**		**Prepared Date**	**June 30, 2023**
Database Rev	**Maxview**		**Completed By**	**TF**
Timing Card / Field rev	**-**		**Checked By**	**MH**

Location — **Mayfield Road at Coleraine Drive**

Phase #	Street Name - Direction	Vehicle Minimum (s)	Pedestrian Minimum (s)		Amber (s)	All Red (s)	TIME PERIOD (s)		
			WALK	FDWALK			AM SPLITS	OFF SPLITS	PM SPLITS
1	Not In Use	-	-	-	-	-	-	-	-
2	Mayfield Road - EB	12.0	12.0	18.0	4.6	2.4	80.0	62.0	80.0
3	Coleraine Drive SB Prot. Perm. LT	5.0	0.0	0.0	3.0	0.0	18.0	10.0	14.0
4	Coleraine Drive - NB	12.0	12.0	18.0	4.2	2.8	32.0	38.0	36.0
5	Mayfield Road - EB Prot. Perm. LT	5.0	0.0	0.0	3.0	0.0	15.0	9.0	12.0
6	Mayfield Road - WB	12.0	12.0	18.0	4.6	2.4	65.0	53.0	68.0
7	Not In Use	-	-	-	-	-	-	-	-
8	Coleriane Drive - SB	12.0	12.0	18.0	4.2	2.8	50.0	48.0	50.0

System Control
Yes

Semi-Actuated Mode
Yes

TIME (M-F)	PEAK	CYCLE LENGTH (s)	OFFSET (s)
06:30 - 09:00	AM	130	92
09:00 - 15:00 19:30 - 22:00	OFF	110	48
15:00 - 19:30	PM	130	116

APPENDIX C

Background Developments

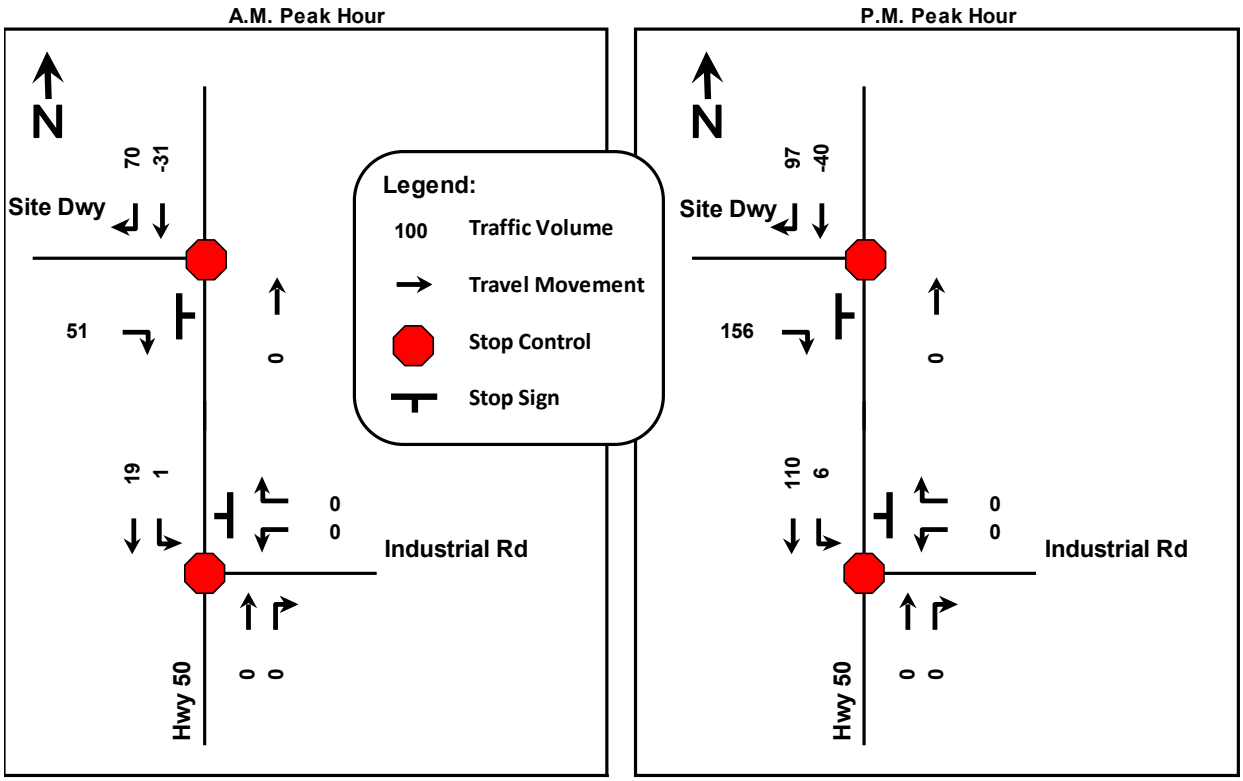
Table 5-1 Trip Generation Summary

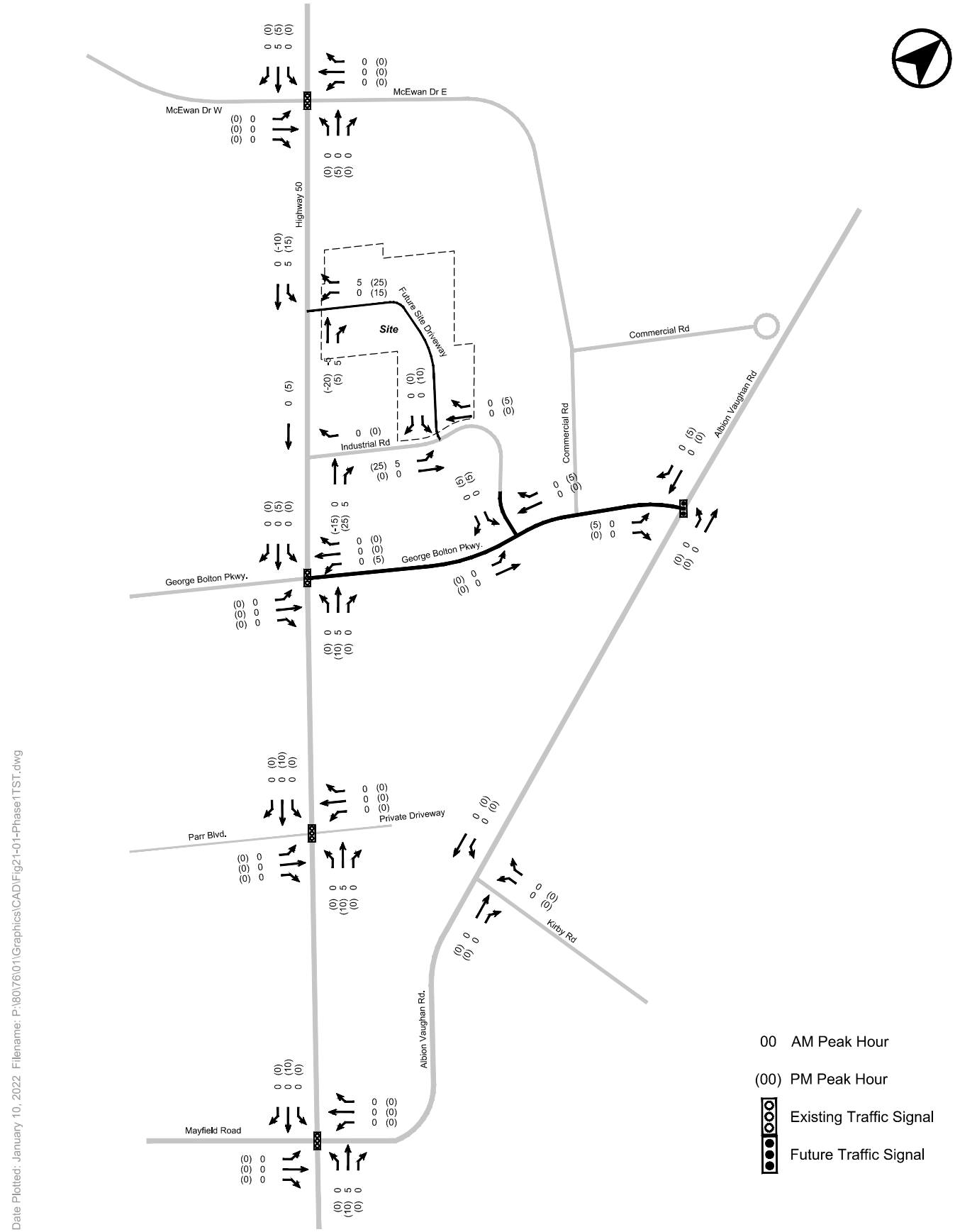
Land Use	Size	Weekday A.M. Peak Hour			Weekday P.M. Peak Hour		
		In	Out	Total	In	Out	Total
Gasoline Station with Convenience Market and Car Wash	8 Positions	43	42	**85**	53	54	**107**
Auto Body Shop / Shopping Center	278.7 m^2 / 3,000 s.f.	12	7	**19**	30	32	**62**
Office	460.7 m^2 / 4960 s.f.	15	2	**17**	14	70	**84**
Pass-by Trips		31	31	**62**	40	40	**80**
Primary New Trips		**39**	**20**	**59**	**57**	**116**	**173**

In order to analyze the future total conditions, the estimated new peak hour vehicular trips summarized in Table 5-1 were assigned to the site driveways and study intersections. The directional route distribution of site generated traffic was based on the access configuration.

Based on the abovementioned trip distribution the estimated new trips associated with the proposed development summarized in Table 5-1 were assigned at the site driveways and study intersections accordingly. The total new assigned peak hour site generated traffic volumes with pass-by reduction are shown in **Figure 5-1**.

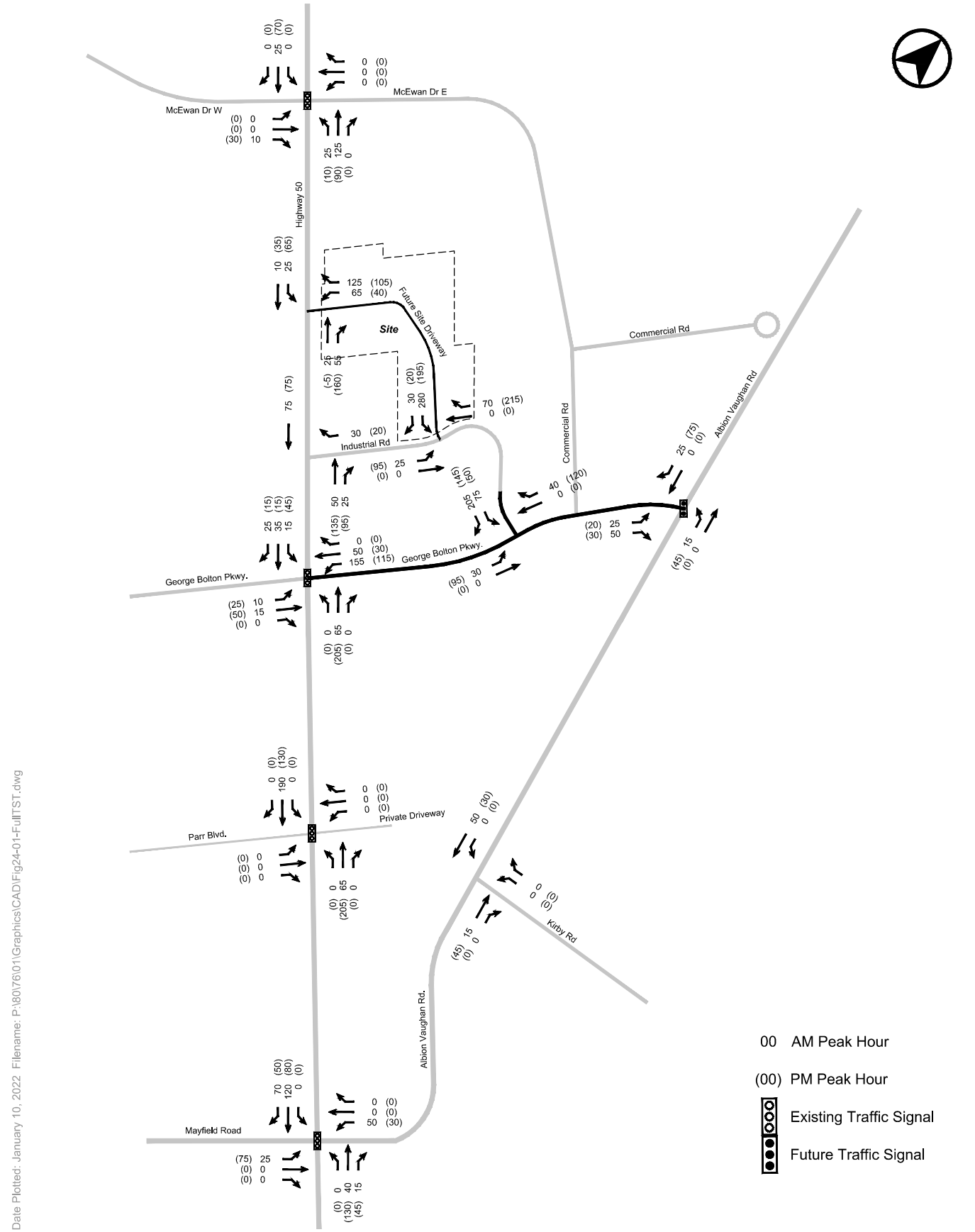
Figure 5-1 Total Peak Hour Proposed Site Development Related Trips





Date Plotted: January 10, 2022 Filename: P:\8076\01\Graphics\CAD\Fig21-01-Phase1TST.dwg

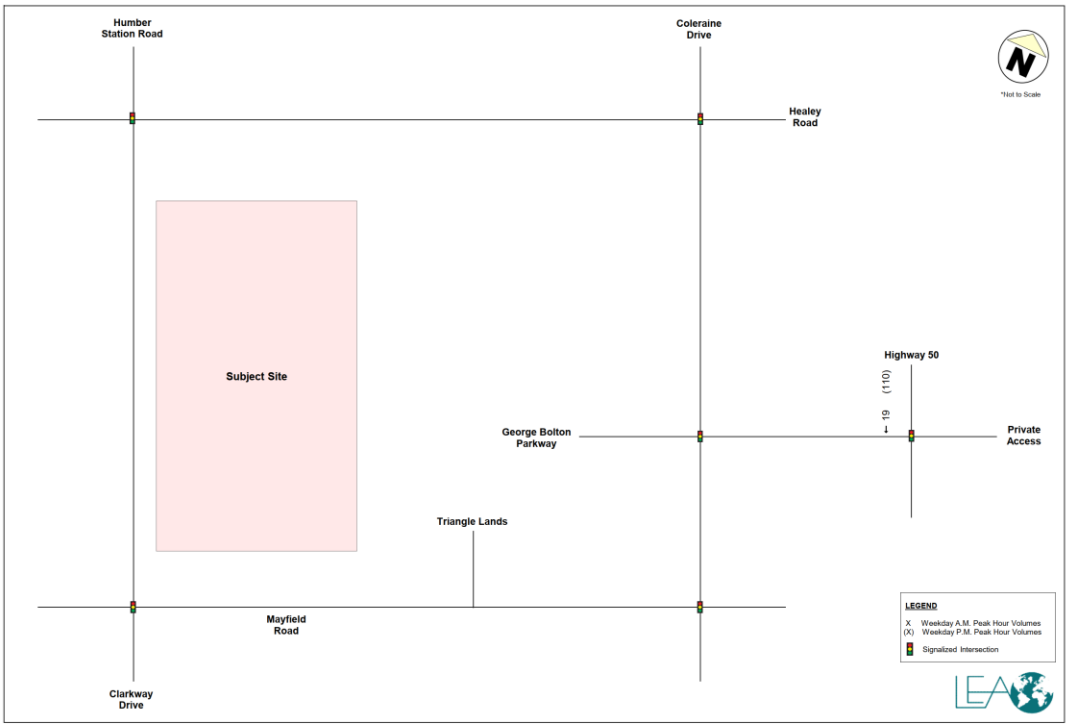
FIGURE 21 PHASE 1 TOTAL SITE TRAFFIC VOLUMES



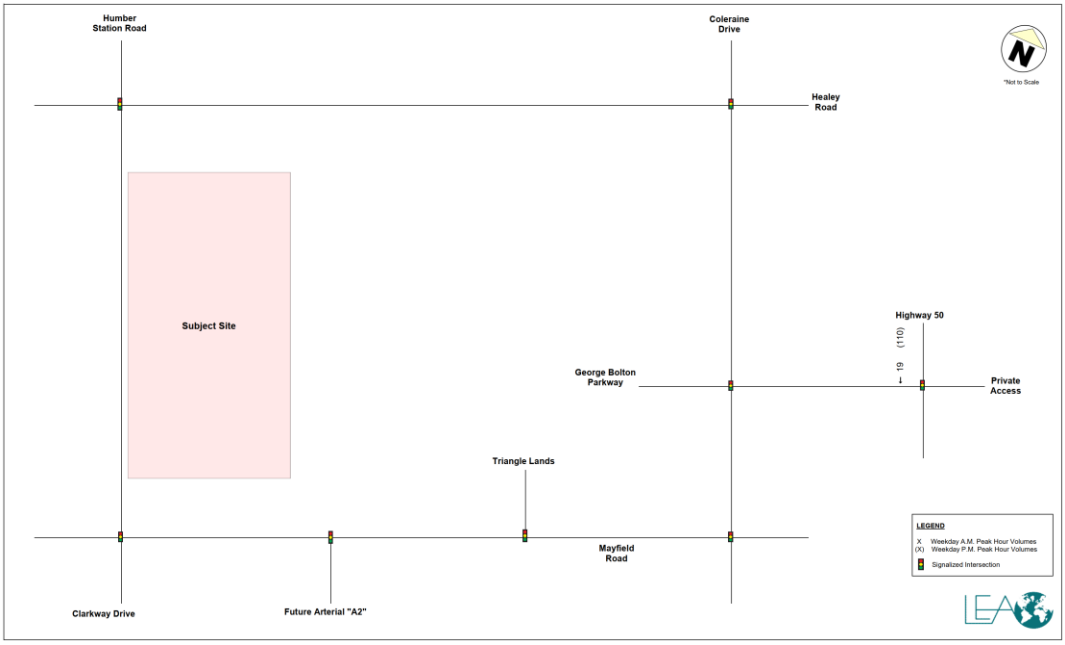
Date Plotted: January 10, 2022 Filename: P:\8076\01\Graphics\CAD\Fig24-01-FullTST.dwg

FIGURE 24 FULL BUILD-OUT TOTAL SITE TRAFFIC VOLUMES

12544 Highway 50 Background Development Trips (2028)



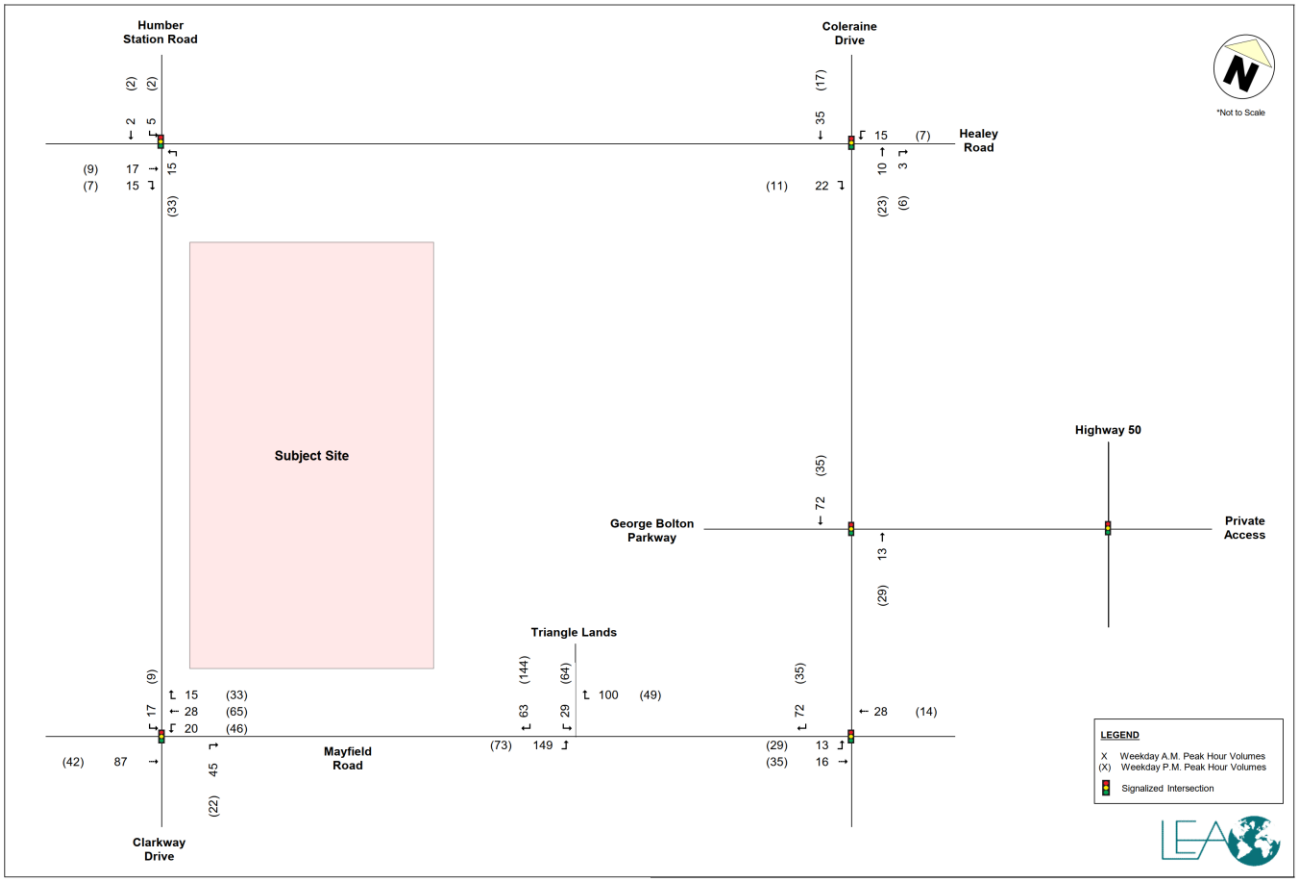
12544 Highway 50 Background Development Trips (2033 & 2043)



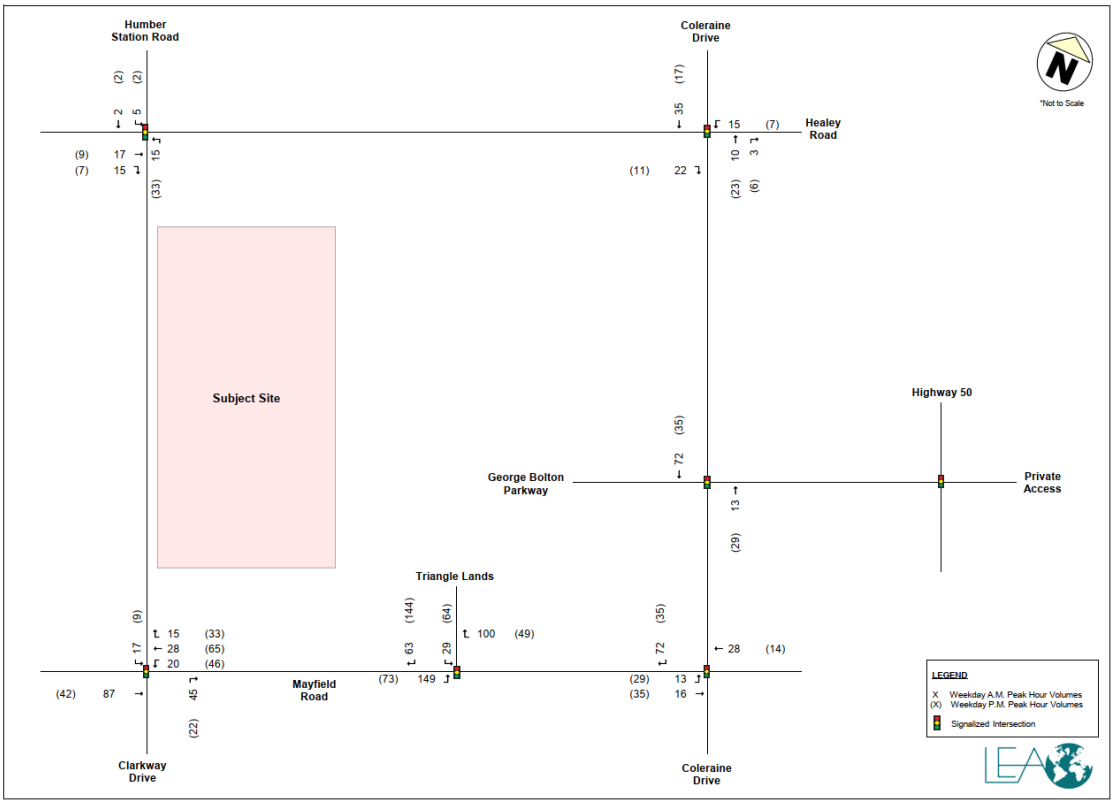
Triangle Lands Vehicle and Truck Trip Generation

Land Use	Description	Weekday AM Peak Hour			Weekday PM Peak Hour		
		In	Out	Total	In	Out	Total
Triangle Lands (Vehicle)							
ITE LUC 140 – Manufacturing 1066 Employees	Auto Trip Rate (/employee)	0.23	0.09	0.32	0.11	0.20	0.31
	Total ITE Auto Trips	249	92	341	122	208	330
	External Auto Trips (100%)	**249**	**92**	**341**	**122**	**208**	**330**
Triangle Lands (Truck)							
ITE LUC 140 – Manufacturing 1066 Employees	Truck Trip Rate (/employee)	0.02	0.01	0.03	0.02	0.03	0.05
	Total ITE Auto Trips	19	13	32	20	34	54
	External Truck Trips (100%)	**19**	**13**	**32**	**20**	**34**	**54**

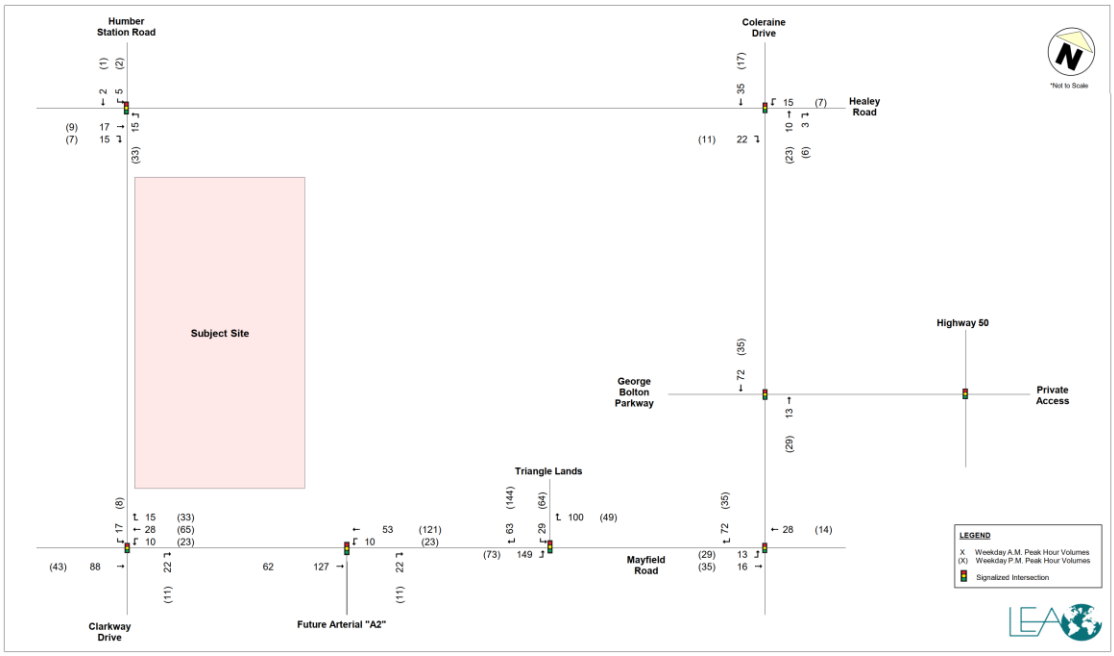
Triangle Lands Background Development Vehicle Trips (2028)



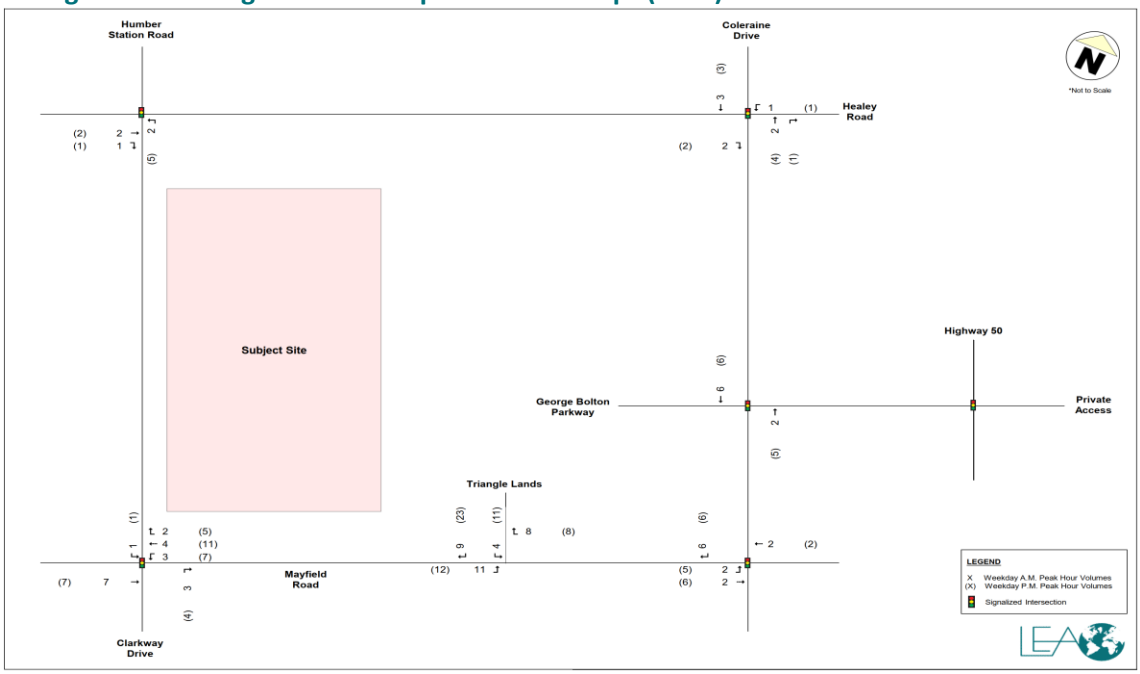
Triangle Lands Background Development Vehicle Trips (2033)



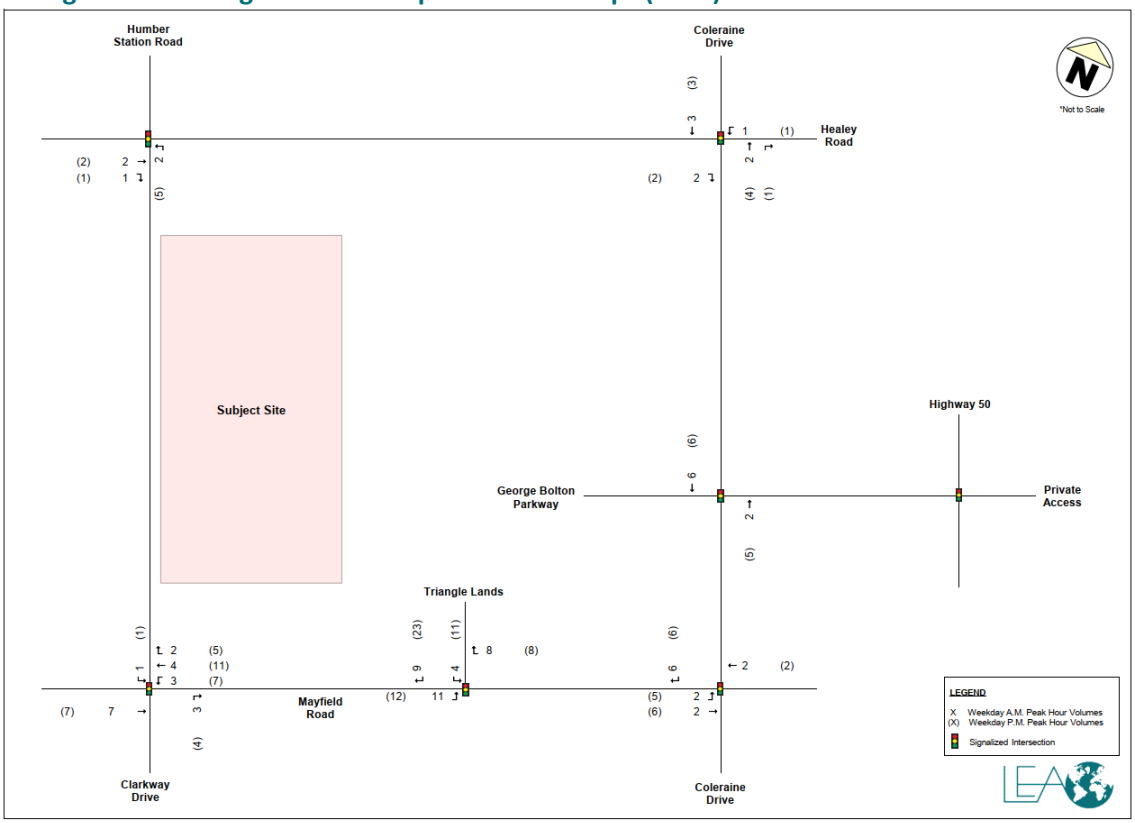
Triangle Lands Background Development Vehicle Trips (2043)



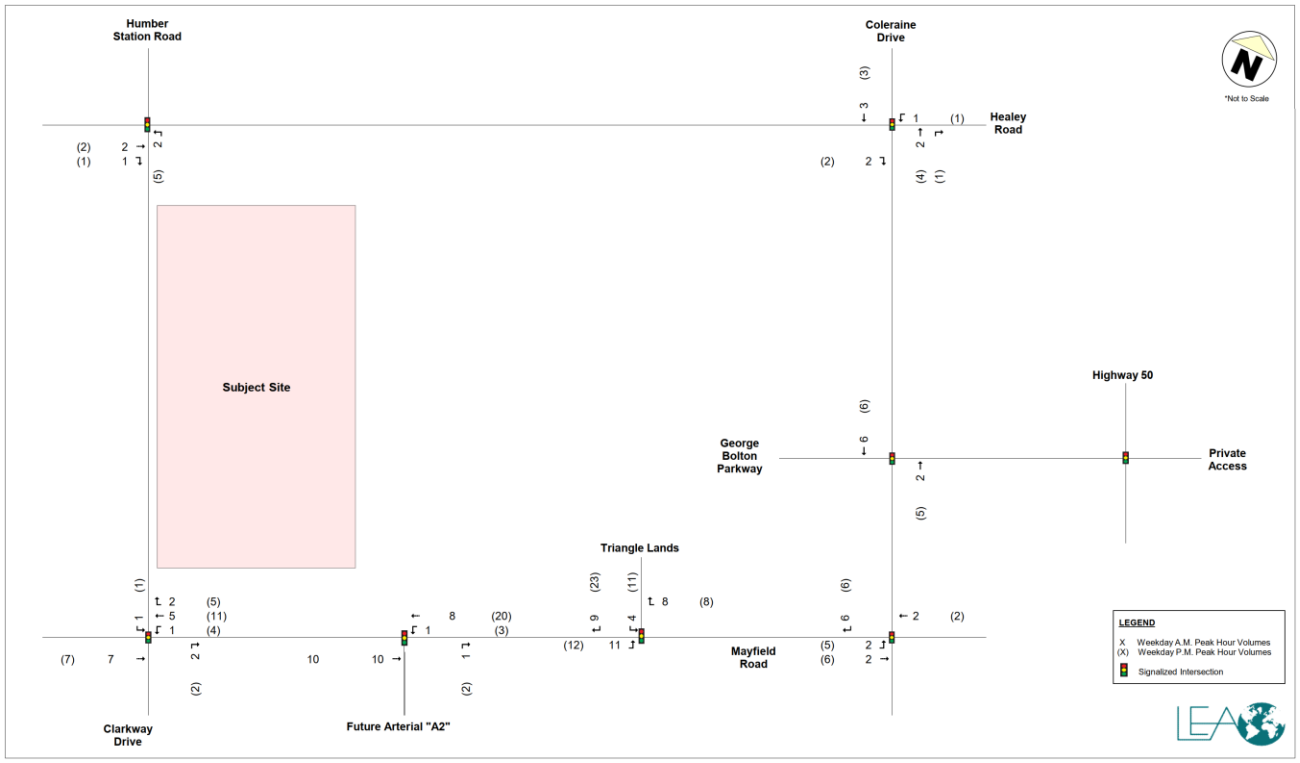
Triangle Lands Background Development Truck Trips (2028)



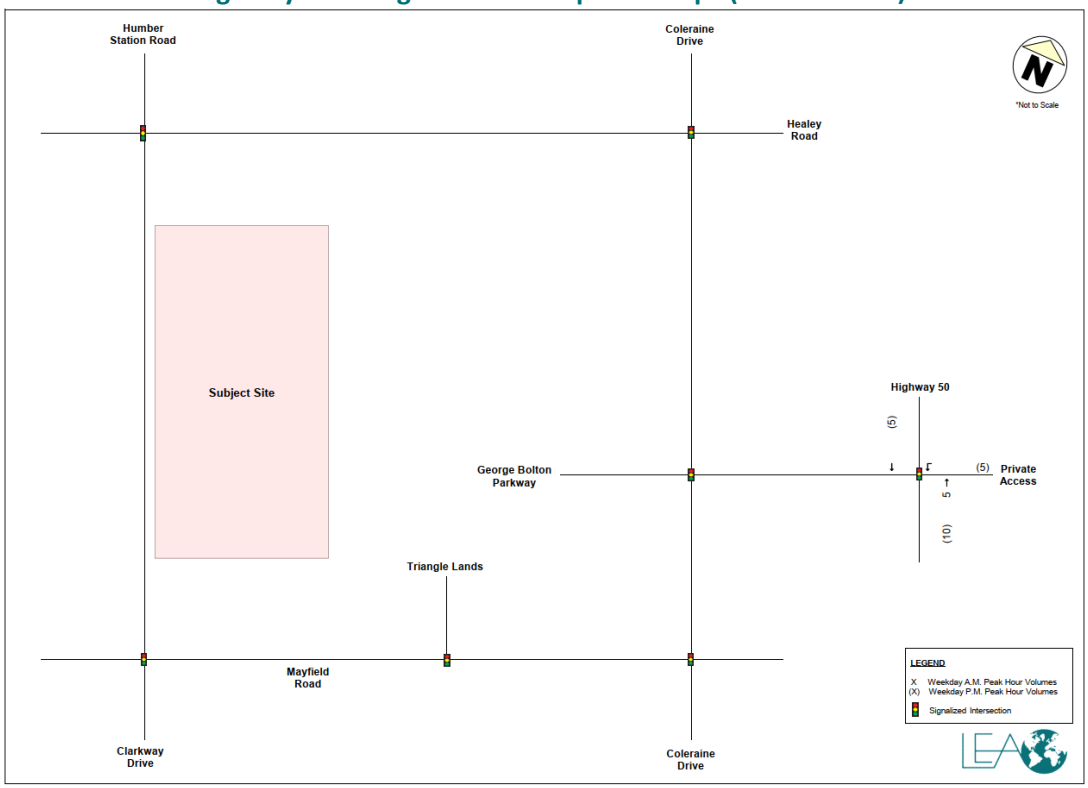
Triangle Lands Background Development Truck Trips (2033)



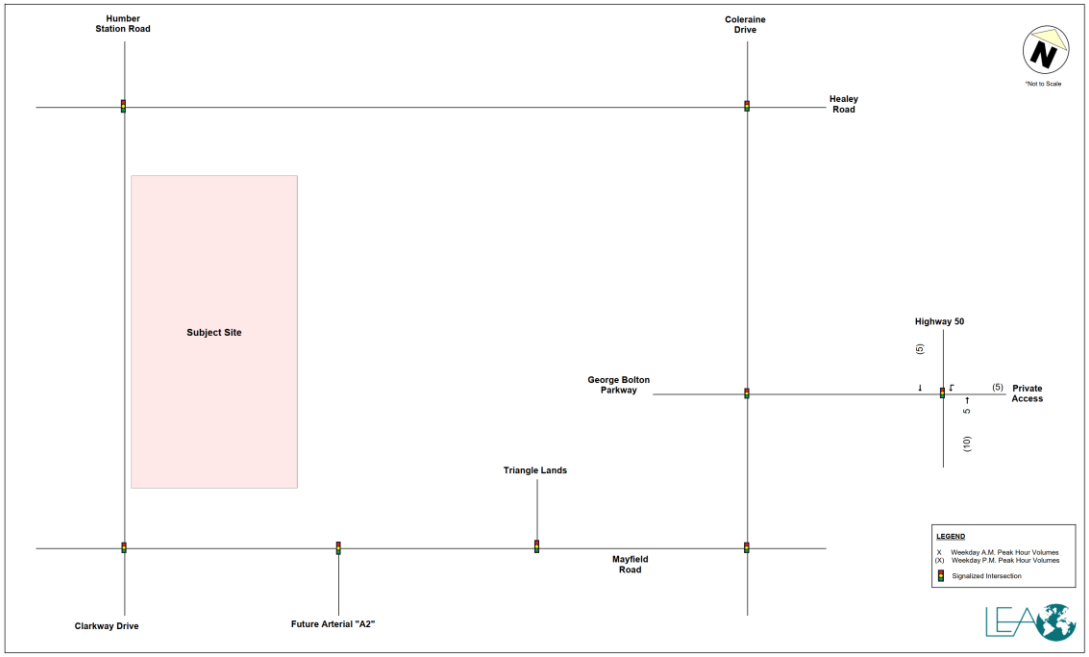
Triangle Lands Background Development Truck Trips (2043)



12563 & 12599 Highway 50 Background Development Trips (Phase 1 2033)



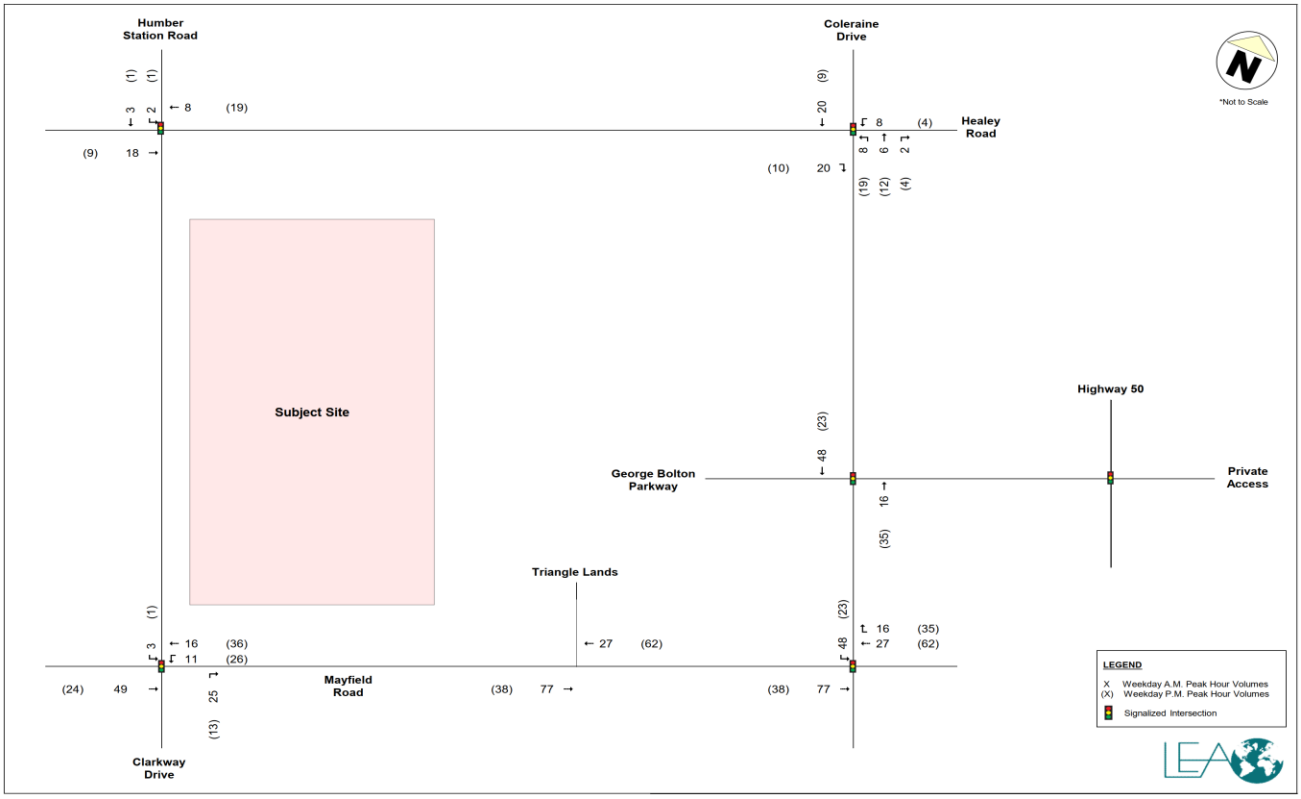
12563 & 12599 Highway 50 Background Development Trips (FBO 2036)



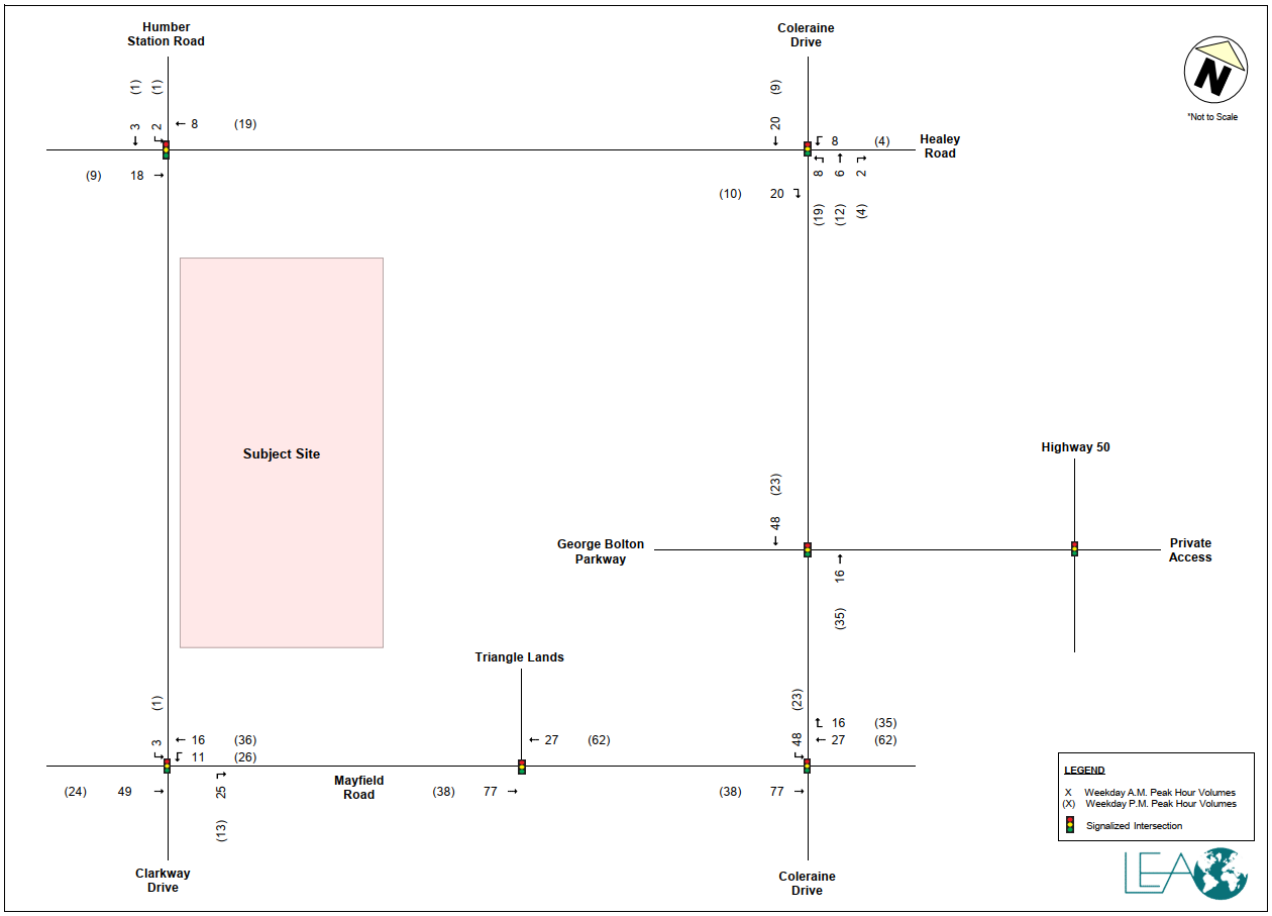
Coleraine Drive & Mayfield Road Block Plan Vehicle and Truck Trip Generation

Land Use	Description	Weekday AM Peak Hour			Weekday PM Peak Hour		
		In	Out	Total	In	Out	Total
Coleraine Drive and Mayfield Road Block Plan (Vehicle)							
ITE LUC 140 – Manufacturing 1066 Employees	Truck Trip Rate (/employee)	0.02	0.01	0.03	0.02	0.03	0.05
	Total ITE Auto Trips	19	13	32	20	34	54
	External Truck Trips (100%)	**19**	**13**	**32**	**20**	**34**	**54**
Coleraine Drive and Mayfield Road Block Plan (Truck)							
ITE LUC 140 – Manufacturing 598 Employees	Truck Trip Rate (/employee)	0.02	0.01	0.03	0.02	0.03	0.05
	Total ITE Auto Trips	11	7	18	11	19	30
	External Truck Trips (100%)	**11**	**7**	**18**	**11**	**19**	**30**

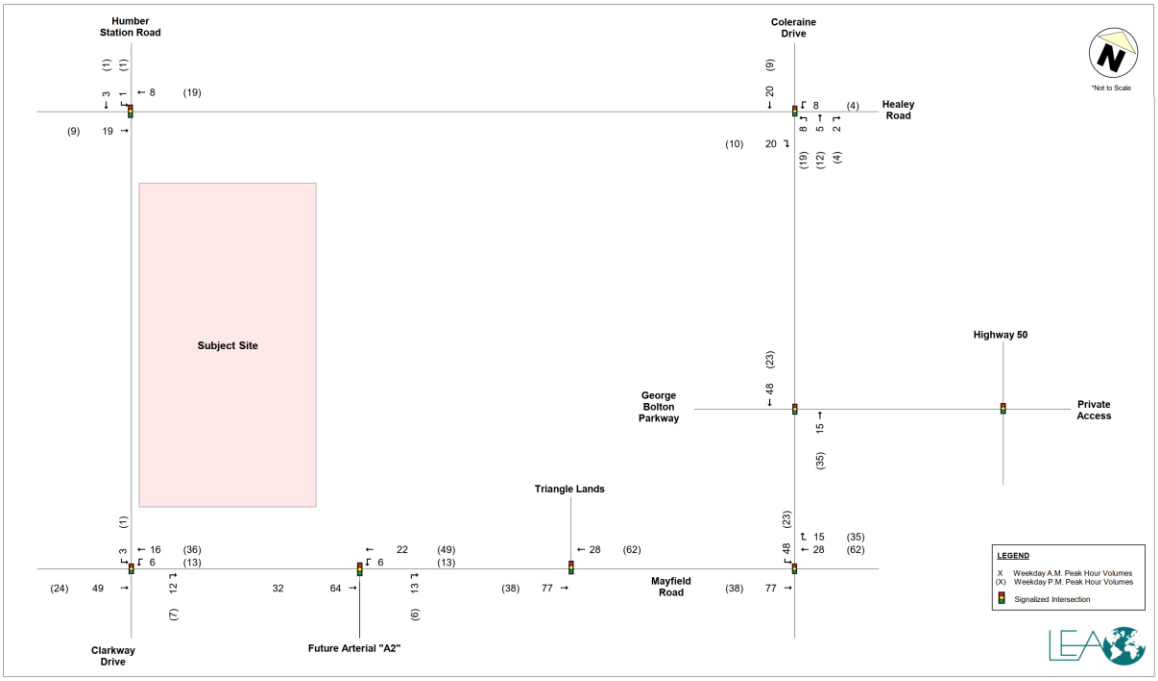
Coleraine Drive & Mayfield Road Block Plan Background Development Vehicle Trips (2028)



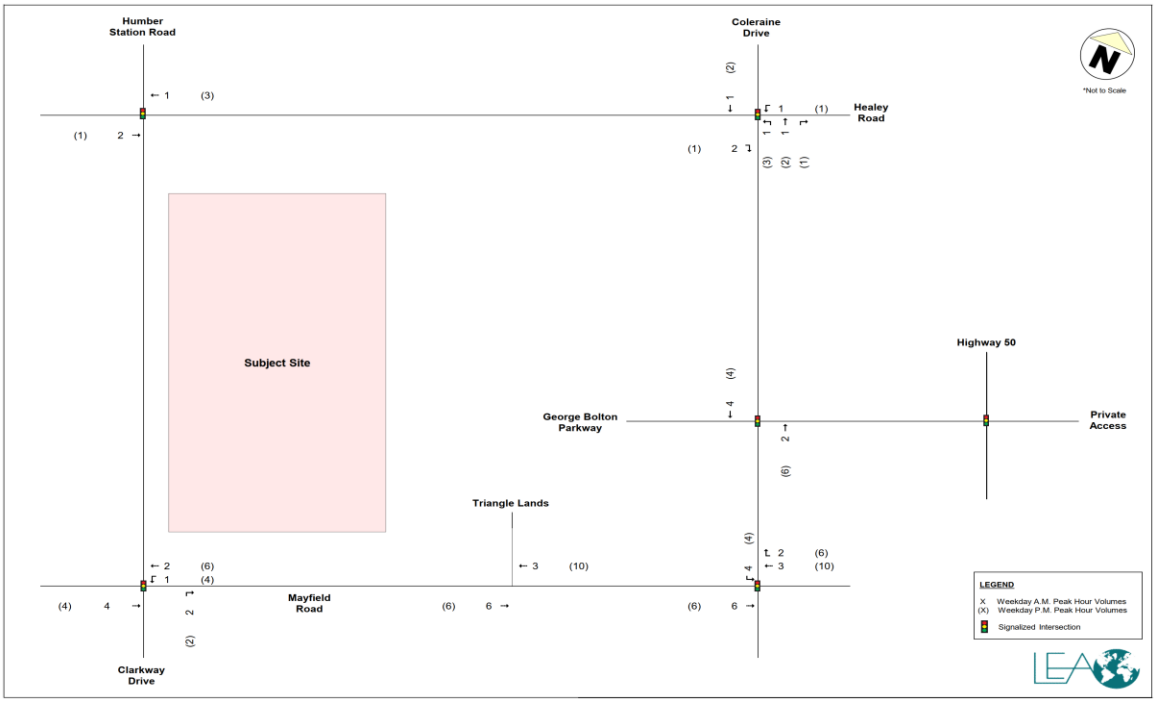
Coleraine Drive & Mayfield Road Block Plan Background Development Vehicle Trips (2033)



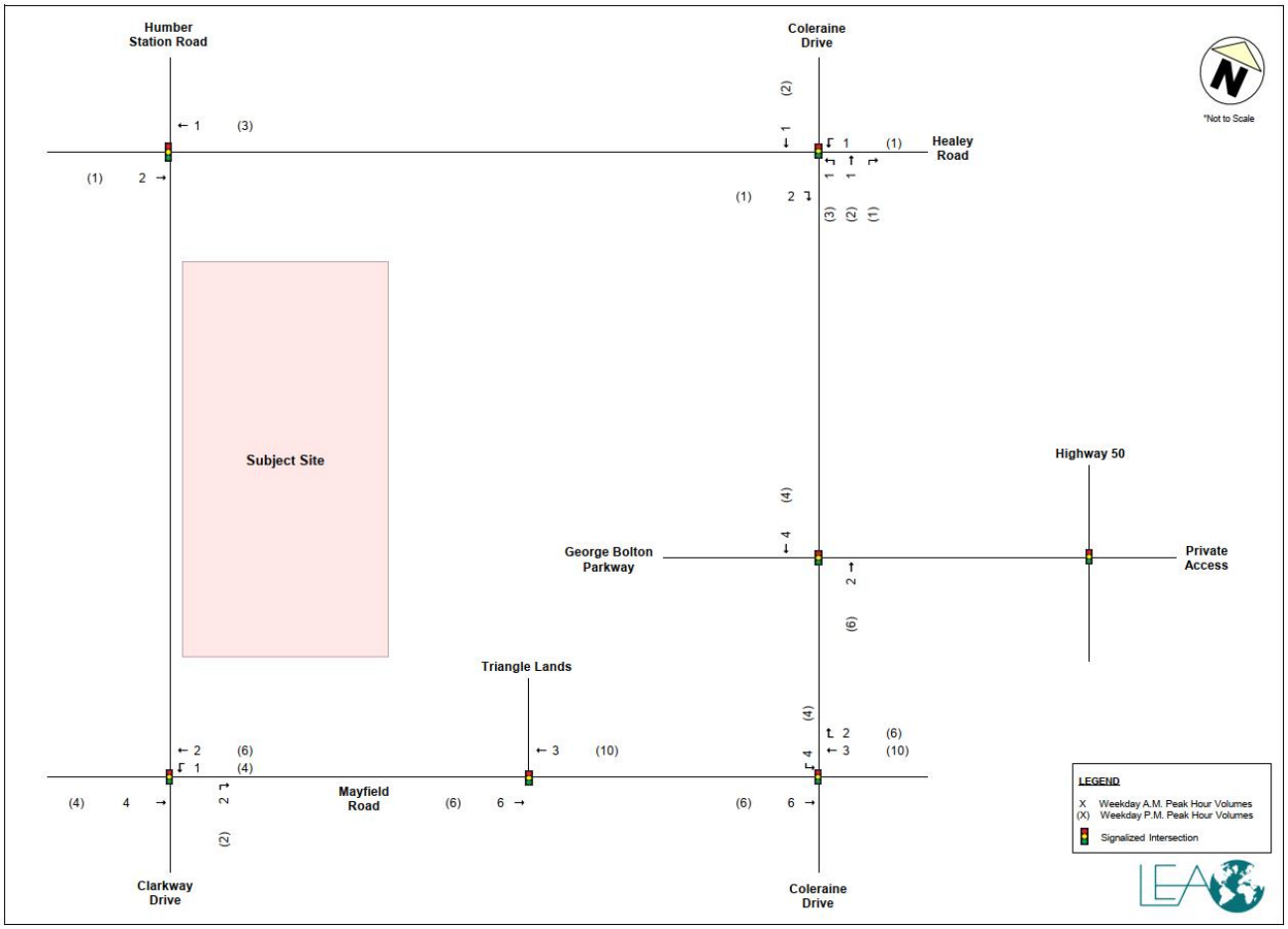
Coleraine Drive & Mayfield Road Block Plan Background Development Vehicle Trips (2043)



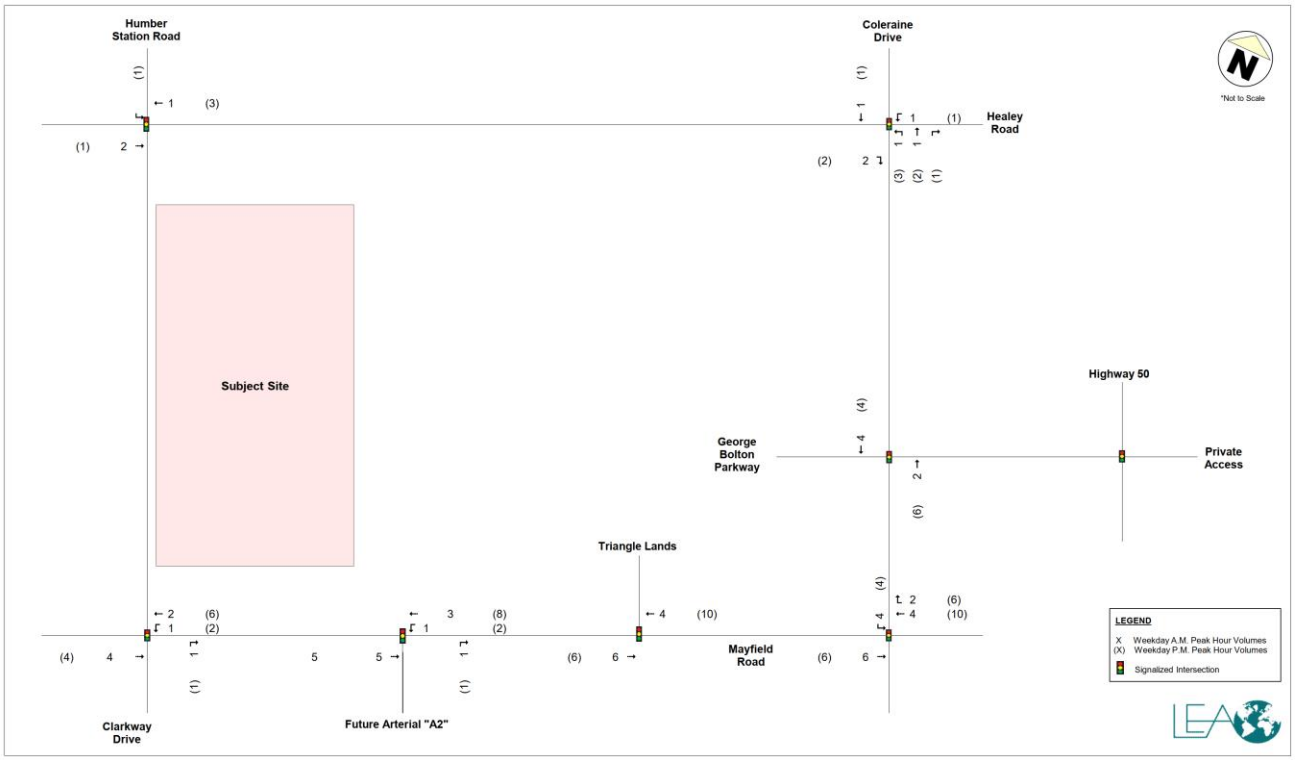
Coleraine Drive & Mayfield Road Block Plan Background Development Truck Trips (2028)



Coleraine Drive & Mayfield Road Block Plan Background Development Truck Trips (2033)



Coleraine Drive & Mayfield Road Block Plan Background Development Truck Trips (2043)



APPENDIX D

Corridor Growth Calculations

Intersection A

Intersection	Index	Movement	2021 AM Peak	2021 AM Corridor	2041 AM Peak	2041 AM Corridor
1	1					
	2	NB	30	30	101	101
	3					
1	4					
Humber Station Rd (Screenline by Mayfield Rd)	5	SB	542	542	730	730
	6					
	7					
	8	EB		0		
	9					
	10					
	11	WB		0		
	12					

AM

Year	Street Name NB	SB	EB	WB	Overall
2021	30	542	0	0	572
2041	101	730	0	0	831

Calculated Growth Rates:	3.51%	1.29%	#DIV/0!	#DIV/0!	1.56%
Applied Growth Rates:	3.5%	0.0%	0.0%	0.0%	1.0%

Intersection	Index	Movement	2021 AM Peak	2021 AM Corridor	2041 AM Peak	2041 AM Corridor
1	1					
	2	NB	30	30	35	35
	3					
1	4					
Humber Station Rd (Screenline North of Healey Rd)	5	SB	659	659	585	585
	6					
	7					
	8	EB		0		0
	9					
	10					
	11	WB		0		0
	12					

AM

Year	Street Name NB	SB	EB	WB	Overall
2021	30	659	0	0	689
2041	35	585	0	0	620

Calculated Growth Rates:	0.71%	-0.63%	#DIV/0!	#DIV/0!	-0.56%
Applied Growth Rates:	1.0%	0.0%	0.0%	0.0%	1.0%

Growth

NB	SB
2.11%	1%
2.0%	1.0%

Intersection	Index	Movement	2021 AM Peak	2021 AM Corridor	2041 AM Peak	2041 AM Corridor
1	1					
	2	NB		0		0
	3					
1	4					
Healey Rd (Screenline west of Humber Station Rd)	5	SB		0		0
	6					
	7					
	8	EB	193	193	616	616
	9					
	10					
	11	WB	4	4	21	21
	12					

AM

Year	Street Name NB	SB	Street Name EB	WB	Overall
2021	0	0	193	4	197
2041	0	0	616	21	637

Calculated Growth Rates:	#DIV/0!	#DIV/0!	3.43%	4.05%	3.45%
Applied Growth Rates:	0.0%	0.0%	0.0%	0.0%	0.0%

Intersection	Index	Movement	2021 AM Peak	2021 AM Corridor	2041 AM Peak	2041 AM Corridor
1	1					
	2	NB		0		0
	3					
1	4					
Healey Rd (Screenline East of Humber Station Rd)	5	SB		0		0
	6					
	7					
	8	EB	310	310	650	650
	9					
	10					
	11	WB	5	5	21	21
	12					

AM

Year	Street Name NB	SB	Street Name EB	WB	Overall
2021	0	0	310	5	315
2041	0	0	650	21	671

Calculated Growth Rates:	#DIV/0!	#DIV/0!	2.62%	3.81%	2.65%
Applied Growth Rates:	0.0%	0.0%	0.0%	0.0%	0.0%

Growth

EB	WB
3.02%	3.93%
3%	4%

Intersection	Index	Movement	2021 AM Peak	2021 AM Corridor	2041 AM Peak	2041 AM Corridor
1	1					
	2	NB		0		0
	3					
1	4					
George Bolton Pkwy (Screenline by Coleraine Dr)	5	SB		0		0
	6					
	7					
	8	EB	797	797	0	0
	9					
	10					
	11	WB	12	12	7	7
	12					

AM

Year	Street Name NB	SB	Street Name EB	WB	Overall
2021	0	0	797	12	809
2041	0	0	0	7	7

Calculated Growth Rates:	#DIV/0!	#DIV/0!	#DIV/0!	-3.57%	-572.86%
Applied Growth Rates:	0.0%	0.0%	0.0%	0.0%	0.0%

Intersection	Index	Movement	2021 AM Peak	2021 AM Corridor	2041 AM Peak	2041 AM Corridor
1	1					
	2	NB		0		0
	3					
1	4					
George Bolton Pkwy (Screenline by hwy 50)	5	SB		0		0
	6					
	7					
	8	EB	2	2	0	0
	9					
	10					
	11	WB	12	12	0	0
	12					

AM

Year	Street Name NB	SB	Street Name EB	WB	Overall
2021	0	0	2	12	14
2041	0	0	0	0	0

Calculated Growth Rates:	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Applied Growth Rates:	0.0%	0.0%	0.0%	0.0%	0.0%

Intersection	Index	Movement	2021 AM Peak	2021 AM Corridor	2041 AM Peak	2041 AM Corridor
1	1					
	2	NB		0		0
	3					
1	4					
George Bolton Pkwy (Screenline at internal node)	5	SB		0		0
	6					
	7					
	8	EB	0	0	34	34
	9					
	10					
	11	WB	0	0	53	53
	12					

AM

Year	Street Name NB	SB	Street Name EB	WB	Overall
2021	0	0	0	0	0
2041	0	0	34	53	87

Calculated Growth Rates:	#DIV/0!	#DIV/0!	5.00%	5.00%	5.00%
Applied Growth Rates:	0.0%	0.0%	0.0%	0.0%	0.0%

*Assuming no growth along George Bolton Pkwy

Intersection	Index	Movement	2021 AM Peak	2021 AM Corridor	2041 AM Peak	2041 AM Corridor
1	1					
	2	NB	1089	1089	1452	1452
	3					
1	4					
Hwy 50 (Screenline South of George Bolton Pkwy)	5	SB	1126	1126	1164	1164
	6					
	7					
	8	EB		0		0
	9					
	10					
	11	WB		0		0
	12					

AM

Year	Street Name NB	SB	Street Name EB	WB	Overall
2021	1089	1126	0	0	2215
2041	1452	1164	0	0	2616

Calculated Growth Rates:	1.25%	0.16%	#DIV/0!	#DIV/0!	0.77%
Applied Growth Rates:	1.0%	0.5%	0.0%	0.0%	0.0%

Intersection	Index	Movement	2021 AM Peak	2021 AM Corridor	2041 AM Peak	2041 AM Corridor
1	1					
	2	NB	1087	1087	1486	1486
	3					
1	4					
Hwy 50 (Screenline North of George Bolton Pkwy)	5	SB	1135	1135	1217	1217
	6					
	7					
	8	EB		0		0
	9					
	10					
	11	WB		0		0
	12					

AM

Year	Street Name NB	SB	Street Name EB	WB	Overall
2021	1087	1135	0	0	2222
2041	1486	1217	0	0	2703

Calculated Growth Rates:	1.34%	0.34%	#DIV/0!	#DIV/0!	0.89%
Applied Growth Rates:	1.0%	0.5%	0.0%	0.0%	0.0%

Growth

NB	SB
1.00%	0.00%
1.0%	0.0%

Intersection	Index	Movement	2021 AM Peak	2021 AM Corridor	2041 AM Peak	2041 AM Corridor
1	1					
	2	NB	1029	1029	693	693
	3					
1	4					
Coleraine Dr (Screenline South of George Bolton Pkwy)	5	SB	1226	1226	1084	1084
	6					
	7					
	8	EB		0		0
	9					
	10					
	11	WB		0		0
	12					

AM

Year	Street Name NB	SB	Street Name EB	WB	Overall
2021	1029	1226	0	0	2255
2041	693	1084	0	0	1777

Intersection	Index	Movement	2021 AM Peak	2021 AM Corridor	2041 AM Peak	2041 AM Corridor
1	1					
	2	NB	242	242	747	747
	3					
1	4					
Coleraine Dr (Screenline North of George Bolton Pkwy)	5	SB	1225	1225	1112	1112
	6					
	7					
	8	EB		0		0
	9					
	10					
	11	WB		0		0
	12					

AM

Year	Street Name NB	SB	Street Name EB	WB	Overall
2021	242	1225	0	0	1467
2041	747	1112	0	0	1859

Growth

NB	SB

Calculated Growth Rates: -2.42% -0.65% #DIV/0! #DIV/0! -1.34%
Applied Growth Rates: 1.0% 0.5% 0.0% 0.0% 0.0%

Intersection	Index	Movement	2021 AM Peak	2021 AM Corridor	2041 AM Peak	2041 AM Corridor
1	1					
	2	NB	248	248	1075	1075
	3					
1	4					
Coleraine Dr	5	SB	1279	1279	1346	1346
(Screenline South of Healey Rd)	6					
	7					
	8	EB		0		0
	9					
	10					
	11	WB		0		0
	12					

AM

	Street Name		Street Name		
Year	NB	SB	EB	WB	Overall
2021	248	1279	0	0	1527
2041	1075	1346	0	0	2421

Calculated Growth Rates: 3.85% 0.25% #DIV/0! #DIV/0! 1.85%
Applied Growth Rates: 1.0% 0.5% 0.0% 0.0% 0.0%

Intersection	Index	Movement	2021 AM Peak	2021 AM Corridor	2041 AM Peak	2041 AM Corridor
1	1					
	2	NB		0		0
	3					
1	4					
Mayfield Rd	5	SB		0		0
(Screenline East of Humber Station Rd)	6					
	7					
	8	EB	1260	1260	2204	2204
	9					
	10					
	11	WB	402	402	910	910
	12					

AM

	Street Name		Street Name		
Year	NB	SB	EB	WB	Overall
2021	0	0	1260	402	1662
2041	0	0	2204	910	3114

Calculated Growth Rates: #DIV/0! #DIV/0! 2.14% 2.79% 2.33%
Applied Growth Rates: 1.0% 0.5% 0.0% 0.0% 0.0%

Calculated Growth Rates: 3.38% -0.51% #DIV/0! #DIV/0! 1.05%
Applied Growth Rates: 1.0% 0.5% 0.0% 0.0% 0.0%

2.00% 0.00%
2.0% 0.0%

Intersection	Index	Movement	2021 AM Peak	2021 AM Corridor	2041 AM Peak	2041 AM Corridor
1	1					
	2	NB	243	243	386	386
	3					
1	4					
Coleraine Dr	5	SB	1616	1616	1714	1714
(Screenline North of Healey Rd)	6					
	7					
	8	EB		0		0
	9					
	10					
	11	WB		0		0
	12					

AM

	Street Name		Street Name		
Year	NB	SB	EB	WB	Overall
2021	243	1616	0	0	1859
2041	386	1714	0	0	2100

Calculated Growth Rates: 1.85% 0.29% #DIV/0! #DIV/0! 0.57%
Applied Growth Rates: 1.0% 0.5% 0.0% 0.0% 0.0%

Intersection	Index	Movement	2021 AM Peak	2021 AM Corridor	2041 AM Peak	2041 AM Corridor
1	1					
	2	NB		0		0
	3					
1	4					
Mayfield Rd	5	SB		0		0
(Screenline West of Coleraine Dr)	6					
	7					
	8	EB	1124	1124	1832	1832
	9					
	10					
	11	WB	398	398	715	715
	12					

AM

	Street Name		Street Name		
Year	NB	SB	EB	WB	Overall
2021	0	0	1124	398	1522
2041	0	0	1832	715	2547

Calculated Growth Rates: #DIV/0! #DIV/0! 1.93% 2.22% 2.01%
Applied Growth Rates: 1.0% 0.5% 0.0% 0.0% 0.0%

Intersection	Index	Movement	2021 AM Peak	2021 AM Corridor	2041 AM Peak	2041 AM Corridor
1	1					
	2	NB		0		0
	3					
1	4					
Mayfield Rd	5	SB		0		0
(Screenline East of Coleraine Dr)	6					
	7					
	8	EB	212	212	741	741
	9					
	10					
	11	WB	193	193	313	313
	12					

AM

	Street Name		Street Name		
Year	NB	SB	EB	WB	Overall
2021	0	0	212	193	405
2041	0	0	741	313	1054

Growth

EB	WB

Calculated Growth Rates: #DIV/0! #DIV/0! 3.57% 1.92% 3.08%
Applied Growth Rates: 1.0% 0.5% 0.0% 0.0% 0.0%

3.00% 2.00%
3.0% 2.0%

APPENDIX E

Mayfield Widening Correspondences

Christy Leung

From: Kabanov, Serguei <serguei.kabanov@peelregion.ca>
Sent: August 28, 2023 4:36 PM
To: Christy Leung
Cc: Marzo, Christina; Sadek, Sandra
Subject: RE: Option 6 Lands: Mayfield Widening Timing

External Sender

Good Afternoon Christy,

I'm the Regional PM looking after Mayfield Road Widening, from Airport to Coleraine. Christina forwarded me your email with questions.

1. Mayfield Road widening, between Humber Station Road and Coleraine is scheduled for construction in 2026. The project will start at Airport so chances are we won't be doing the stretch you are concerned about until 2027 or later. The stretch from Coleraine to Highway 50 is a separate project and, as of right now, it is scheduled for late 2026 or early 2027. My colleague Sandra, copied on this email, is looking after this project.
2. I can confirm that the jogged intersection at Humber Station Road & Mayfield Road will be addressed with the widening of Mayfield.

If you have any further questions, please do not hesitate to reach out directly.

Serguei Kabanov, CD, CET, rcca
Project Manager, Roads Design and Construction

From: Christy Leung <ChLeung@lea.ca>
Sent: August 28, 2023 2:48 PM
To: Marzo, Christina <christina.marzo@peelregion.ca>
Cc: Chris Sidlar <CSidlar@lea.ca>
Subject: Option 6 Lands: Mayfield Widening Timing

Hi Christina,

If you recall, the Region met with our office earlier this month to discuss the road improvements surrounding the Option 6 lands in Caledon. Further to that discussion, I wanted to confirm timing of the Mayfield Road widening between Humber Station Road and Highway 50. As per the Region's Long Range Transportation Plan, Mayfield is planned to widen by 2031. Given the observed construction activity along this stretch of the roadway, has timing of this improvement moved up in schedule?

Can you also confirm that the jogged intersection at Humber Station Road & Mayfield Road will be addressed with the widening of Mayfield?

Thanks,

Christy Leung, B.E.S.
Transportation Planner
LEA Consulting Ltd.
40 University Avenue, Suite 503 | Toronto, ON | M5J 1T1
T: 905 470 0015 ext. 330 E: ChLeung@lea.ca W: www.LEA.ca

We've Moved!

Our Downtown office has moved, please make note of our new address above.

APPENDIX F

TTS Data

AM IN

Fri Aug 18 2023 14:02:55 GMT-0400 (Eastern Daylight Time) - Run Time: 3953ms

Cross Tabulation QueryForm - Trip - 2016 v1.1

Row: 2006 GTA zone of origin - gta06_orig
Column: 2006 GTA zone of destination - gta06_dest

RowG:
ColG (3067 3191)
TblG:

Filters:
Start time of trip - start_time in 0600-1000
and
Trip purpose of destination F
and
Primary travel mode of trip M P T

Trip 2016
Table:

	1
51	25
72	43
124	12
149	21
160	21
163	34
173	24
178	23
179	23
191	16
194	11
222	12
223	17
255	13
261	15
261	7
295	6
326	13
363	26
365	52
371	32
376	25
382	20
384	10
385	8
396	8
401	45
413	18
443	17
459	27
481	20
491	15
542	14
568	16
1180	21
2014	22
2017	13
2020	21
2022	31
2023	53
2025	30
2027	13
2057	32
2132	16
2241	22
2245	33
2258	18
2427	16
2434	54
2558	14
2652	31
2659	19
2667	22
2868	27
3,002,118	118
3010	16
3,100,134	134
3104	53
3,153,215	215
3,189,111	111
3190	67
3,192,280	280
3,193,205	205
3194	96
3197	9
3199	50
3227	97
3328	39
3351	53
3352	50
3360	7
3362	12
3363	77
3364	85
3367	42
3372	34
3373	13
3374	24
3375	41
3379	63
3,380,135	135
3386	59
3419	38
3431	12
3434	51
3442	14
3447	30
3448	14
3456	14
3466	18
3468	27
3485	36
3515	23
3516	26
3517	46
3,518,149	149
3529	16
3602	35
3603	18
3606	6
3607	27
3615	18
3617	14
3629	58
3638	7
3644	10
3645	22
3649	7
3664	48
3671	19
3675	23
3681	12
3686	43
3688	8
3714	15
3877	41
4084	32
4110	69
4123	23
4159	55
4160	15
4175	6
8403	78
8405	13
8415	42
8417	21
8526	14
8,502,107	107
8529	21
8561	56
8562	14
8563	68
8585	56
8595	33
8596	68
8597	24
8662	18
8,663,123	123
	5282

Caledon 1354

Fri Aug 18 2023 14:06:25 GMT-0400 (Eastern Daylight Time) - Run Time: 317ms

Cross Tabulation QueryForm - Trip - 2016 v1.1

Row: Planning district of origin - pd_orig
Column: 2006 GTA zone of destination - gta06_dest

RowG:
ColG (3067 3191)
TblG:

Filters:
Start time of trip - start_time in 0600-1000
and
Trip purpose of destination F
and
Primary travel mode of trip M P T

Trip 2016
Table:

Inbound Direction

	1	Route 1	Route 2	Route 3	Route 4	Route 5	Route 6	Route 7	Route 8
PD 1 of Toronto	68	0.01	Clarkway Dr S	Mayfield Rd W					
PD 2 of Toronto	12	0	Clarkway Dr S						
PD 3 of Toronto	146	0.03	Clarkway Dr S						
PD 4 of Toronto	40	0.01	Clarkway Dr S						
PD 5 of Toronto	17	0	Clarkway Dr S						
PD 6 of Toronto	35	0.01	Clarkway Dr S						
PD 7 of Toronto	6	0	Clarkway Dr S	Mayfield Rd W					
PD 8 of Toronto	13	0	Clarkway Dr S	Mayfield Rd W					
PD 9 of Toronto	153	0.03	Clarkway Dr S						
PD 10 of Toronto	89	0.02	Clarkway Dr S						
PD 11 of Toronto	44	0.01	Clarkway Dr S						
PD 12 of Toronto	20	0	Clarkway Dr S						
PD 13 of Toronto	15	0	Clarkway Dr S						
PD 14 of Toronto	14	0	Clarkway Dr S						
PD 15 of Toronto	16	0	Clarkway Dr S		Hwy 50 S				
Oshawa	21	0	Clarkway Dr S	Mayfield Rd W					
Georgina	27	0.01			Albion N				
Aurora	14	0			Albion N				
Richmond Hill	74	0.005	Clarkway Dr S		Hwy 50 S				
Markham	70	0.02	Clarkway Dr S						
King	71	0.01			Hwy 50 S	Albion N			
Vaughan	230	0.02	Clarkway Dr S		Hwy 50 S				
3,002,118	118	0.01				Coleraine N	Humber N		
3010	16	0		Mayfield Rd W				Healey W	
3,100,134	134	0.03						Healey W	
3104	53	0.01						Healey W	
3,153,215	215	0.02				Coleraine N	Humber N		
3,189,111	111	0.01				Coleraine N		Healey W	
3190	67	0.01							Healey E
3,192,280	280	0.05							Healey E
3,193,205	205	0.02				Coleraine N		Healey W	
3194	96	0.02				Coleraine N			
3197	9	0						Healey W	
3199	50	0.005				Coleraine N		Healey W	
Brampton	1344	0.25		Mayfield Rd W					
Mississauga	433	0.08		Mayfield Rd W					
Halton Hills	77	0.01						Healey W	
Milton	91	0.01	Clarkway Dr S	Mayfield Rd W					
Burlington	32	0.005	Clarkway Dr S	Mayfield Rd W					
Orangeville	91	0.02						Healey W	
Barrie	14	0	Clarkway Dr S		Albion N				
Innisfil	54	0.005	Clarkway Dr S		Albion N				
New Tecumseth	370	0.04			Albion N	Coleraine N			
Adjala-Tosorontio	163	0.015			Albion N	Coleraine N		Healey W	
Mono	42	0.01						Healey W	
East Gwillimbury	21	0						Healey W	
	5281								

	Route 1	Route 2	Route 3	Route 4	Route 5	Route 6	Route 7	Route 8
	1%	1%						
	0%							
	3%							
	1%							
	0%							
	1%							
	0%	0%						
	0%	0%						
	3%							
	2%							
	1%							
	0%							
	0%							
	0%							
	0%			0%				
	0%	0%						
					1%			
					0%			
	1%		1%					
	2%							
			1%	1%				
	2%		2%					
						1%	1%	
		0%					0%	
							3%	
							1%	
						2%	2%	
						1%	1%	
								1%
								5%
						2%		2%
						2%		
							0%	
						1%	1%	
		25%						
		8%						
							1%	
	1%	1%						
	1%	1%						
							2%	
	0%			0%				
	1%			1%				
	4%	4%						
	2%	2%					2%	
							1%	
							0%	
	18%	35%	3%	8%	14%	3%	13%	6%
	100%							

AM IN

Direction	Route	Distribution
N	Albion Vaughn Rd	8%
	Coleraine Dr	14%
	Humber Station Rd	3%
S	Clarkway Dr	18%
	Hwy 50	3%
E	Healey Rd	6%
W	Healey Rd	13%
	Mayfield Rd	35%
		100%

PM OUT

Fri Aug 18 2023 14:12:08 GMT-0400 (Eastern Daylight Time) - Run Time: 3690ms

Cross Tabulation QueryForm - Trip - 2016 v1.1

Row: 2006 GTA zone of destination - gta06_dest
Column: 2006 GTA zone of origin - gta06_orig

RowG:
ColG (3017 3191)
TblG:

Filters:
Start time of trip - start_time In 1500-1900
and
Trip purpose of origin - j F
and
Primary travel mode of trip M P T

Trip 2016
Table:

	1
72	43
89	20
124	12
149	21
154	17
160	21
163	47
173	24
178	23
179	23
223	17
239	25
261	15
281	7
326	13
363	26
365	52
371	17
374	7
376	25
382	20
384	10
385	8
396	8
401	85
443	17
459	27
546	14
608	38
1180	21
2005	15
2014	11
2017	13
2020	21
2023	53
2024	30
2027	13
2057	32
2058	13
2072	12
2089	24
2132	16
2133	18
2241	22
2245	33
2427	16
2434	54
2558	14
2652	31
2760	28
3009	44
3,100,153	153
3104	53
3,153,241	241
3,189,111	111
3,190,178	178
3191	14
3,192,261	261
3,193,241	241
3194	67
3197	16
3199	83
3207	65
3208	39
3245	77
3352	29
3357	12
3360	7
3367	42
3368	19
3,371,104	104
3372	34
3373	13
3374	24
3375	41
3379	63
3,380,165	165
3386	59
3387	14
3419	38
3430	18
3434	51
3442	14
3447	61
3448	14
3456	14
3466	18
3468	27
3485	36
3515	23
3516	26
3517	46
3,518,129	129
3519	16
3603	18
3606	6
3607	27
3615	18
3617	14
3629	58
3638	7
3644	10
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3670	6
3671	19
3678	23
3686	28
3688	8
3714	15
3716	21
3874	12
4000	19
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4110	86
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4159	55
4160	15
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4175	6
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8404	13
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8,503,107	107
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8561	56
8562	14
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8585	45
8590	22
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8596	68
8597	24
8640	17
8663	68
	5358

Caledon 1462

Fri Aug 18 2023 14:13:44 GMT-0400 (Eastern Daylight Time) - Run Time: 2606ms

Cross Tabulation QueryForm - Trip - 2016 v1.1

Row: Planning district of destination - pd_dest
Column: 2006 GTA zone of origin - gta06_orig

RowG:
ColG (3017 3191)
TblG:

Filters:
Start time of trip - start_time In 1500-1900
and
Trip purpose of origin - pur F
and
Primary travel mode of trip M P T

Trip 2016
Table:

Outbound Direction

	1	Dist	Route 1	Route 2	Route 3	Route 4	Route 5	Route 6	Route 7	Route 8
PD 1 of Toronto	63	0.01	Clarkway S							
PD 2 of Toronto	12	0	Clarkway S							
PD 3 of Toronto	176	0.04	Clarkway S							
PD 5 of Toronto	42	0.01	Clarkway S							
PD 6 of Toronto	22	0	Clarkway S							
PD 8 of Toronto	13	0	Clarkway S							
PD 9 of Toronto	146	0.03	Clarkway S							
PD 10 of Toronto	111	0.02	Clarkway S							
PD 11 of Toronto	44	0.01	Clarkway S							
PD 14 of Toronto	14	0	Clarkway S							
PD 16 of Toronto	38	0.01	Clarkway S							
Oshawa	21	0	Clarkway S	Albion N						
East Gwillimbury	28	0.005		Albion N	Coleraine N					
Aurora	14	0	Clarkway S	Albion N						
Richmond Hill	56	0.005	Clarkway S			Hwy 50 S				
Markham	70	0.005	Clarkway S			Hwy 50 S				
King	31	0.005		Albion N	Coleraine N					
Vaughan	271	0.025	Clarkway S			Hwy 50 S				
3009	44	0.005					Mayfield W	Healey W		
3,100,153	153	0.03						Healey W		
3104	53	0.01						Healey W		
3,153,241	241	0.02			Coleraine N			Healey W		
3,189,111	111	0.01			Coleraine N			Healey W		
3,190,178	178	0.015		Albion N					Healey E	
3191	14	0							Healey E	Hwy 50 N
3,192,261	261	0.0165		Albion N					Healey E	Hwy 50 N
3,193,241	241	0.02			Coleraine N					Hwy 50 N
3194	67	0.005			Coleraine N			Healey W		
3197	16	0						Healey W		
3199	83	0.01			Coleraine N			Healey W		
Brampton	1335	0.25					Mayfield W			
Mississauga	339	0.03	Clarkway S				Mayfield W			
Halton Hills	88	0.01					Mayfield W	Healey W		
Milton	109	0.0099	Clarkway S				Mayfield W	Healey W		
Oakville	19	0	Clarkway S				Mayfield W			
Burlington	32	0.005	Clarkway S				Mayfield W			
Grimsby	42	0.01	Clarkway S							
Orangeville	177	0.03						Healey W		
Barrie	27	0.01		Albion N						
Innisfil	76	0.01		Albion N						
Bradford West Gwillimbury	17	0	Clarkway S	Albion N						
New Tecumseth	246	0.025		Albion N	Coleraine N					
Adjala-Tosorontio	152	0.015			Coleraine N			Healey W		
Mono	42	0.01						Healey W		
East Garafraxa	21	0						Healey W		
	5356									

Route 1	Route 2	Route 3	Route 4	Route 5	Route 6	Route 7	Route 8
1%							
0%							
4%							
1%							
0%							
0%							
3%							
2%							
1%							
0%							
1%							
0%							
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0%	0%						
	1%	1%					
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	1%	1%					
3%			3%				
				1%	1%		
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	2%					2%	
						0%	0%
	2%					2%	2%
		2%					2%
		1%			1%		
					0%		
					1%		
				25%			
3%				3%			
				1%	1%		
1%				1%	1%		
0%				0%			
1%				1%			
					3%		
	1%						
	1%						
0%	0%						
	3%	3%					
		2%			2%		
					1%		
					0%		
22%	9%	11%	4%	31%	16%	3%	4%
	100%						

PM Out

Direction	Route	Dist
N	Albion Vaughn Rd	9%
	Coleraine Drive	11%
	Hwy 50	4%
S	Clarkway Dr	22%
	Hwy 50	4%
E	Healey Rd	3%
W	Mayfield Rd	31%
	Healey Rd	16%
		100%

15% 7%

APPENDIX G

LEA – A2 Extension Feasibility Review

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40 University Ave, Suite 503
Toronto, ON, M5J 1T1 Canada
T | 905 470 0015 F | 905 470 0030

MEMORANDUM

July 12, 2024 Reference No.: 23347

TO: Imran Salam / Transportation Engineer, Engineering Services / Town of Caledon
Arash Olia, Manager / Transportation Engineering / Town of Caledon

FROM: Christopher Sidlar / Vice President, Transportation / LEA Consulting Ltd.
Katherine Kung / Senior Planner / LEA Consulting Ltd.
Christy Leung / Intermediate Planner / LEA Consulting Ltd.

CC: Mustafa Ghassan / Senior Manager / Delta Urban Inc.
Robert Roberto / General Manager / Delta Urban Inc.
Matthew Christie / Project Coordinator II / Delta Urban Inc.

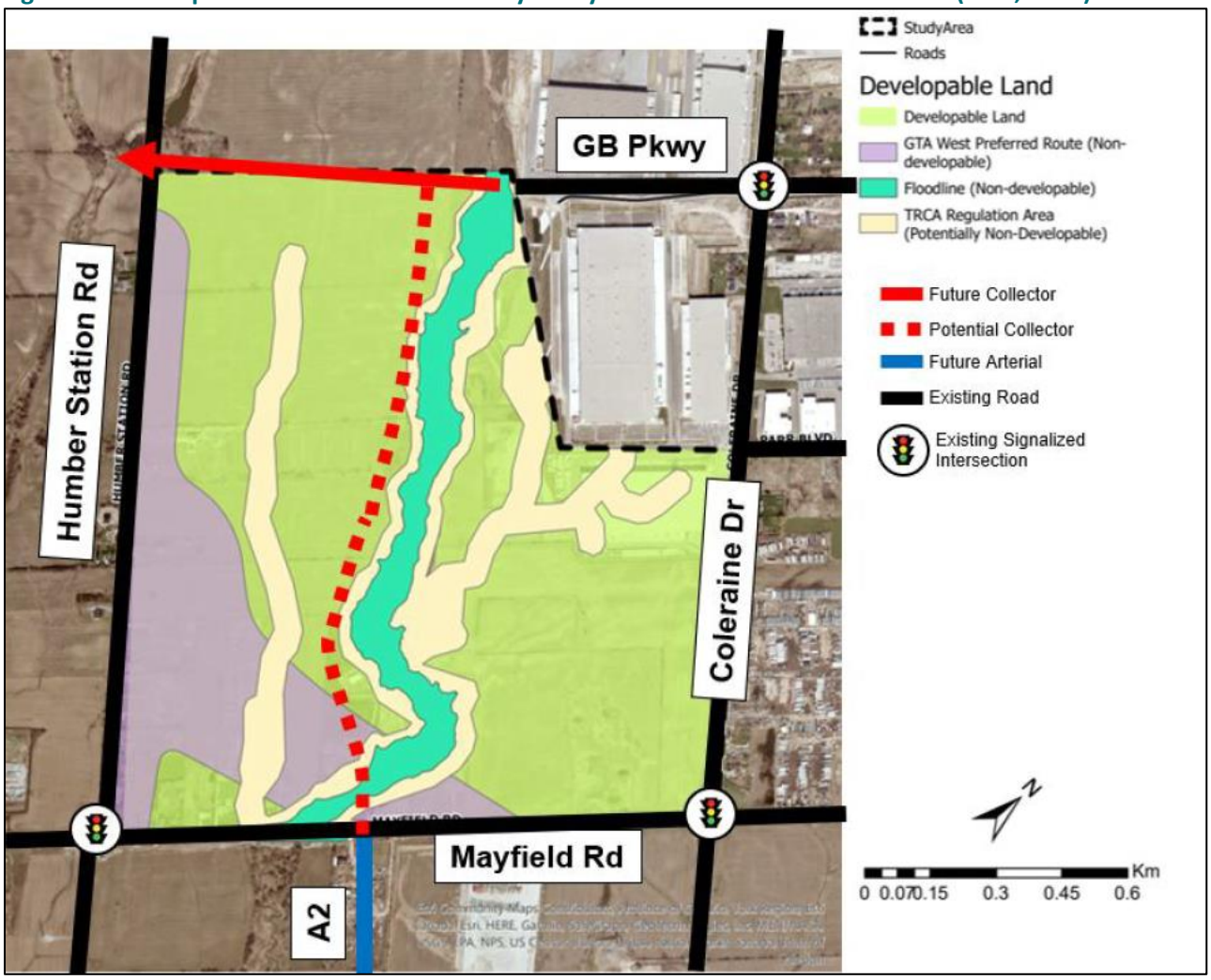
RE: **Option 6 and Triangle Lands – Technical & Economic Feasibility of A2 Extension**

1 OVERVIEW

A Transportation Network Feasibility Study (TNFS) for the Option 6 and Triangle Lands (herein referred to as the "study area") was prepared by HDR and the Town of Caledon in June 2023. The purpose of the TNFS was to identify constraints and opportunities, determine technical feasibility of the proposed road network, and recommend a conceptual road network and land-uses. The TNFS recommendations will inform future, more detailed studies including Secondary Plan studies and Municipal Class Environmental Assessments (MCEA). The TNFS recommended the road network within the study area which included an extension of George Bolton Parkway from its current terminus to Humber Station Road as well as an extension of A2 north of Mayfield Road to provide a more direct, multimodal access to the site, connecting the Settlement Area Boundary Expansion (SABE) communities with Brampton Area 47 south of Mayfield Road. **Figure 1-1** illustrates the recommended road network from the Town's feasibility study.

By way of background, a meeting took place on October 16, 2023, involving the Town of Caledon, Ontario Ministry of Transportation (MTO), the Humber Station Village Landowner Group's development coordinator (Delta Urban Inc.) and transportation consultant (LEA Consulting Ltd.) to discuss the extension of A2 to Mayfield Road and its potential impact on Highway 413. Subsequent to this meeting, LEA evaluated the feasibility of extending A2 north of Mayfield Road, considering the planned alignment of Highway 413 and the natural features present in this area. This memo will begin by outlining the existing natural environmental conditions and the proposed road network within the study area, followed by LEA's assessment of the technical and economic feasibility of extending A2 south of Mayfield Road.

Figure 1-1: Transportation Network Feasibility Study Recommended Road Network (HDR, 2023)



Source: Transportation Network Feasibility Study - Option 6 and Triangle Lands, HDR, June 2023

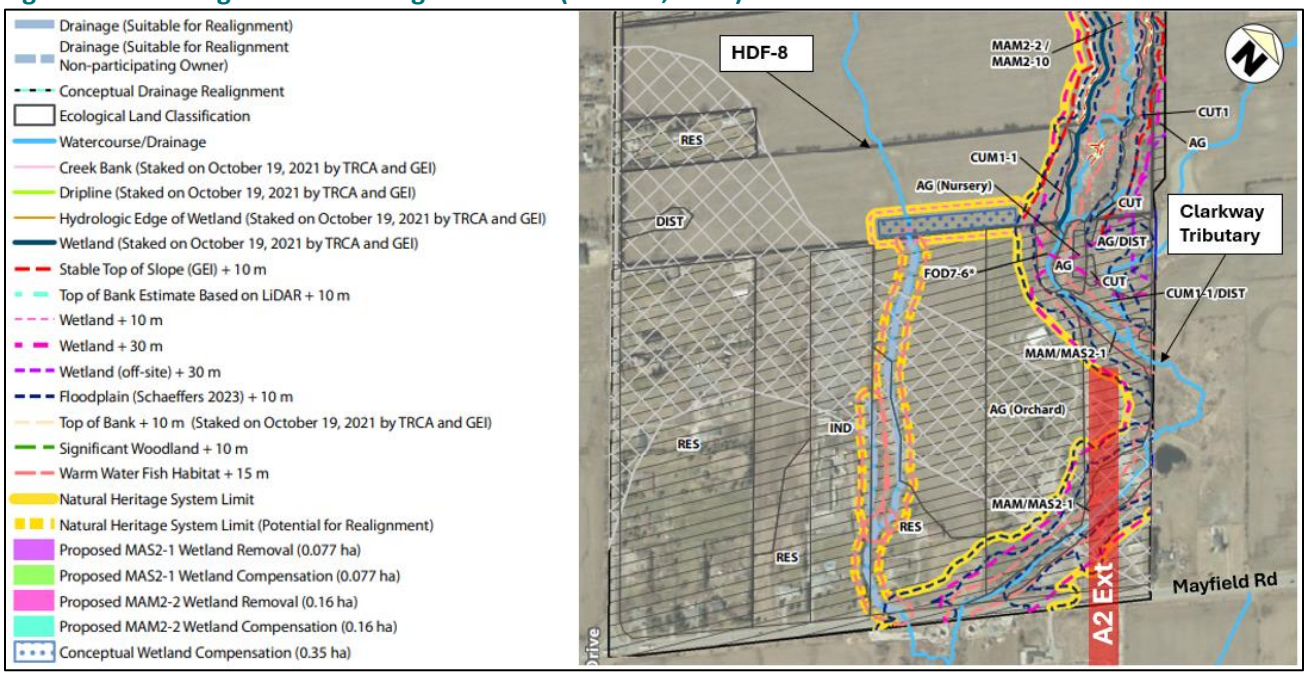
2 EXISTING NATURAL ENVIRONMENTAL CONDITIONS & PROPOSED ROAD NETWORK

2.1 EXISTING CONDITIONS: NATURAL ENVIRONMENT

The study area is primarily agricultural and is located within the West Humber River subwatershed. Notable natural heritage features include the Clarkway Drive Tributary which flows in a north-south direction along the east end of the study area and two other incised headwater drainage features (HDF-8 and HDF-3). HDF-8 is oriented in a generally north-south direction and transects the study area while HDF-3 is located midway along Humber Station Road, extending northeast towards Healey Road.

The Clarkway Drive Tributary is part of the Greenlands System and designated as Core Areas of the Greenlands System and Natural Area and Corridors (NAC). The tributary is a partially confined valley corridor and contains two significant wetlands. Redside Dace (Species at Risk – SAR) contributing habitat occurs within the Clarkway Drive Tributary, its associated riparian wetland communities, and HDF-8. The existing natural heritage features surrounding Mayfield Road and the proposed A2 extension is illustrated in **Figure 2-1**.

Figure 2-1: Existing Natural Heritage Features (CEISMP, 2023)

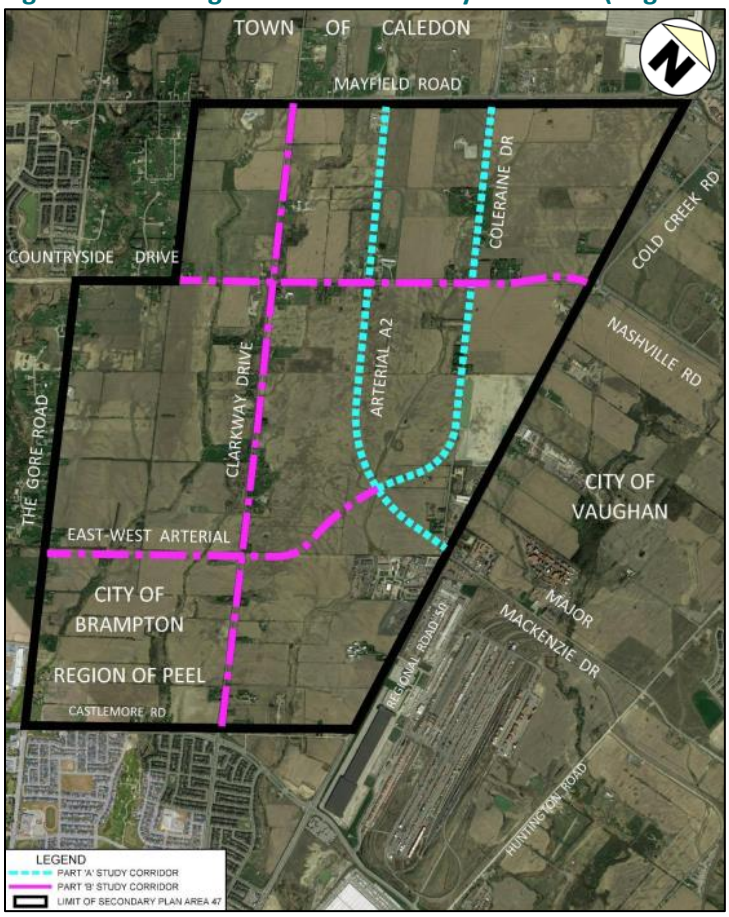


Source: Base Map: Phase 1 CEISMP - Humber Station, GEI Consultants, October 2023

2.2 EXTENSION OF A2 NORTH OF MAYFIELD ROAD

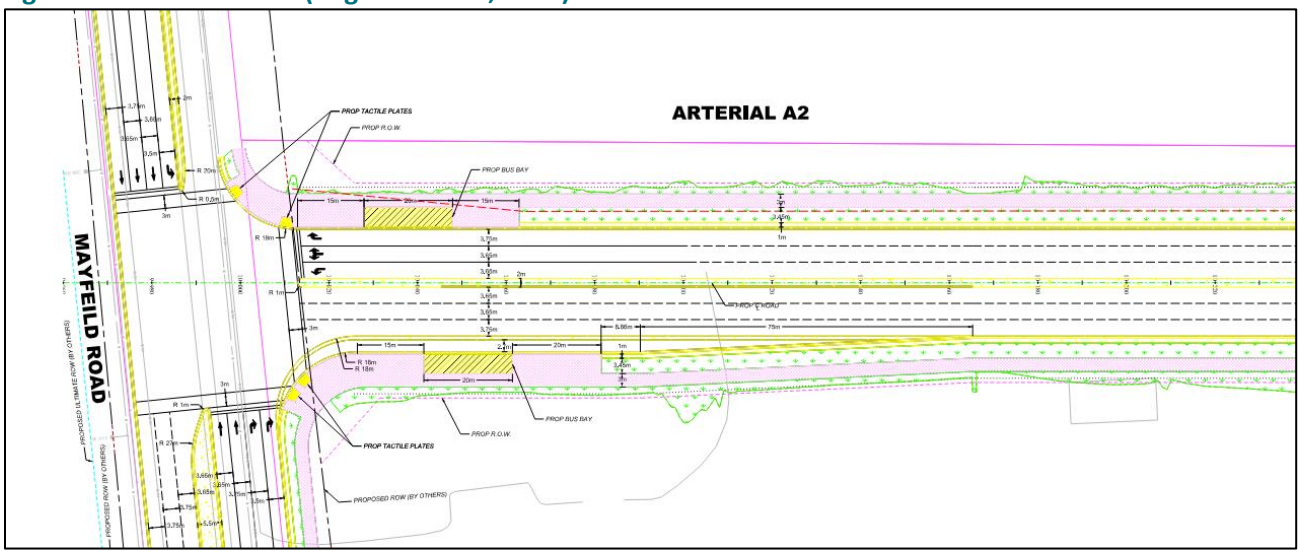
The Region of Peel's Long Range Transportation Plan and Schedule 'C' MCEA for the arterial roads within the Highway 427 Industrial Secondary Plan Area recommended a new 6-lane arterial road (Arterial A2) planned to connect Major Mackenzie Drive to Mayfield Road, south of the study area. The Region's MCEA study's recommended alignment and design are provided in **Figure 2-2** and **Figure 2-3** respectively.

Figure 2-2: A2 Alignment South of Mayfield Road (Region of Peel, 2022)



Source: Highway 427 Industrial Secondary Plan Area (Area 47) MCEA Part A, Region of Peel, October 2022

Figure 2-3: A2 Plan View (Region of Peel, 2022)



Source: Highway 427 Industrial Secondary Plan Area (Area 47) MCEA Part A, Region of Peel, October 2022

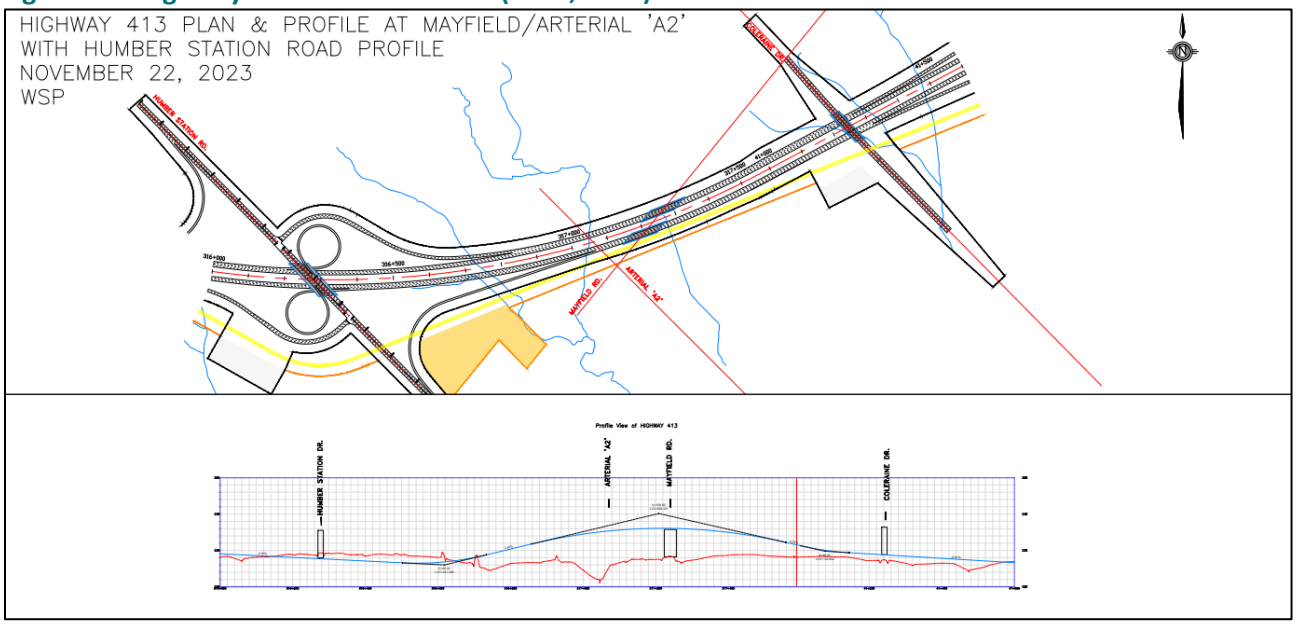
The Region of Peel's MCEA study noted that additional median width will be required on Mayfield Road in the area Highway 413 to accommodate median bridge piers that will be required for Highway 413 and transitway overpasses. Furthermore, given the proximity of Highway 413 and transitway bridges to the Arterial A2 / Mayfield Road intersection, the intersection geometry may require modification to accommodate the median widening.

As part of the TNFS, a high-level evaluation was completed for a shortlist of A2 extension alignment alternatives extending north from the A2 location identified in the Region of Peels MCEA. Evaluation criteria that were considered included: impacts to the Clarkway Tributary, geometric alignment challenges, and maximizing developable lands. Based on the evaluation, the Town's recommended network included the direct extension of A2 north of Mayfield, following the Clarkway Tributary floodplain limits to cross under the proposed Highway 413 alignment and connect with the future George Bolton Parkway extension (see **Figure 1-1**). The recommended alignment of A2 would require a crossing of the Clarkway Tributary.

2.3 PLANNED HIGHWAY 413 ALIGNMENT

The proposed 52 km Highway 413 and transitway will extend from Highway 400 (between Kirby Road and King-Vaughan Road) in the east to the Highway 401/407 ETR interchange area in the west to connect the Regions of York, Peel, and Halton. Based on the 50% preliminary design drawings, Highway 413 traverses the southwest quadrant of the study area in an east-west direction and provides an interchange at Humber Station Road, approximately 645 m north of Mayfield Road. It is understood that in this area, the profile of Highway 413 will cross over Mayfield Road and the A2 extension and under Humber Station Road. Similarly to the potential extension of A2, the preliminary Highway 413 alignment would require a crossing of the Clarkway Tributary. **Figure 2-4** illustrates the plan and profile of Highway 413.

Figure 2-4: Highway 413 Plan and Profile (MTO, 2023)



Source: MTO, November 2023

3 TECHNICAL FEASIBILITY OF THE A2 EXTENSION

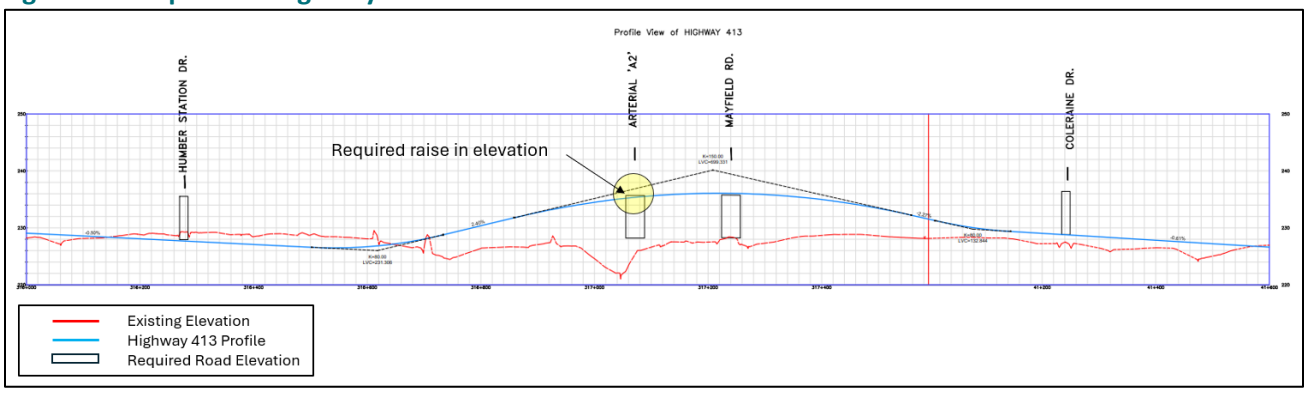
The following sections will review the impacts to Highway 413 and the existing natural features to determine the technical feasibility of an A2 extension.

3.1 IMPACTS TO HIGHWAY 413

The A2 extension is proposed to cross over the Clarkway Tributary and under Highway 413 to connect with the future George Bolton Parkway extension. As illustrated in **Figure 3-1**, the A2 extension north of Mayfield Road would require elevating Highway 413 to ensure compliance with the required vertical clearance between Highway 413 and A2. LEA notes that it is not an option to lower A2 due to the Clarkway Tributary which would affect the flow of water in the area.

During the October 16, 2023, meeting the Town of Caledon and the MTO, it has been acknowledged that, given the preliminary design of the highway, a vertical adjustment to the profile of Highway 413 as it crosses the study area can be explored to accommodate the A2 extension.

Figure 3-1: Impacts to Highway 413 Profile



3.2 IMPACTS TO EXISTING NATURAL FEATURES AND STRUCTURAL CHALLENGES

As illustrated in **Figure 3-2**, both Highway 413 and the A2 extension require crossings of the Clarkway Tributary resulting in a total of four (4) bridge structures (3 structures over the tributary and 1 structure for Highway 413 over A2). Due to the alignment of the Clarkway Tributary, it is anticipated that the structures of Highway 413 and A2 over the tributary will converge at a single point creating overlapping structures.

Based on the hydraulic analysis conducted by the MTO, a bridge spanning approximately 60 m over the tributary is needed to fulfil the hydraulic requirements of the crossing. It is anticipated that an extension of A2 would consequently require a similar 60 m bridge structure over the tributary and an additional bridge structure over A2 to accommodate Highway 413. Due to the angle of the highway alignment and the current alignment of the tributary, the bridge structure over A2 would span an estimated 130-140 m, resulting in a two-span structure with a central pier. The angles of the tributary, Highway 413, and A2 extension do not leave good locations for regular spans and thus a central pier is expected to fall with the tributary, significantly impacting this natural feature.

In order to mitigate substantial impacts to the natural environment, relocating the tributary to the west of its current location is recommended. This realignment prevents the conflict between the tributary and the Highway 413 piers at the junction of the A2 extension. Relocation of the tributary also presents opportunities to create an engineered channel with an improved natural heritage design (e.g., meanders, riparian features). Based on our review of the impacts to the existing natural features, LEA recommends redirecting the tributary to the west, beginning north of Highway 413 and reconnecting with its current position at Mayfield Road. The proposed conceptual realignment of the tributary depicted below in **Figure 3-3** and would require five (5) structures (i.e., 3 structures over the tributary and 2 structures for Highway 413 over A2). While the realignment would introduce additional structural requirements, it mitigates overlapping bridge structures and significant natural environmental impacts.

It should be noted that relocating the tributary to facilitate an A2 extension carries significant implications, encompassing not only cost considerations but also permitting and approvals from the Toronto and Region Conservation Authority (TRCA) and Ministry of Environment, Conservation and Parks (MECP) as the tributary is designated contributing redside dace habitat. These impacts must be factored into the MTO's design process to ensure that design work for the crossing is incorporated prior to the construction of Highway 413.

Figure 3-2: Existing Clarkway Tributary Alignment Required Structures

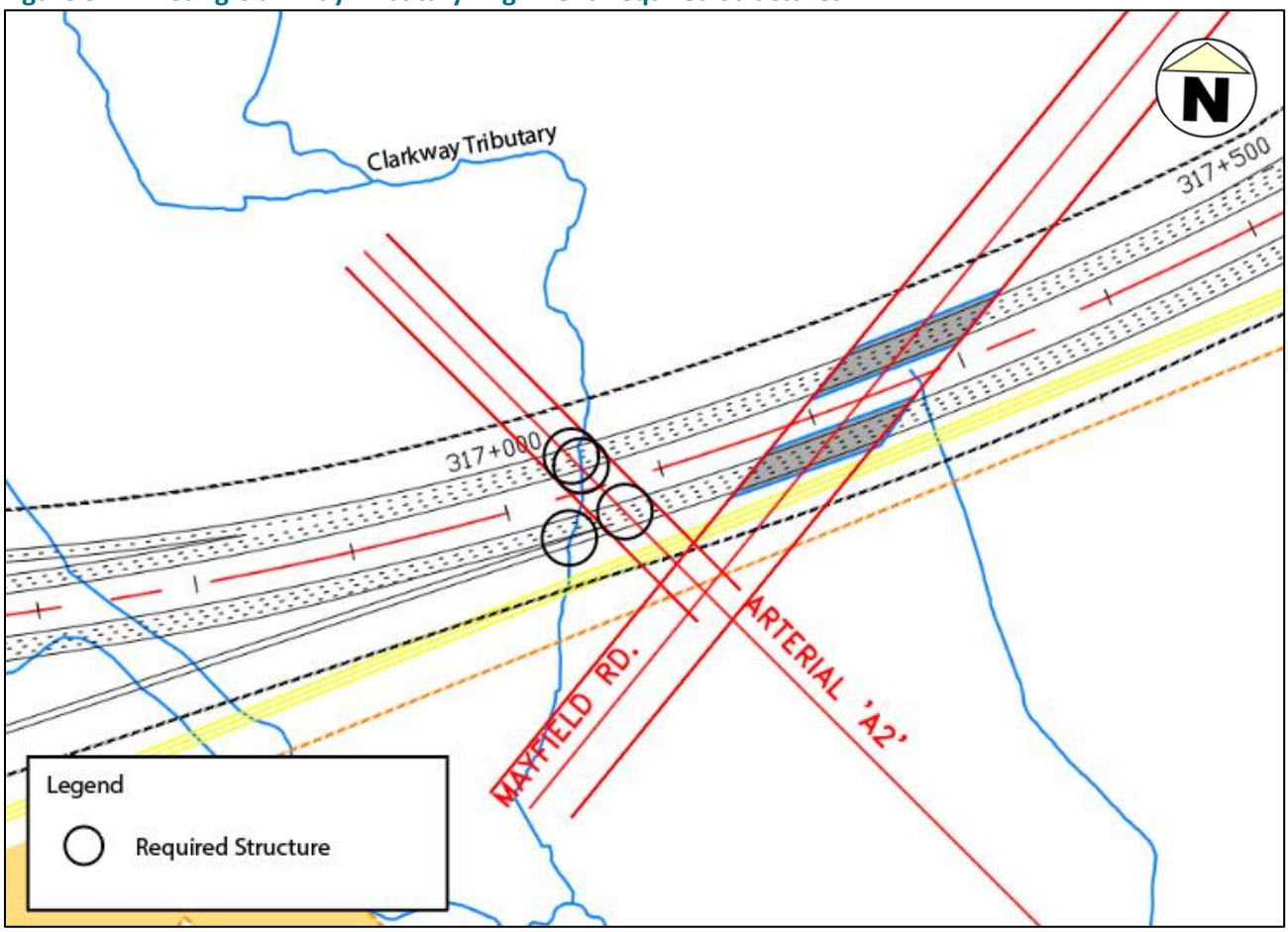
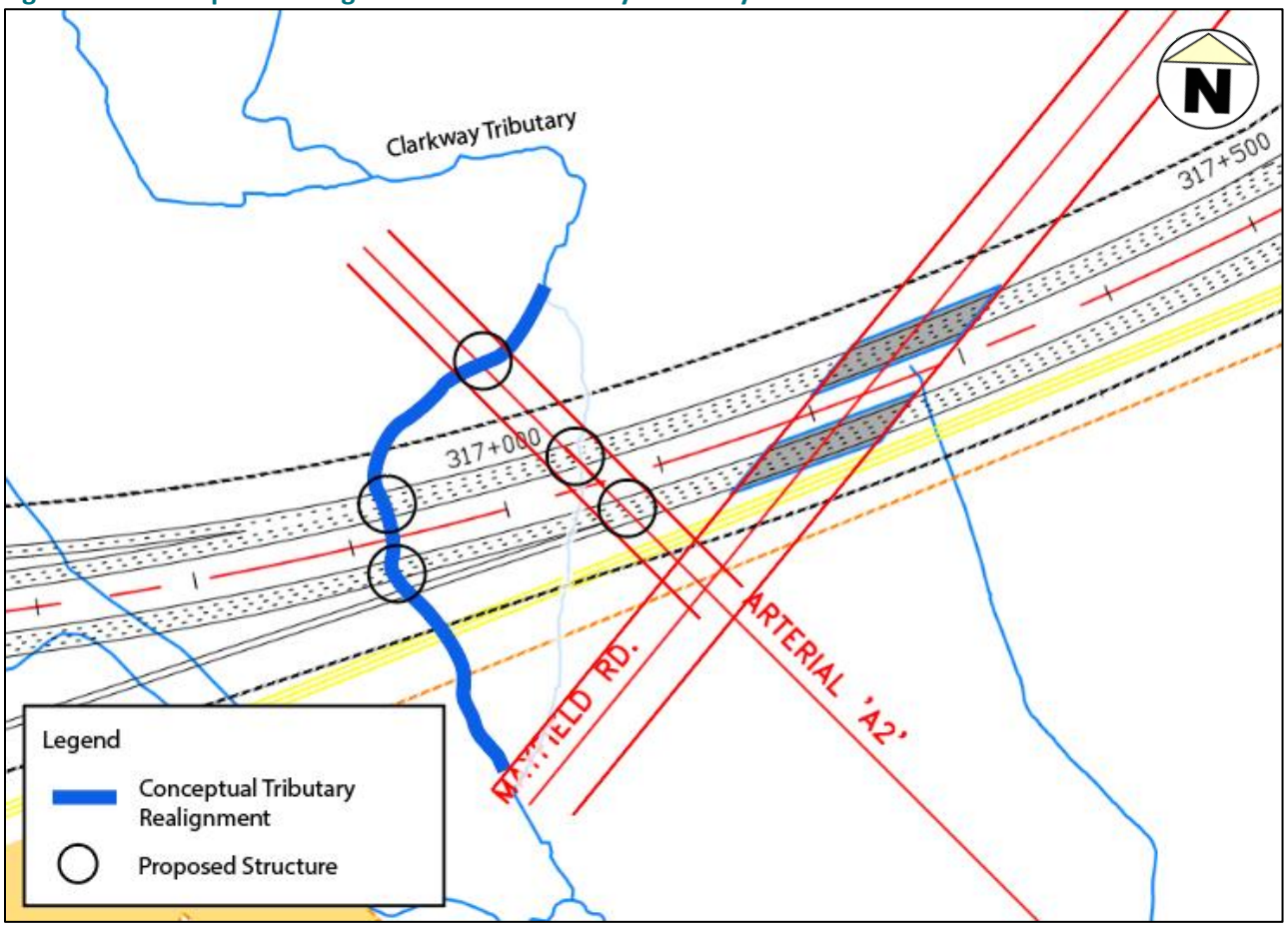


Figure 3-3: Conceptual Realignment of the Clarkway Tributary



4 ECONOMIC FEASIBILITY OF THE A2 EXTENSION

A high-level cost-benefit analysis was completed to assess the economic feasibility of the A2 extension through the Option 6 lands to George Bolton Parkway. The following section will detail the results of the cost-benefit analysis including the methodology and assumptions used in the analysis.

4.1 GENERAL APPROACH

The cost-benefit analysis was undertaken for an assumed useful life of 25 years and used travel time savings, vehicle operating cost savings, and greenhouse gas (GHG) emissions savings as the primary measures of quantifiable benefits associated with the potential extension of A2. These measures were calculated based on the traffic results from the 2051 macroscopic travel demand forecasting model (Emme-based) used by HDR and the Town in the Transportation Network Feasibility Study (June 2023). The estimated benefits were then compared against the estimated cost to construct the roadway and tributary realignment. The resulting cost-benefit ratio was used to determine the overall economic feasibility of the project.

4.2 ESTIMATION OF BENEFITS

Travel time savings, vehicle operating cost savings, and GHG emissions savings were estimated by comparing the total vehicle hours travelled (VHT) and vehicle kilometres travelled (VKT) in the network between the *Base Case* scenario and the recommended network alternatives from the TNFS. The following alternatives from the TNFS were used in the cost-benefit analysis. The resulting VHT and VKT for each option under the 2051 AM peak hour are summarized in **Table 4-1**.

- **Option 1 (Base Case):** A new two-lane east-west corridor extending George Bolton Parkway westerly to Humber Station Road.
- **Option 3:** Option 1 with a new two-lane north-south corridor extending Arterial A2 northerly to the new George Bolton Parkway extension.
- **Option 3a:** Option 3 with the western part of the George Bolton Parkway extension converted into a four-lane corridor.

Table 4-1: Future 2051 Transportation Network Performance Measures (AM Peak hour)

Performance Measure	Option 1	Option 3	Option 3a
VHT	2,180	2,150	2,130
VKT	119,630	119,440	119,410

Source: Transportation Network Feasibility Study for Option 6 and Triangle Lands, Town of Caledon (June 2023)

For the purpose of this assessment, it was assumed that 10% of daily demand occurs during the peak hour. A summary of the total VHT and VKT saved per day under each option is provided in **Table 4-2**.

Table 4-2: Total VHT and VKT Saved (per day)

Performance Measure	Option 3 (VHT/VKT Saved)	Option 3a (VHT/VKT Saved)
VHT	300	500
VKT	1,900	2,200

4.2.1 Estimating Travel Time Savings

Using the 2051 travel demand forecasting model from the TNFS, travel times were extracted and compared for each network option with the difference representing time saved expressed in veh/hr. As indicated in **Table 4-2**, the model suggests that 300 VHT would be saved for Option 3 and 500 VHT would be saved for Option 3a throughout the day. The travel time savings were expanded to annual veh/hr assuming 260 working days per year. Of note, additional time savings for Saturdays were not included in the analysis given that the value of travel time savings are not as high on weekends due to a lower number of work-related trips on the network. Annually, this presents a total of 78,800 VHT saved for Option 3 and 130,000 VHT saved for Option 3a.

Assuming that 10% of daily traffic in the network would be attributed to truck traffic, a total of 7,800 VHT for trucks would be saved for Option 3 and 13,000 VHT for trucks would be saved for Option 3a.

The total annual auto and truck travel time savings were converted to monetized economic benefits by assuming an average value of time of $14.91 per hour for auto drivers and $75 per hour for truck drivers as per the MTO Highway Element Investment Reivew (HEIR) Guidelines. As summarized in **Table 4-3**, the total travel timing savings amount to **$1,631,682** per year for Option 3 and **$2,719,470** for Option 3a. Detailed assumptions and data sources are provided in **Attachment 1**.

Table 4-3: Summary of Travel Time Savings

Option	Mode	VHT/Year (hr)	VHT value/hr ($) [(1)]	VHT value/year ($)
3	Auto Drivers	70,200	$14.91/hr	$1,046,682
	Truck Drivers	7,800	$75/hr	$585,000
			Total Savings (Option 3)	**$1,631,682**
3a	Auto Drivers	117,000	$14.91/hr	$1,744,470
	Truck Drivers	13,000	$75/hr	$975,000
			Total Savings (Option 3a)	**$2,719,470**

Note: (1) – Source: Highway Element Investment Review (HEIR) Guidelines – Methodology for Conducting Economic Analysis (MTO)

4.2.2 Estimating Vehicle Operating Cost Savings

Using the 2051 travel demand forecasting model from the TNFS, travel distances were extracted and compared for each network option with the difference representing kilometers saved expressed in veh/km. As indicated in **Table 4-2**, the model suggests that 1,900 VKT would be saved for Option 3 and 2,200 VKT would be saved for Option 3a throughout the day. The kilometers saved were expanded to annual veh/km assuming 260 working days per year. Annually, this presents a total of 494,000 VKT saved for Option 3 and 572,000 VKT saved for Option 3a.

Assuming that 10% of daily traffic in the network would be attributed to truck traffic, a total of 49,400 VKT for trucks would be saved for Option 3 and 57,200 VKT for trucks would be saved for Option 3a.

The total annual auto and truck kilometer savings were converted to monetized economic benefits and used to estimate the vehicle operating cost savings by assuming an average car operating cost of $0.176/km and average truck operating cost of $0.326/km as per estimates from Canadian Automobile Association (CAA) and Transport Canada. As summarized in **Table 4-4**, the total vehicle operating cost savings amount to **$94,354** per year for Option 3 and **$109,252** for Option 3a. Detailed assumptions and data sources are provided in **Attachment 1**.

Table 4-4: Summary of Vehicle Operating Cost Savings

Option	Mode	VKT/Year (km)	VKT value/km ($)	VKT value/year ($)
3	Auto Drivers	444,600	$0.176/km (1)	$78,250
	Truck Drivers	49,400	$0.326/km (2)	$16,104
			Total Savings (Option 3)	**$94,354**
3a	Auto Drivers	514,800	$0.176/km (1)	$90,605
	Truck Drivers	57,200	$0.326/km (2)	$18,647
			Total Savings (Option 3a)	**$109,252**

Note: (1) – Source for auto: CAA Auto Operating Costs for Mid-Sized Car, excluding ownership costs for 2012, adjusted to 2015 with Ontario CPI.
(2) – Source for truck: Transport Canada 2008 Operating Costs of Trucks in Canada, excluding ownership and driver costs, 2008 value adjusted to 2015 with Ontario CPI.

4.2.3 Estimating GHG Emissions Savings

Similarly to the vehicle operating cost savings, greenhouse gas emissions savings were estimated based on the travel distances for each network option. The total annual auto and truck kilometer savings were converted to monetized economic benefits and used to estimate the CO_2 equivalent emissions by assuming an average auto fuel consumption of 12L for every 100 km and average truck diesel consumption of 45.5L for every 100 km. As summarized in **Table 4-5**, considering a unit cost of $87.90 per metric ton of emissions saved as per Quebec Ministry of Transportation estimates, the total GHG emissions saved amounts to **$15,996** per year for Option 3 and **$18,522** for Option 3a. Detailed assumptions and data sources are provided in **Attachment 1**.

Table 4-5: Summary of GHG Emissions Savings

Option	Mode	GHG/Year (CO_2 Metric Ton)	GHG Value/metric ton ($) (1)	GHG value/year ($)
3	Auto Drivers	122	$87.90/metric ton	$10,735
	Truck Drivers	60	$87.90/metric ton	$5,261
			Total Savings (Option 3)	**$15,966**
3a	Auto Drivers	141	$87.90/metric ton	$12,430
	Truck Drivers	69	$87.90/metric ton	$6,092
			Total Savings (Option 3a)	**$18,522**

Note: (1) – Source: Quebec Ministry of Transportation, Cost Benefit Analysis Guide, 2011 value adjusted to 2015 with Ontario CPI

4.3 ESTIMATION OF COSTS

Preliminary cost estimates for the extension of A2 are presented in **Table 4-6**. The high-level cost estimates include the cost to construct the roadway as well as environmental and civil works required to realign the tributary along with the construction of the associated structures to support the channel realignment. At this time, the additional cost associated with raising the profile of Highway 413 has been excluded from this estimate.

Cost estimates for the roadway component were provided by LEA Consulting. GEI Consultants provided the cost estimates for the natural environmental work, and Schaeffers & Associates provided the cost estimates for the civil engineering aspect. A detailed breakdown of the preliminary cost estimates is provided in **Attachment 2**. The proposed cost to construct the extension of A2 through the Option 6 lands are estimated at approximately **$42,247,227.**

Table 4-6: Summary of Preliminary Cost Estimates for A2 Extension

Element	Total
Roadway	$3,873,219
Structures (Highway 413 over A2)	$5,836,800
Tributary Realignment	
Fluvial + Restoration	$276,000
A2 Crossing (twin con/span culvert + embankment fill)	$6,550,000
Highway 413 (twin con/span culvert) (1)	$11,600,000
Channel Realignment Civil Works	$1,000,000
Total Cost Estimate	**$29,136,019**
Contingency (30%)	**$8,740,806**
Engineering (25%)	**$4,370,403**
Grand Total	**$42,247,227**

Note: (1) – Embankment fill volume is assumed to be included in the Highway 413 scope of works.

4.4 OVERALL COST-BENEFIT ANALYSIS RESULTS

A summary of the preliminary cost and benefit results for Option 3 and Option 3a are provided in **Table 4-7** and **Table 4-8**, respectively. As previously mentioned, the analysis was performed for the expected useful life of 25 years. The project benefits are expected to start after completion of the roadway and assumed to remain at the same level for the duration of the project.

Table 4-7: Summary of Cost and Benefit Values (Option 3)

Impact	Value ($)	Total 25-Year Value ($) (1)
Cost		
Capital Costs	$42,247,227	-
Benefits		
Travel Time Cost Savings	$1,631,682	$15,301,783
Vehicle Operating Cost Savings	$94,354	$884,844
GHG Emissions Cost Savings	$15,996	$150,009
Total Benefits	**$1,742,032**	**$16,336,636**
Net Benefit	**$-25,910,591**	
Cost Benefit Ratio	**0.39**	

Note: (1) – 4% discount rate to represent present values over a 25-year period

Table 4-8: Summary of Cost and Benefits Value (Option 3a)

Impact	Value ($)	Total 25-Year Value ($) (1)
Cost		
Capital Costs	$42,247,227	-
Benefits		
Travel Time Cost Savings	$2,719,470	$25,502,972
Vehicle Operating Cost Savings	$109,252	$1,024,557
GHG Emissions Cost Savings	$18,522	$173,694
Total Benefits	**$2,847,244**	**$26,701,223**
Net Benefit	**$-15,546,004**	
Cost Benefit Ratio	**0.63**	

Note: (1) – 4% discount rate to represent present values over a 25-year period

Using a 4% discount rate, the combined user and environmental benefit for Option 3 and Option 3a in present values terms over a 25-year evaluation period is $16,336,636 and $26,701,223, respectively. Based on the estimated total cost of $42,247,227, the resulting net benefit for both options ranges between $-15,546,004 and $-25,910,591.

Based on the analysis presented above, both Option 3 and Option 3a create negative net economic benefits, resulting in a cost-benefit ratio of 0.39 and 0.63, respectively. In addition to the economic loss of the extension, there are additional engineering, design, and environmental considerations associated with raising the profile of Highway 413 and relocating a Redside Dace – Species at Risk) contributing tributary that would increase the complexity of implementation.

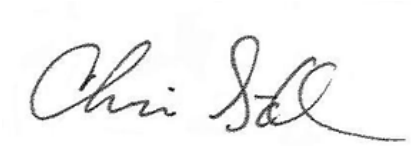
5 CONCLUSION

This memo was prepared to evaluate the technical and economic feasibility of extending A2 north of Mayfield Road, considering the planned alignment of Highway 413 and the natural features present in this area. The following summarizes the findings of this memo:

- **Existing natural environment:** The existing natural environmental conditions includes the Clarkway Drive Tributary which flows in a north-south direction along the east end of the study area and two other incised headwater drainage features (HDF-8 and HDF-3). The tributary is a partially confined valley corridor and contains two significant wetlands. Clarkway Drive Tributary is designated contributing habitat for redside dace, a species-at-risk, its associated riparian wetland communities, and HDF-8.
- **Impacts to Highway 413:** The A2 extension is proposed to cross over the Clarkway Tributary and under Highway 413 to connect with the future George Bolton Parkway extension. The A2 extension north of Mayfield Road would require elevating Highway 413 to ensure compliance with the required vertical clearance between Highway 413 and A2.
- **Impacts to natural features and structural challenges:** Due to the alignment of the Clarkway Tributary, it is anticipated that the crossing structures of Highway 413 and A2 over the tributary will converge at a single point creating overlapping structures. The angles of the tributary, Highway 413, and A2 extension do not leave good locations for regular spans and thus a central pier is expected to fall with the tributary, significantly impacting this natural feature.
- **Recommended mitigation measures:** Relocating the tributary west from its current location is recommended to prevent its intersection with Highway 413 at the junction of the A2 extension, thereby minimizing potential impacts on the water feature. The proposed conceptual realignment of the tributary would require five (5) total structures (3 structures over the tributary and 2 structures for Highway 413 over A2). The realignment would introduce additional structures; however, avoids overlapping bridges.

- **Cost-Benefit Analysis:** A cost-benefit analysis was conducted to assess the economic feasibility of the A2 extension. Both option 3 and option 3a for extending A2 resulted in a negative net economic value and cost-benefit ratio ranging from 0.39 to 0.63. The cost-benefit analysis revealed that an extension of A2 north of Mayfield is economically infeasible. Furthermore, there are additional engineering, design, and environmental considerations that would increase the complexity of implementation including:
    - The profile of Highway 413 be raised to meet the vertical clearance requirements between A2 and the highway;
    - The Clarkway Tributary be relocated westward beginning north of Highway 413 and reconnecting with its current position at Mayfield Road in order to mitigate substantial disruptions to the watercourse;
    - TRCA/MNRF permits and approves a channel realignment; and
    - The MTO considers the impact of A2 during their design phase to ensure that the crossing design is integrated before Highway 413 construction begins.

Should you have any questions or comments regarding the presented information, please do not hesitate to contact at Chris Sidlar at CSidlar@lea.ca.



Christopher Sidlar, MSc. Pl, MCIP, RPP
Vice President, Transportation

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enclosed: Attachment 1: Cost-Benefit Analysis & Assumptions
Attachment 2: Detailed Cost Estimates

ATTACHMENT 1

Cost-Benefit Analysis & Assumptions

Cost Benefit Analysis

Benefits		Inputs			Unit Value			Monetized Value		
		VHT/year (hr)	VKT/year (km)	GHG/year (CO_2 metric ton)	VHT value/hr	VKT value/km	GHG value/metric ton	VHT value/year	VKT value/year	GHG value/year
		Time Saved	KM Saved	GHG Saved	Time Saved	KM Saved	GHG Saved	Time Saved	KM Saved	GHG Saved
Combined										
Option 3	Truck Drivers	7800	49400	60	$ 75.00	$ 0.326	$ 87.90	$ 585,000	$ 16,104	$ 5,261
	Auto Drivers	70200	444600	122	$ 14.91	$ 0.176	$ 87.90	$ 1,046,682	$ 78,250	$ 10,735
							Option 3 Sub-Total	**$ 1,631,682**	**$ 94,354**	**$ 15,996**
Option 3a	Truck Drivers	13000	57200	69	$ 75.00	$ 0.326	$ 87.90	$ 975,000	$ 18,647.20	$ 6,092
	Auto Drivers	117000	514800	141	$ 14.91	$ 0.176	$ 87.90	$ 1,744,470	$ 90,604.80	$ 12,430
							Option 3a Sub-Total	**$ 2,719,470**	**$ 109,252**	**$ 18,522**
							Option 3 Total Benefit	**$**		**1,742,032**
							Option 3a Total Benefit	**$**		**2,847,244**
							Option 3 Total Benefit (25 years)	**$**		**43,550,799**
							Option 3a Total Benefit (25 years)	**$**		**71,181,091**

Conversion to Present Value (4% Discount Rate)		
Option 3	**$**	**16,336,636**
Option 3a	**$**	**26,701,223**

Total Cost of A2 Extension	**$**	**42,247,227**

Cost-Benefit Ratio	
Option 3	**0.39**
Option 3a	**0.63**

Assumptions

Assumption	Unit	Source
Project useful life	25 years	LEA Assumption
Number of working days in a year	260 days	5 workding days * 52 weeks
Value of time (truck drivers)	75$/hr	Highway Element Investment Review (HEIR) Guideline (MTO)
Value of time (auto drivers)	14.91$/hr	Highway Element Investment Review (HEIR) Guideline (MTO)
Car operating costs (auto)	$0.176/km	CAA Auto Operating Costs for Mid-Sized Car, excluding ownership costs (2012, adjusted to 2015 with Ontario CPI)
Car operating costs (truck)	$0.326/km	Transport Canada Operating Costs of Trucks in Canada, excluding ownership and driver costs (2008 adjusted to 2015 with Ontario CPI)
Fuel consumption (auto)	12L/km	Transport Canada (2014)
Fuel consumption (truck)	45.5L/km	Transport Canada (2014)
GHG Emissions (auto)	2.289 CO_2 eq kg/L	Quebec Ministry of Transportation (2011 adjusted to 2015 with Ontario CPI)
GHG Emissions (truck)	2.663 CO_2 eq kg/L	Quebec Ministry of Transportation (2011 adjusted to 2015 with Ontario CPI)
Discount Rate	4%	Typical discount rate = 3-5%

ATTACHMENT 2

Detailed Cost Estimates

Estimated Costs

A2 EXTENSION COST ESTIMATE (ROAD INFRASTRUCTURE)							
Road:	A2 Extension			Assumptions:			
From:	George Bolton			Pavement Structure:			
To:	Mayfield Road			DFC		40	mm
Length:	1400	m		HDBC		110	mm
Width:	11	m		Granular A		150	mm
Existing Length	0	m		Granular B		475	mm
Description: A2 Extension			**Units**	**Quantity**	**Unit Price**	**Cost**	
DFC			t	1600	$135.00	$216,000.00	
HDBC			t	4300	$105.00	$451,500.00	
Granular A			t	2400	$25.00	$60,000.00	
Granular B			t	35200	$20.00	$704,000.00	
Tack coat			m2	15400	$1.50	$23,100.00	
Concrete Splash Pad			m2	2800	$100.00	$280,000.00	
Concrete Curb and Gutter			m	2800	$90.00	$252,000.00	
Concrete Sidewalk			m2	4200	$120.00	$504,000.00	
Tactile Surface			m	15	$265.00	$3,975.00	
Pavement markings - white or yellow solid of skip - 10 cm			m	5600	$7.50	$42,000.00	
50mm Stop Bar			m	50	$40.00	$2,000.00	
Illumination			each	40	$14,000.00	$560,000.00	
					Sub-total Major Items	**$3,098,575.00**	
Minor Items (25% of Major Items)			LS	0		$774,643.75	
					Sub-total	**$3,873,218.75**	
Contingency (30% of Sub-total)			LS	0		$1,161,965.63	
Engineering (15% of Sub-total)			LS	0		$580,982.81	
					TOTAL	**$5,616,167.19**	
					Cost per meter	**$4,011.55**	

STRUCTURES COST ESTIMATE				
Description: Structure (Highway 413 Crossing A2 (assuming realignment)	**Units**		**Cost**	
Length	24	m		
Width (4 highway lanes per direction as per Highway 413 design)	16	m		
Deck Area	384	m2		
Average Cost per m2			$	7,600.00
Sub-Total Structure Cost			**$**	**2,918,400.00**
Total Structure Cost (Assuming 2 sets of bridges)			**$**	**5,836,800.00**
Description: Structure (A2 crossing realignment) - from Schaeffers 2024	**Units**		**Cost**	
Twin 10.975x3.66m Con/Span Culvert	50	m	$	5,300,000.00
Embankment fill volume	25000	m3	$	1,250,000.00
A2 Crossing Total			**$**	**6,550,000.00**
Description: Structure (Highway 413 crossing realignment) - from Schaeffers 2024	**Units**		**Cost**	
Twin 10.975x3.66m Con/Span Culvert	110	m	$	11,600,000.00
Embankment fill volume	assumed to be included in HWY 413 Scope			
Highway 413 Crossing Total			**$**	**11,600,000.00**

CHANNEL REALIGNMENT					
Description: Recommended Tributary Realignment			**Units**		**Cost**
Fluvial G - Channel Realignment - from GEI 2024*			342	m	
Channel design and reporting			-		$ 30,000.00
Channel design construction support			-		$ 20,000.00
Post construction monitoring			-		$ 25,000.00
Sub-Total Fluvial G Cost					**$ 75,000.00**
Restoration Planting* - from GEI 2024*			200	m	
Detailed Design (Restoration Design Brief)					$ 10,000.00
Detailed Design (Planting Plans)					$ 15,000.00
Permitting (TRCA and MECP C Permit)					$ 15,000.00
Tender and Procurement					$ 6,000.00
Construction - Planting					$ 130,000.00
Contract Administration					$ 25,000.00
Sub-Total Restoration Planting					**$ 201,000.00**
Channel Realignment (Environmental) Total					**$ 276,000.00**
Channel Realignment (civil works)					**$ 1,000,000.00**
Channel Realignment Total					**$ 1,276,000.00**

*assumed design development for the 60%, 90%, and 100% design submissions, and have not accounted for any grading/design outside the bankfull channel

GRAND TOTAL		
Description		**Cost**
A2 Extension	$	3,873,218.75
Highway Structure (over A2)	$	5,836,800.00
Tributary Realignment		
Fluvial + Restoration	$	276,000.00
A2 Crossing (con/span culvert + embankment fill)	$	6,550,000.00
Highway 413 (con/span culvert)	$	11,600,000.00
Channel Realignment	$	1,000,000.00
Sub-Total	$	29,136,019
Contingency (30% of Sub-total)	$	8,740,806
Engineering (15% of Sub-total)	$	4,370,403
TOTAL	**$**	**42,247,227**

APPENDIX H

LOS Definitions

LEVELS OF SERVICE FOR SIGNALIZED INTERSECTIONS: METHODOLOGY

Signalized intersection analyses contained in this report were carried out using methodology described in the ***Highway Capacity Manual,*** *2000 update*, by the Transportation Research Board and implemented using Synchro 11 software.

Analyses of signalized intersections compare the volume of traffic passing through an intersection with the capacity of each of the intersection's approaches. Volumes can be either observed or estimated whereas an intersection's capacity is a function of its geometry, the number of lanes per approach, speeds, signal timing, and other considerations. The level of service is evaluated in terms of the average control delay (seconds) per vehicle, which is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. Delay is a complex measure and is calculated as a function of a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group in question.

The criteria for each level of service are given below.

Level of Service	Features	Control Delay (sec/veh)
A	Very low control delay. Occurs when signal progression (i.e. coordination) is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not have to stop.	0.0 – 10.0
B	Occurs with good progression, short cycle length, or both. More vehicles stop than with LOS A.	10.1 – 20.0
C	Occurs with fair progression, longer cycle length, or both. Individual cycle failures may begin to appear. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.	20.0 – 35.0
D	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles have to stop. Individual cycle failures are noticeable (i.e. some vehicles require more than one cycle to make it through the intersection).	35.0 – 55.0
E	Considered by many agencies to be the limit of acceptable delay. High delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.	55.0- 80.0
F	Considered to be unacceptable to most drivers and often occurs with oversaturation. It may also occur at high v/c ratios below 1.0 with many individual cycle failures.	80.1 +

LEVELS OF SERVICE FOR UNSIGNALIZED INTERSECTIONS: METHODOLOGY

Unsignalized intersection analyses contained in this report were carried out using methodology described in the ***Highway Capacity Manual*** *(2000 edition)* by the Transportation Research Board and implemented using the Synchro 11 software.

Analyses of unsignalized intersections compare observed or estimated traffic volumes with the capacity of each of the intersection's approaches. The analysis derives an estimation of queue lengths and the resulting delays experienced by vehicles from the time they join a queue to the moment they cross the stop bar at the intersection. Queuing and delays at unsignalized approaches are a function of the volumes of all other conflicting movements and the characteristics of the intersection. Traffic volumes can be either observed or estimated while an intersection's capacity is a function of its geometry, lane configurations, speeds, and other operational considerations. The resulting statistic is termed "average total delay" for each approach and is measured in seconds per vehicle. The delay can then be assigned a letter grade, which provides a simple qualitative assessment of the Level of Service for any unsignalized intersection.

The Level of Service grading for unsignalized intersections is more sensitive than that used for signalized analyses: delays are more onerous at unsignalized intersections as drivers must remain attentive while waiting for acceptable conditions to complete their movement. As a result, the thresholds between grades are lower for unsignalized analyses.

Level of Service	Features	Average Total Delay (sec/veh)
A	Almost no delay occurs. Approaches appear clear and turns are made easily.	0.0 – 10.0
B	Short delays are experienced. Drivers find their movement becoming more restricted.	10.1 – 15.0
C	Longer delays occur. Operation of both the minor and major streets are generally stable but movements from the minor street become more difficult. This level is often used for urban intersection design standards.	15.1 – 25.0
D	Motorists encounter increasing traffic restrictions and substantial delays. Delays on the major street occur as turning traffic interferes with the flow of traffic. Traffic flows are approaching the capacity of the intersection.	25.1 - 35.0
E	At level "E", capacity is reached. There are long queues of vehicles waiting upstream for the approach to clear. Delays to vehicles reach frustrating levels.	35.1- 50.0
F	Intersection saturation occurs as vehicle demand has exceeded the capacity. Drivers will often accept less than ideal gap opportunities; safety is compromised.	50.1 +

APPENDIX I

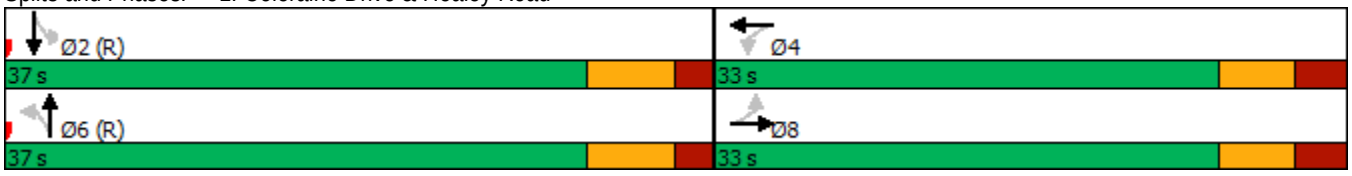
Existing Intersection Capacity Analysis

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	121	296	24	101	26	101	64	265
Future Volume (vph)	121	296	24	101	26	101	64	265
Lane Group Flow (vph)	130	529	26	133	28	133	69	459
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	32.8	32.8	32.8	32.8	36.7	36.7	36.7	36.7
Total Split (s)	33.0	33.0	33.0	33.0	37.0	37.0	37.0	37.0
Total Split (%)	47.1%	47.1%	47.1%	47.1%	52.9%	52.9%	52.9%	52.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	2.8	2.8	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.7	6.7	6.7	6.7
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.34	0.86	0.28	0.25	0.07	0.11	0.16	0.30
Control Delay	19.3	34.6	24.6	14.8	12.1	9.7	13.1	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.3	34.6	24.6	14.8	12.1	9.7	13.1	8.0
Queue Length 50th (m)	12.7	57.9	2.5	10.8	2.1	4.3	5.4	12.0
Queue Length 95th (m)	25.3	#105.4	8.9	21.9	6.7	9.4	13.4	21.8
Internal Link Dist (m)		1349.5		424.0		1711.9		1121.0
Turn Bay Length (m)	55.0		50.0		80.0		155.0	
Base Capacity (vph)	433	687	105	607	411	1184	440	1521
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	0.77	0.25	0.22	0.07	0.11	0.16	0.30

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 6 (9%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

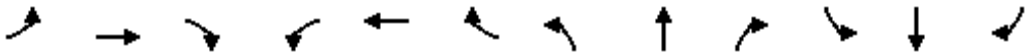
Splits and Phases: 1: Coleraine Drive & Healey Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	296	196	24	101	22	26	101	22	64	265	162
Future Volume (vph)	121	296	196	24	101	22	26	101	22	64	265	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.8	6.8		6.8	6.8		6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.94		1.00	0.97		1.00	0.97		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1636	1745		1267	1593		1685	2463		1316	3008	
Flt Permitted	0.67	1.00		0.21	1.00		0.49	1.00		0.67	1.00	
Satd. Flow (perm)	1157	1745		283	1593		865	2463		925	3008	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	130	318	211	26	109	24	28	109	24	69	285	174
RTOR Reduction (vph)	0	37	0	0	12	0	0	13	0	0	91	0
Lane Group Flow (vph)	130	492	0	26	121	0	28	120	0	69	368	0
Heavy Vehicles (%)	3%	2%	0%	33%	3%	68%	0%	45%	23%	28%	18%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	23.2	23.2		23.2	23.2		33.3	33.3		33.3	33.3	
Effective Green, g (s)	23.2	23.2		23.2	23.2		33.3	33.3		33.3	33.3	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.48	0.48		0.48	0.48	
Clearance Time (s)	6.8	6.8		6.8	6.8		6.7	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	383	578		93	527		411	1171		440	1430	
v/s Ratio Prot		c0.28			0.08			0.05			c0.12	
v/s Ratio Perm	0.11			0.09			0.03			0.07		
v/c Ratio	0.34	0.85		0.28	0.23		0.07	0.10		0.16	0.26	
Uniform Delay, d1	17.6	21.8		17.2	16.9		9.9	10.1		10.4	11.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	11.6		1.6	0.2		0.3	0.2		0.8	0.4	
Delay (s)	18.2	33.4		18.9	17.2		10.3	10.3		11.2	11.4	
Level of Service	B	C		B	B		B	B		B	B	
Approach Delay (s)		30.4			17.4			10.3			11.4	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	4	499	19	73	210	4	6	16	31	72	162	4
Future Volume (vph)	4	499	19	73	210	4	6	16	31	72	162	4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	4	537	20	78	226	4	6	17	33	77	174	4

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	561	308	56	255
Volume Left (vph)	4	78	6	77
Volume Right (vph)	20	4	33	4
Hadj (s)	0.02	0.08	-0.30	0.06
Departure Headway (s)	5.6	6.0	6.8	6.5
Degree Utilization, x	0.87	0.51	0.11	0.46
Capacity (veh/h)	637	557	455	517
Control Delay (s)	33.9	15.2	10.6	15.0
Approach Delay (s)	33.9	15.2	10.6	15.0
Approach LOS	D	C	B	C

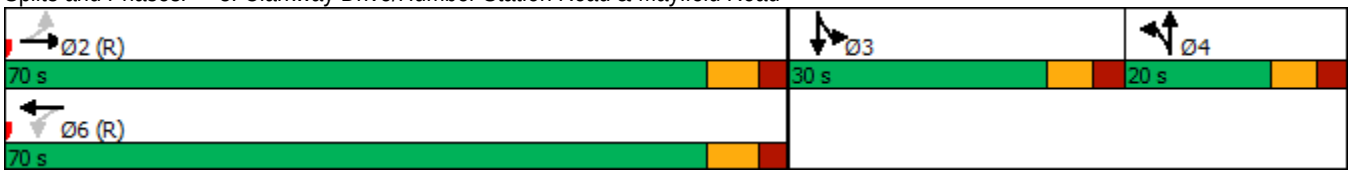
Intersection Summary				
Delay		23.8		
Level of Service		C		
Intersection Capacity Utilization		72.4%	ICU Level of Service	C
Analysis Period (min)		15		

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Configurations						
Traffic Volume (vph)	8	523	67	470	47	247
Future Volume (vph)	8	523	67	470	47	247
Lane Group Flow (vph)	0	582	0	564	177	267
Turn Type	Perm	NA	Perm	NA	NA	NA
Protected Phases		2		6	4	3
Permitted Phases	2		6			
Detector Phase	2	2	6	6	4	3
Switch Phase						
Minimum Initial (s)	12.0	12.0	12.0	12.0	8.0	8.0
Minimum Split (s)	27.3	27.3	27.3	27.3	26.0	27.5
Total Split (s)	70.0	70.0	70.0	70.0	20.0	30.0
Total Split (%)	58.3%	58.3%	58.3%	58.3%	16.7%	25.0%
Yellow Time (s)	4.6	4.6	4.6	4.6	4.2	4.2
All-Red Time (s)	2.7	2.7	2.7	2.7	2.8	2.8
Lost Time Adjust (s)		0.0		0.0	0.0	0.0
Total Lost Time (s)		7.3		7.3	7.0	7.0
Lead/Lag					Lag	Lead
Lead-Lag Optimize?					Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
v/c Ratio		0.72		0.79	0.89	0.83
Control Delay		27.8		32.9	91.9	69.5
Queue Delay		0.0		0.0	0.0	0.0
Total Delay		27.8		32.9	91.9	69.5
Queue Length 50th (m)		106.1		109.9	44.4	63.3
Queue Length 95th (m)		153.1		164.5	#91.7	#101.1
Internal Link Dist (m)		912.9		1363.4	257.8	3037.3
Turn Bay Length (m)						
Base Capacity (vph)		812		716	200	354
Starvation Cap Reductn		0		0	0	0
Spillback Cap Reductn		0		0	0	0
Storage Cap Reductn		0		0	0	0
Reduced v/c Ratio		0.72		0.79	0.89	0.75

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 31 (26%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
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: 3: Clarkway Drive/Humber Station Road & Mayfield Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	523	28	67	470	4	11	47	112	2	247	8
Future Volume (vph)	8	523	28	67	470	4	11	47	112	2	247	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)		7.3			7.3			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.99			1.00			0.91			1.00	
Flt Protected		1.00			0.99			1.00			1.00	
Satd. Flow (prot)		1552			1583			1646			1846	
Flt Permitted		0.99			0.85			1.00			1.00	
Satd. Flow (perm)		1540			1360			1646			1846	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	8	545	29	70	490	4	11	49	117	2	257	8
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	581	0	0	564	0	0	177	0	0	267	0
Heavy Vehicles (%)	13%	20%	25%	4%	20%	0%	18%	2%	3%	50%	1%	0%
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		2			6		4	4		3	3	
Permitted Phases	2			6								
Actuated Green, G (s)		63.2			63.2			14.6			20.9	
Effective Green, g (s)		63.2			63.2			14.6			20.9	
Actuated g/C Ratio		0.53			0.53			0.12			0.17	
Clearance Time (s)		7.3			7.3			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		811			716			200			321	
v/s Ratio Prot								c0.11			c0.14	
v/s Ratio Perm		0.38			c0.41							
v/c Ratio		0.72			0.79			0.89			0.83	
Uniform Delay, d1		21.6			23.0			51.9			47.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		5.4			8.6			33.8			16.6	
Delay (s)		26.9			31.5			85.7			64.4	
Level of Service		C			C			F			E	
Approach Delay (s)		26.9			31.5			85.7			64.4	
Approach LOS		C			C			F			E	

Intersection Summary			
HCM 2000 Control Delay	41.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.3
Intersection Capacity Utilization	93.9%	ICU Level of Service	F
Analysis Period (min)	15		

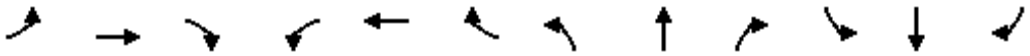
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	234	336	44	403	20	121	15	339
Future Volume (vph)	234	336	44	403	20	121	15	339
Lane Group Flow (vph)	266	439	50	481	23	148	17	537
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases	5	2		6		4	3	8
Permitted Phases	2		6		4		8	
Detector Phase	5	2	6	6	4	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	12.0	12.0	12.0	12.0	12.0	5.0	12.0
Minimum Split (s)	8.0	37.0	37.0	37.0	37.0	37.0	9.5	37.0
Total Split (s)	15.0	80.0	65.0	65.0	32.0	32.0	18.0	50.0
Total Split (%)	11.5%	61.5%	50.0%	50.0%	24.6%	24.6%	13.8%	38.5%
Yellow Time (s)	3.0	4.6	4.6	4.6	4.2	4.2	3.0	4.2
All-Red Time (s)	0.0	2.4	2.4	2.4	2.8	2.8	0.0	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0
Lead/Lag	Lead		Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None	None
v/c Ratio	0.44	0.21	0.10	0.26	0.27	0.26	0.09	0.80
Control Delay	8.8	7.4	16.2	15.6	58.3	47.9	38.2	54.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	7.4	16.2	15.6	58.3	47.9	38.2	54.3
Queue Length 50th (m)	21.1	19.1	5.8	32.2	5.3	17.1	3.6	67.1
Queue Length 95th (m)	37.0	29.8	15.1	51.7	14.9	28.4	9.6	80.6
Internal Link Dist (m)		1363.4		205.9		192.7		576.8
Turn Bay Length (m)	100.0		85.0		105.0		145.0	
Base Capacity (vph)	614	2064	503	1836	101	681	209	1105
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	0.21	0.10	0.26	0.23	0.22	0.08	0.49

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 92 (71%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Splits and Phases: 4: Coleraine Drive & Mayfield Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	234	336	50	44	403	20	20	121	9	15	339	134
Future Volume (vph)	234	336	50	44	403	20	20	121	9	15	339	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.99		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1546	2953		1685	3208		1532	3508		1146	3244	
Flt Permitted	0.44	1.00		0.50	1.00		0.33	1.00		0.57	1.00	
Satd. Flow (perm)	721	2953		882	3208		530	3508		693	3244	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	266	382	57	50	458	23	23	138	10	17	385	152
RTOR Reduction (vph)	0	7	0	0	2	0	0	4	0	0	38	0
Lane Group Flow (vph)	266	432	0	50	479	0	23	144	0	17	499	0
Heavy Vehicles (%)	9%	21%	2%	0%	9%	40%	10%	0%	11%	47%	0%	19%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	5	2			6			4		3	8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	88.8	88.8		72.5	72.5		20.7	20.7		27.2	27.2	
Effective Green, g (s)	88.8	88.8		72.5	72.5		20.7	20.7		27.2	27.2	
Actuated g/C Ratio	0.68	0.68		0.56	0.56		0.16	0.16		0.21	0.21	
Clearance Time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	576	2017		491	1789		84	558		157	678	
v/s Ratio Prot	c0.05	0.15			0.15			0.04		0.00	c0.15	
v/s Ratio Perm	c0.27			0.06			0.04			0.02		
v/c Ratio	0.46	0.21		0.10	0.27		0.27	0.26		0.11	0.74	
Uniform Delay, d1	8.1	7.6		13.5	14.9		48.0	47.9		41.3	48.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.2		0.4	0.4		1.8	0.2		0.3	4.2	
Delay (s)	8.6	7.9		13.9	15.3		49.8	48.2		41.6	52.2	
Level of Service	A	A		B	B		D	D		D	D	
Approach Delay (s)		8.2			15.2			48.4			51.9	
Approach LOS		A			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	25.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	56.4%	ICU Level of Service	B
Analysis Period (min)	15		

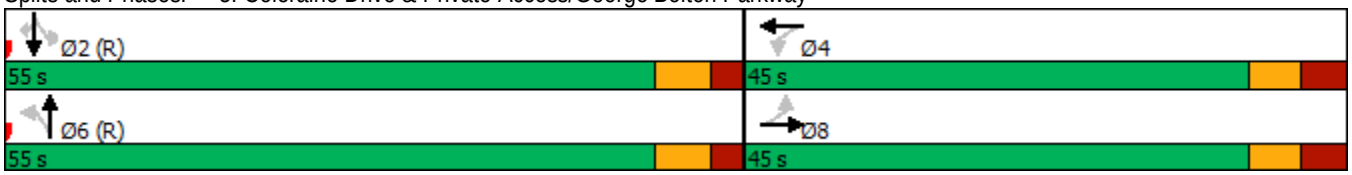
c Critical Lane Group

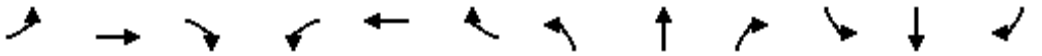
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	4	12	63	23	30	278	84	346	11
Future Volume (vph)	4	12	63	23	30	278	84	346	11
Lane Group Flow (vph)	5	29	73	191	35	435	98	402	13
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		8		4		6		2	
Permitted Phases	8		4		6		2		2
Detector Phase	8	8	4	4	6	6	2	2	2
Switch Phase									
Minimum Initial (s)	8.0	8.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.5	32.5	32.5	32.5	34.2	34.2	33.7	33.7	33.7
Total Split (s)	45.0	45.0	45.0	45.0	55.0	55.0	55.0	55.0	55.0
Total Split (%)	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.2	4.2	4.2	4.2	4.2
All-Red Time (s)	3.5	3.5	3.5	3.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	7.5	7.5	6.7	6.7	6.7	6.7	6.7
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.04	0.15	0.52	0.56	0.07	0.21	0.16	0.18	0.01
Control Delay	35.2	24.0	52.1	15.3	5.5	4.6	6.0	5.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.2	24.0	52.1	15.3	5.5	4.6	6.0	5.3	0.0
Queue Length 50th (m)	0.9	2.6	14.2	5.0	1.7	10.3	5.2	11.3	0.0
Queue Length 95th (m)	3.9	9.7	25.9	21.4	5.6	18.9	13.2	20.3	0.0
Internal Link Dist (m)		152.4		468.8		784.9		1711.9	
Turn Bay Length (m)	70.0		105.0		75.0		100.0		100.0
Base Capacity (vph)	345	486	369	633	529	2090	596	2178	1001
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.06	0.20	0.30	0.07	0.21	0.16	0.18	0.01

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 5: Coleraine Drive & Private Access/George Bolton Parkway





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	12	13	63	23	141	30	278	96	84	346	11
Future Volume (vph)	4	12	13	63	23	141	30	278	96	84	346	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.92		1.00	0.87		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1685	1271		1267	1417		1370	2902		1589	3051	1383
Flt Permitted	0.52	1.00		0.74	1.00		0.52	1.00		0.50	1.00	1.00
Satd. Flow (perm)	921	1271		984	1417		743	2902		835	3051	1383
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	5	14	15	73	27	164	35	323	112	98	402	13
RTOR Reduction (vph)	0	13	0	0	140	0	0	19	0	0	0	4
Lane Group Flow (vph)	5	16	0	73	51	0	35	416	0	98	402	9
Heavy Vehicles (%)	0%	42%	31%	33%	43%	11%	23%	18%	19%	6%	17%	9%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	14.4	14.4		14.4	14.4		71.4	71.4		71.4	71.4	71.4
Effective Green, g (s)	14.4	14.4		14.4	14.4		71.4	71.4		71.4	71.4	71.4
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.71	0.71		0.71	0.71	0.71
Clearance Time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	132	183		141	204		530	2072		596	2178	987
v/s Ratio Prot		0.01			0.04			c0.14			0.13	
v/s Ratio Perm	0.01			c0.07			0.05			0.12		0.01
v/c Ratio	0.04	0.09		0.52	0.25		0.07	0.20		0.16	0.18	0.01
Uniform Delay, d1	36.8	37.1		39.6	38.0		4.3	4.8		4.6	4.7	4.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.1	0.2		3.2	0.6		0.2	0.2		0.6	0.2	0.0
Delay (s)	37.0	37.3		42.8	38.6		4.5	5.0		5.2	4.9	4.1
Level of Service	D	D		D	D		A	A		A	A	A
Approach Delay (s)		37.3			39.8			5.0			4.9	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		

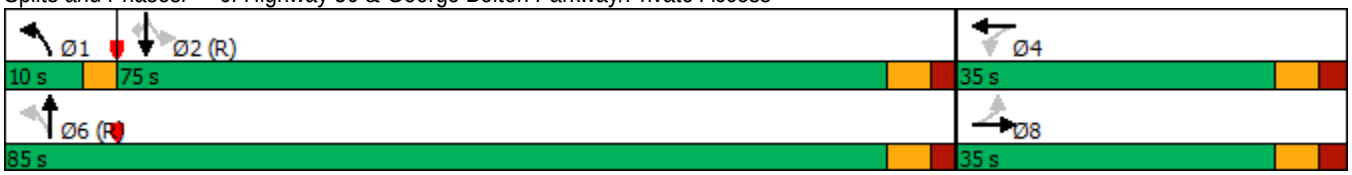
c Critical Lane Group

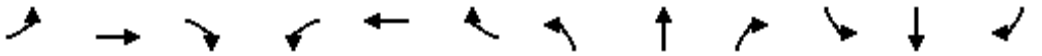
Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	76	0	0	146	844	3	1125	138
Future Volume (vph)	76	0	0	146	844	3	1125	138
Lane Group Flow (vph)	79	108	1	152	879	3	1172	144
Turn Type	Perm	NA	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases		8	4	1	6		2	
Permitted Phases	8			6		2		2
Detector Phase	8	8	4	1	6	2	2	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	5.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.6	32.6	32.6	8.0	27.3	27.3	27.3	27.3
Total Split (s)	35.0	35.0	35.0	10.0	85.0	75.0	75.0	75.0
Total Split (%)	29.2%	29.2%	29.2%	8.3%	70.8%	62.5%	62.5%	62.5%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.6	2.6	0.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	3.0	6.3	6.3	6.3	6.3
Lead/Lag				Lead		Lag	Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.59	0.39	0.00	0.50	0.33	0.01	0.52	0.14
Control Delay	67.3	5.4	0.0	8.7	4.6	8.3	11.3	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.3	5.4	0.0	8.7	4.6	8.3	11.3	2.0
Queue Length 50th (m)	18.9	0.0	0.0	6.4	27.8	0.2	67.5	0.4
Queue Length 95th (m)	34.2	3.6	0.0	14.6	45.4	1.6	107.8	8.6
Internal Link Dist (m)		846.5	43.0		1045.6		1307.8	
Turn Bay Length (m)	85.0			40.0		135.0		60.0
Base Capacity (vph)	286	401	528	305	2655	390	2250	1030
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	0.28	0.27	0.00	0.50	0.33	0.01	0.52	0.14

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 113 (94%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 6: Highway 50 & George Bolton Parkway/Private Access





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	0	104	0	0	1	146	844	0	3	1125	138
Future Volume (vph)	76	0	104	0	0	1	146	844	0	3	1125	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.6	6.6			6.6		3.0	6.3		6.3	6.3	6.3
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.85			0.86		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1518	1166			1625		1359	3400		1685	3305	1449
Flt Permitted	0.76	1.00			1.00		0.19	1.00		0.32	1.00	1.00
Satd. Flow (perm)	1210	1166			1625		277	3400		573	3305	1449
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	79	0	108	0	0	1	152	879	0	3	1172	144
RTOR Reduction (vph)	0	96	0	0	1	0	0	0	0	0	0	44
Lane Group Flow (vph)	79	12	0	0	0	0	152	879	0	3	1172	100
Heavy Vehicles (%)	11%	0%	37%	0%	0%	0%	24%	5%	0%	0%	8%	4%
Turn Type	Perm	NA			NA		pm+pt	NA		Perm	NA	Perm
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	13.4	13.4			13.4		93.7	93.7		81.7	81.7	81.7
Effective Green, g (s)	13.4	13.4			13.4		93.7	93.7		81.7	81.7	81.7
Actuated g/C Ratio	0.11	0.11			0.11		0.78	0.78		0.68	0.68	0.68
Clearance Time (s)	6.6	6.6			6.6		3.0	6.3		6.3	6.3	6.3
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	135	130			181		297	2654		390	2250	986
v/s Ratio Prot		0.01			0.00		c0.04	0.26			0.35	
v/s Ratio Perm	c0.07						c0.36			0.01		0.07
v/c Ratio	0.59	0.09			0.00		0.51	0.33		0.01	0.52	0.10
Uniform Delay, d1	50.7	47.8			47.4		5.3	3.9		6.1	9.5	6.6
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.3	0.3			0.0		1.5	0.3		0.0	0.9	0.2
Delay (s)	57.0	48.2			47.4		6.8	4.2		6.2	10.3	6.8
Level of Service	E	D			D		A	A		A	B	A
Approach Delay (s)		51.9			47.4			4.6			9.9	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.9
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
Analysis Period (min)	15		

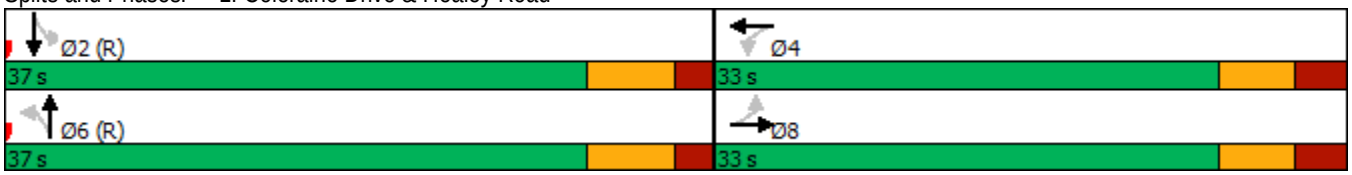
c Critical Lane Group

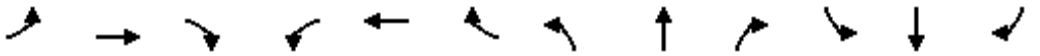
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	101	148	43	256	254	309	47	157
Future Volume (vph)	101	148	43	256	254	309	47	157
Lane Group Flow (vph)	111	299	47	374	279	384	52	249
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	32.8	32.8	32.8	32.8	36.7	36.7	36.7	36.7
Total Split (s)	33.0	33.0	33.0	33.0	37.0	37.0	37.0	37.0
Total Split (%)	47.1%	47.1%	47.1%	47.1%	52.9%	52.9%	52.9%	52.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	2.8	2.8	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.7	6.7	6.7	6.7
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.65	0.56	0.22	0.75	0.50	0.24	0.13	0.16
Control Delay	39.1	19.8	19.9	30.6	16.1	9.8	11.4	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	19.8	19.9	30.6	16.1	9.8	11.4	7.2
Queue Length 50th (m)	13.4	26.4	5.0	43.3	22.8	12.8	3.3	5.8
Queue Length 95th (m)	27.2	42.6	11.4	62.7	53.4	25.2	10.9	13.8
Internal Link Dist (m)		1349.5		424.0		1711.9		1121.0
Turn Bay Length (m)	55.0		50.0		80.0		155.0	
Base Capacity (vph)	232	695	297	668	562	1592	415	1547
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	0.43	0.16	0.56	0.50	0.24	0.13	0.16

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 12 (17%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 1: Coleraine Drive & Healey Road

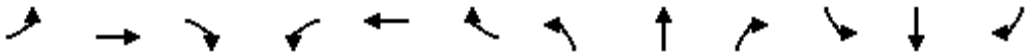




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	148	124	43	256	85	254	309	40	47	157	69
Future Volume (vph)	101	148	124	43	256	85	254	309	40	47	157	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.8	6.8		6.8	6.8		6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.93		1.00	0.96		1.00	0.98		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1652	1741		1574	1740		1685	2973		1416	2844	
Flt Permitted	0.36	1.00		0.48	1.00		0.60	1.00		0.52	1.00	
Satd. Flow (perm)	622	1741		794	1740		1059	2973		782	2844	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	111	163	136	47	281	93	279	340	44	52	173	76
RTOR Reduction (vph)	0	50	0	0	20	0	0	12	0	0	36	0
Lane Group Flow (vph)	111	249	0	47	354	0	279	372	0	52	213	0
Heavy Vehicles (%)	2%	1%	0%	7%	0%	16%	0%	18%	18%	19%	28%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	19.3	19.3		19.3	19.3		37.2	37.2		37.2	37.2	
Effective Green, g (s)	19.3	19.3		19.3	19.3		37.2	37.2		37.2	37.2	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.53	0.53		0.53	0.53	
Clearance Time (s)	6.8	6.8		6.8	6.8		6.7	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	171	480		218	479		562	1579		415	1511	
v/s Ratio Prot		0.14			c0.20			0.13			0.08	
v/s Ratio Perm	0.18			0.06			c0.26			0.07		
v/c Ratio	0.65	0.52		0.22	0.74		0.50	0.24		0.13	0.14	
Uniform Delay, d1	22.4	21.4		19.5	23.1		10.4	8.8		8.2	8.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.2	0.9		0.5	5.9		3.1	0.4		0.6	0.2	
Delay (s)	30.6	22.4		20.0	29.0		13.6	9.1		8.9	8.5	
Level of Service	C	C		C	C		B	A		A	A	
Approach Delay (s)		24.6			28.0			11.0			8.6	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	21	247	6	34	496	22	16	187	65	22	42	6
Future Volume (vph)	21	247	6	34	496	22	16	187	65	22	42	6
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	22	255	6	35	511	23	16	193	67	23	43	6

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	283	569	276	72
Volume Left (vph)	22	35	16	23
Volume Right (vph)	6	23	67	6
Hadj (s)	0.02	-0.01	-0.10	0.03
Departure Headway (s)	6.1	5.6	6.4	7.2
Degree Utilization, x	0.48	0.89	0.49	0.14
Capacity (veh/h)	553	629	526	445
Control Delay (s)	14.8	37.7	15.5	11.4
Approach Delay (s)	14.8	37.7	15.5	11.4
Approach LOS	B	E	C	B

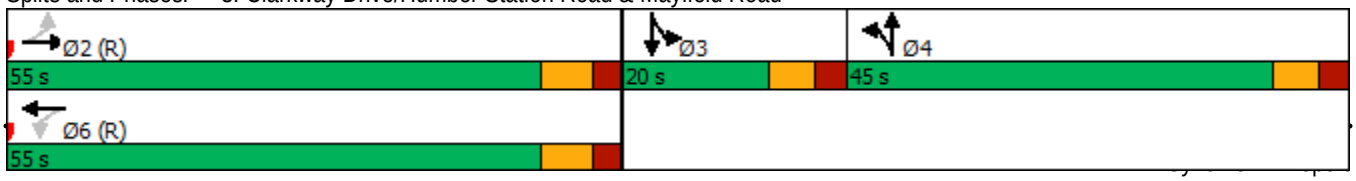
Intersection Summary				
Delay		25.6		
Level of Service		D		
Intersection Capacity Utilization		58.2%	ICU Level of Service	B
Analysis Period (min)		15		

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Configurations						
Traffic Volume (vph)	10	527	52	645	245	62
Future Volume (vph)	10	527	52	645	245	62
Lane Group Flow (vph)	0	573	0	723	426	76
Turn Type	Perm	NA	Perm	NA	NA	NA
Protected Phases		2		6	4	3
Permitted Phases	2		6			
Detector Phase	2	2	6	6	4	3
Switch Phase						
Minimum Initial (s)	12.0	12.0	12.0	12.0	8.0	8.0
Minimum Split (s)	27.3	27.3	27.3	27.3	26.0	26.0
Total Split (s)	55.0	55.0	55.0	55.0	45.0	20.0
Total Split (%)	45.8%	45.8%	45.8%	45.8%	37.5%	16.7%
Yellow Time (s)	4.6	4.6	4.6	4.6	4.2	4.2
All-Red Time (s)	2.7	2.7	2.7	2.7	2.8	2.8
Lost Time Adjust (s)		0.0		0.0	0.0	0.0
Total Lost Time (s)		7.3		7.3	7.0	7.0
Lead/Lag					Lag	Lead
Lead-Lag Optimize?					Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
v/c Ratio		0.73		0.97	0.88	0.48
Control Delay		34.6		59.8	60.8	62.3
Queue Delay		0.0		0.0	0.0	0.0
Total Delay		34.6		59.8	60.8	62.3
Queue Length 50th (m)		118.3		~194.8	99.4	18.3
Queue Length 95th (m)		#199.1		#289.7	136.1	34.1
Internal Link Dist (m)		912.9		1363.4	257.8	3037.3
Turn Bay Length (m)						
Base Capacity (vph)		786		745	553	195
Starvation Cap Reductn		0		0	0	0
Spillback Cap Reductn		0		0	0	0
Storage Cap Reductn		0		0	0	0
Reduced v/c Ratio		0.73		0.97	0.77	0.39

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 43 (36%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 140
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: 3: Clarkway Drive/Humber Station Road & Mayfield Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	527	19	52	645	4	59	245	109	0	62	12
Future Volume (vph)	10	527	19	52	645	4	59	245	109	0	62	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)		7.3			7.3			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			0.96			0.98	
Flt Protected		1.00			1.00			0.99			1.00	
Satd. Flow (prot)		1653			1696			1744			1808	
Flt Permitted		0.98			0.91			0.99			1.00	
Satd. Flow (perm)		1629			1545			1744			1808	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	10	543	20	54	665	4	61	253	112	0	64	12
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	572	0	0	723	0	0	426	0	0	76	0
Heavy Vehicles (%)	20%	13%	11%	2%	11%	0%	12%	2%	1%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA		Split	NA			NA	
Protected Phases		2			6		4	4		3	3	
Permitted Phases	2			6								
Actuated Green, G (s)		56.5			56.5			33.4			8.8	
Effective Green, g (s)		56.5			56.5			33.4			8.8	
Actuated g/C Ratio		0.47			0.47			0.28			0.07	
Clearance Time (s)		7.3			7.3			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		766			727			485			132	
v/s Ratio Prot								c0.24			c0.04	
v/s Ratio Perm		0.35			c0.47							
v/c Ratio		0.75			0.99			0.88			0.58	
Uniform Delay, d1		25.9			31.6			41.4			53.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		6.5			32.1			16.3			6.0	
Delay (s)		32.5			63.7			57.7			59.8	
Level of Service		C			E			E			E	
Approach Delay (s)		32.5			63.7			57.7			59.8	
Approach LOS		C			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	52.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.3
Intersection Capacity Utilization	104.2%	ICU Level of Service	G
Analysis Period (min)	15		

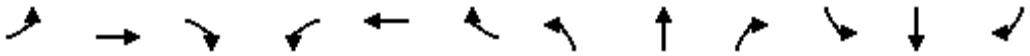
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	168	458	13	458	52	277	25	201
Future Volume (vph)	168	458	13	458	52	277	25	201
Lane Group Flow (vph)	177	513	14	522	55	314	26	443
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases	5	2		6		4	3	8
Permitted Phases	2		6		4		8	
Detector Phase	5	2	6	6	4	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	12.0	12.0	12.0	12.0	12.0	5.0	12.0
Minimum Split (s)	8.0	37.0	37.0	37.0	37.0	37.0	9.5	37.0
Total Split (s)	12.0	80.0	68.0	68.0	36.0	36.0	14.0	50.0
Total Split (%)	9.2%	61.5%	52.3%	52.3%	27.7%	27.7%	10.8%	38.5%
Yellow Time (s)	3.0	4.6	4.6	4.6	4.2	4.2	3.0	4.2
All-Red Time (s)	0.0	2.4	2.4	2.4	2.8	2.8	0.0	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0
Lead/Lag	Lead		Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None	None
v/c Ratio	0.33	0.21	0.03	0.27	0.50	0.69	0.18	0.59
Control Delay	8.1	7.6	15.5	14.4	67.7	61.0	39.5	24.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.1	7.6	15.5	14.4	67.7	61.0	39.5	24.9
Queue Length 50th (m)	14.1	24.4	1.6	35.1	14.0	42.5	5.5	26.5
Queue Length 95th (m)	27.6	38.4	5.9	57.2	28.0	56.6	12.7	41.0
Internal Link Dist (m)		1363.4		205.9		192.7		576.8
Turn Bay Length (m)	100.0		85.0		105.0		145.0	
Base Capacity (vph)	535	2398	457	1939	192	791	163	1177
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	0.33	0.21	0.03	0.27	0.29	0.40	0.16	0.38

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 116 (89%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated

Splits and Phases: 4: Coleraine Drive & Mayfield Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	168	458	29	13	458	38	52	277	21	25	201	219
Future Volume (vph)	168	458	29	13	458	38	52	277	21	25	201	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.99		1.00	0.99		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1404	3379		1560	3213		1685	3532		1239	3097	
Flt Permitted	0.43	1.00		0.46	1.00		0.49	1.00		0.35	1.00	
Satd. Flow (perm)	631	3379		760	3213		861	3532		455	3097	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	177	482	31	14	482	40	55	292	22	26	212	231
RTOR Reduction (vph)	0	2	0	0	4	0	0	4	0	0	184	0
Lane Group Flow (vph)	177	511	0	14	518	0	55	310	0	26	259	0
Heavy Vehicles (%)	20%	5%	0%	8%	8%	32%	0%	0%	0%	36%	0%	12%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	5	2			6			4		3	8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	91.0	91.0		77.1	77.1		16.7	16.7		25.0	25.0	
Effective Green, g (s)	91.0	91.0		77.1	77.1		16.7	16.7		25.0	25.0	
Actuated g/C Ratio	0.70	0.70		0.59	0.59		0.13	0.13		0.19	0.19	
Clearance Time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	506	2365		450	1905		110	453		119	595	
v/s Ratio Prot	c0.03	0.15			0.16			c0.09		0.01	c0.08	
v/s Ratio Perm	c0.22			0.02			0.06			0.03		
v/c Ratio	0.35	0.22		0.03	0.27		0.50	0.68		0.22	0.44	
Uniform Delay, d1	6.9	6.9		11.0	12.8		52.8	54.1		43.5	46.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.2		0.1	0.4		3.5	4.2		0.9	0.5	
Delay (s)	7.3	7.1		11.1	13.2		56.3	58.4		44.5	46.8	
Level of Service	A	A		B	B		E	E		D	D	
Approach Delay (s)		7.1			13.1			58.1			46.7	
Approach LOS		A			B			E			D	

Intersection Summary			
HCM 2000 Control Delay	26.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		

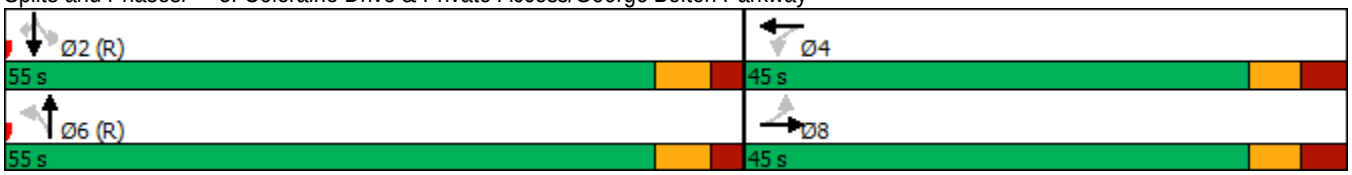
c Critical Lane Group

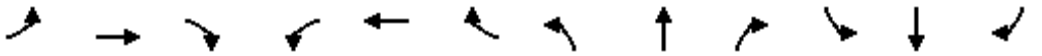
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	7	26	61	9	6	422	145	431	1
Future Volume (vph)	7	26	61	9	6	422	145	431	1
Lane Group Flow (vph)	8	58	73	198	7	592	175	519	1
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		8		4		6		2	
Permitted Phases	8		4		6		2		2
Detector Phase	8	8	4	4	6	6	2	2	2
Switch Phase									
Minimum Initial (s)	8.0	8.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.5	32.5	32.5	32.5	34.2	34.2	33.7	33.7	33.7
Total Split (s)	45.0	45.0	45.0	45.0	55.0	55.0	55.0	55.0	55.0
Total Split (%)	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.2	4.2	4.2	4.2	4.2
All-Red Time (s)	3.5	3.5	3.5	3.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	7.5	7.5	6.7	6.7	6.7	6.7	6.7
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.07	0.24	0.48	0.54	0.02	0.27	0.34	0.23	0.00
Control Delay	37.4	25.7	50.0	12.8	4.8	5.1	7.7	5.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	25.7	50.0	12.8	4.8	5.1	7.7	5.1	0.0
Queue Length 50th (m)	1.5	5.8	14.2	2.0	0.3	16.3	10.4	14.6	0.0
Queue Length 95th (m)	5.3	14.8	24.9	16.8	1.7	25.8	22.7	23.3	0.0
Internal Link Dist (m)		152.4		468.8		784.9		1711.9	
Turn Bay Length (m)	70.0		105.0		75.0		100.0		100.0
Base Capacity (vph)	322	619	423	675	392	2220	521	2300	1101
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.09	0.17	0.29	0.02	0.27	0.34	0.23	0.00

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 5: Coleraine Drive & Private Access/George Bolton Parkway





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	26	22	61	9	155	6	422	70	145	431	1
Future Volume (vph)	7	26	22	61	9	155	6	422	70	145	431	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.93		1.00	0.86		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1685	1608		1491	1491		1123	3065		1604	3187	1507
Flt Permitted	0.49	1.00		0.72	1.00		0.46	1.00		0.43	1.00	1.00
Satd. Flow (perm)	861	1608		1129	1491		544	3065		724	3187	1507
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	8	31	27	73	11	187	7	508	84	175	519	1
RTOR Reduction (vph)	0	23	0	0	162	0	0	7	0	0	0	0
Lane Group Flow (vph)	8	35	0	73	36	0	7	585	0	175	519	1
Heavy Vehicles (%)	0%	4%	14%	13%	11%	8%	50%	14%	14%	5%	12%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	13.6	13.6		13.6	13.6		72.2	72.2		72.2	72.2	72.2
Effective Green, g (s)	13.6	13.6		13.6	13.6		72.2	72.2		72.2	72.2	72.2
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.72	0.72		0.72	0.72	0.72
Clearance Time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	117	218		153	202		392	2212		522	2301	1088
v/s Ratio Prot		0.02			0.02			0.19			0.16	
v/s Ratio Perm	0.01			c0.06			0.01			c0.24		0.00
v/c Ratio	0.07	0.16		0.48	0.18		0.02	0.26		0.34	0.23	0.00
Uniform Delay, d1	37.7	38.1		39.9	38.3		3.9	4.8		5.1	4.6	3.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	0.3		2.3	0.4		0.1	0.3		1.7	0.2	0.0
Delay (s)	37.9	38.5		42.3	38.7		4.0	5.1		6.8	4.8	3.9
Level of Service	D	D		D	D		A	A		A	A	A
Approach Delay (s)		38.4			39.7			5.1			5.3	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		

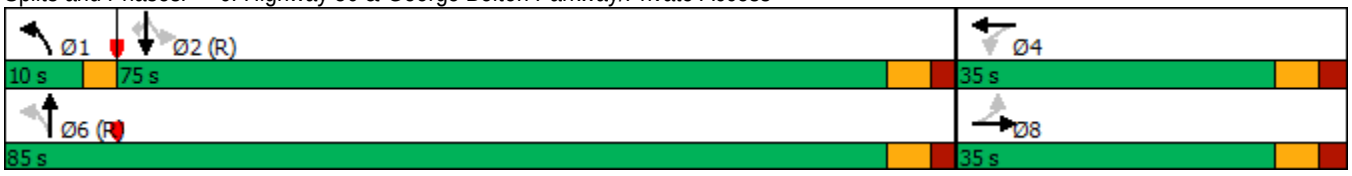
c Critical Lane Group

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	209	0	0	129	1257	1	873	169
Future Volume (vph)	209	0	0	129	1257	1	873	169
Lane Group Flow (vph)	218	201	7	134	1309	1	909	176
Turn Type	Perm	NA	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases		8	4	1	6		2	
Permitted Phases	8			6		2		2
Detector Phase	8	8	4	1	6	2	2	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	5.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.6	32.6	32.6	8.0	27.3	27.3	27.3	27.3
Total Split (s)	35.0	35.0	35.0	10.0	85.0	75.0	75.0	75.0
Total Split (%)	29.2%	29.2%	29.2%	8.3%	70.8%	62.5%	62.5%	62.5%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.6	2.6	0.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	3.0	6.3	6.3	6.3	6.3
Lead/Lag				Lead		Lag	Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.83	0.44	0.02	0.40	0.55	0.00	0.43	0.19
Control Delay	70.6	6.7	0.1	9.5	10.8	11.0	14.0	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.6	6.7	0.1	9.5	10.8	11.0	14.0	2.2
Queue Length 50th (m)	51.6	0.0	0.0	9.4	79.2	0.1	63.3	0.0
Queue Length 95th (m)	#78.9	14.9	0.0	18.0	107.3	0.9	81.2	9.7
Internal Link Dist (m)		846.5	43.0		1045.6		1307.8	
Turn Bay Length (m)	85.0			40.0		135.0		60.0
Base Capacity (vph)	315	501	442	335	2362	207	2105	945
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	0.69	0.40	0.02	0.40	0.55	0.00	0.43	0.19

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 116 (97%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Highway 50 & George Bolton Parkway/Private Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	209	0	193	0	0	7	129	1257	0	1	873	169
Future Volume (vph)	209	0	193	0	0	7	129	1257	0	1	873	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.6	6.6			6.6		3.0	6.3		6.3	6.3	6.3
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99			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	1.00
Frt	1.00	0.85			0.86		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1685	1405			1625		1392	3400		1685	3466	1444
Flt Permitted	0.75	1.00			1.00		0.26	1.00		0.19	1.00	1.00
Satd. Flow (perm)	1336	1405			1625		376	3400		343	3466	1444
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	218	0	201	0	0	7	134	1309	0	1	909	176
RTOR Reduction (vph)	0	161	0	0	6	0	0	0	0	0	0	69
Lane Group Flow (vph)	218	40	0	0	1	0	134	1309	0	1	909	107
Confl. Peds. (#/hr)			2	2			1					1
Heavy Vehicles (%)	0%	0%	12%	0%	0%	0%	21%	5%	0%	0%	3%	2%
Turn Type	Perm	NA			NA		pm+pt	NA		Perm	NA	Perm
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	23.7	23.7			23.7		83.4	83.4		72.9	72.9	72.9
Effective Green, g (s)	23.7	23.7			23.7		83.4	83.4		72.9	72.9	72.9
Actuated g/C Ratio	0.20	0.20			0.20		0.70	0.70		0.61	0.61	0.61
Clearance Time (s)	6.6	6.6			6.6		3.0	6.3		6.3	6.3	6.3
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	263	277			320		324	2363		208	2105	877
v/s Ratio Prot		0.03			0.00		0.03	c0.39			0.26	
v/s Ratio Perm	c0.16						0.26			0.00		0.07
v/c Ratio	0.83	0.14			0.00		0.41	0.55		0.00	0.43	0.12
Uniform Delay, d1	46.2	39.8			38.7		7.3	9.1		9.3	12.5	10.0
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	18.9	0.2			0.0		0.9	0.9		0.0	0.6	0.3
Delay (s)	65.1	40.0			38.7		8.1	10.0		9.3	13.2	10.3
Level of Service	E	D			D		A	B		A	B	B
Approach Delay (s)		53.1			38.7			9.8			12.7	
Approach LOS		D			D			A			B	

Intersection Summary			
HCM 2000 Control Delay	17.1	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)	15.9
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

APPENDIX J

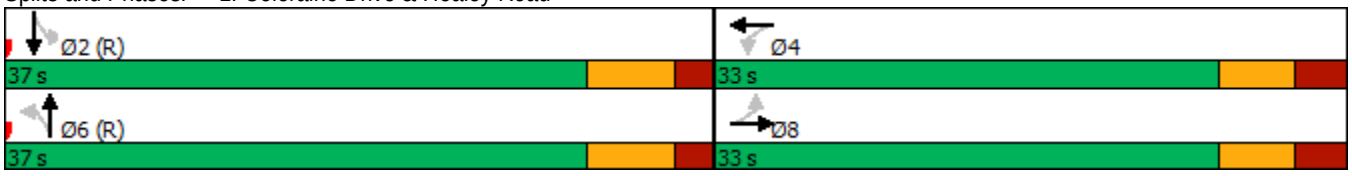
Future Background (2028, 2033, 2043) Intersection Capacity Analysis

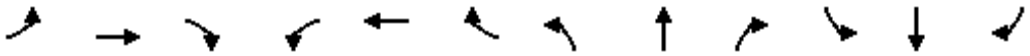
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	140	343	49	123	35	130	64	324
Future Volume (vph)	140	343	49	123	35	130	64	324
Lane Group Flow (vph)	151	629	53	156	38	169	69	522
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	32.8	32.8	32.8	32.8	36.7	36.7	36.7	36.7
Total Split (s)	33.0	33.0	33.0	33.0	37.0	37.0	37.0	37.0
Total Split (%)	47.1%	47.1%	47.1%	47.1%	52.9%	52.9%	52.9%	52.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	2.8	2.8	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.7	6.7	6.7	6.7
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.37	0.94	0.63	0.26	0.11	0.15	0.17	0.36
Control Delay	19.1	45.1	55.9	15.1	13.0	10.3	13.8	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.1	45.1	55.9	15.1	13.0	10.3	13.8	9.9
Queue Length 50th (m)	14.7	74.2	5.8	13.0	3.0	5.8	5.6	16.4
Queue Length 95th (m)	29.2	#139.9	#24.0	25.8	8.6	11.4	13.5	27.2
Internal Link Dist (m)		1349.5		424.0		1711.9		1121.0
Turn Bay Length (m)	55.0		50.0		80.0		155.0	
Base Capacity (vph)	424	683	86	622	346	1165	395	1434
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	0.36	0.92	0.62	0.25	0.11	0.15	0.17	0.36

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 6 (9%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Coleraine Drive & Healey Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	343	242	49	123	22	35	130	27	64	324	162
Future Volume (vph)	140	343	242	49	123	22	35	130	27	64	324	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.8	6.8		6.8	6.8		6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.94		1.00	0.98		1.00	0.97		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1636	1728		1404	1637		1636	2597		1316	3046	
Flt Permitted	0.66	1.00		0.16	1.00		0.45	1.00		0.65	1.00	
Satd. Flow (perm)	1133	1728		232	1637		781	2597		894	3046	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	151	369	260	53	132	24	38	140	29	69	348	174
RTOR Reduction (vph)	0	37	0	0	10	0	0	16	0	0	87	0
Lane Group Flow (vph)	151	592	0	53	146	0	38	153	0	69	435	0
Heavy Vehicles (%)	3%	2%	2%	20%	2%	68%	3%	37%	19%	28%	16%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	25.5	25.5		25.5	25.5		31.0	31.0		31.0	31.0	
Effective Green, g (s)	25.5	25.5		25.5	25.5		31.0	31.0		31.0	31.0	
Actuated g/C Ratio	0.36	0.36		0.36	0.36		0.44	0.44		0.44	0.44	
Clearance Time (s)	6.8	6.8		6.8	6.8		6.7	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	412	629		84	596		345	1150		395	1348	
v/s Ratio Prot		c0.34			0.09			0.06			c0.14	
v/s Ratio Perm	0.13			0.23			0.05			0.08		
v/c Ratio	0.37	0.94		0.63	0.25		0.11	0.13		0.17	0.32	
Uniform Delay, d1	16.3	21.5		18.4	15.5		11.4	11.5		11.8	12.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	22.4		14.4	0.2		0.6	0.2		1.0	0.6	
Delay (s)	16.9	44.0		32.8	15.8		12.1	11.8		12.7	13.3	
Level of Service	B	D		C	B		B	B		B	B	
Approach Delay (s)		38.7			20.1			11.8			13.2	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	82.8%	ICU Level of Service	E
Analysis Period (min)	15		

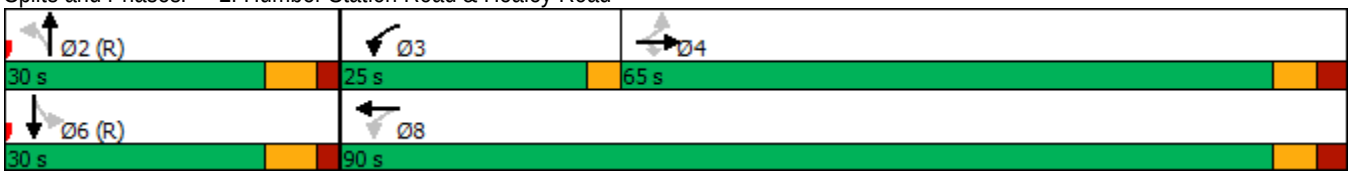
c Critical Lane Group

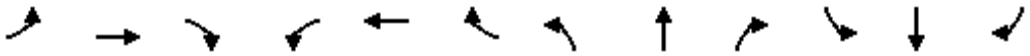
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	4	618	35	73	265	23	18	79	175
Future Volume (vph)	4	618	35	73	265	23	18	79	175
Lane Group Flow (vph)	4	665	38	78	289	25	56	85	192
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		4		3	8		2		6
Permitted Phases	4		4	8		2		6	
Detector Phase	4	4	4	3	8	2	2	6	6
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)	24.8	24.8	24.8	9.5	24.8	24.7	24.7	24.8	24.8
Total Split (s)	65.0	65.0	65.0	25.0	90.0	30.0	30.0	30.0	30.0
Total Split (%)	54.2%	54.2%	54.2%	20.8%	75.0%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	2.8	0.0	2.8	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.8	3.0	6.8	6.7	6.7	6.7	6.7
Lead/Lag	Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.01	0.86	0.06	0.36	0.32	0.06	0.08	0.17	0.26
Control Delay	17.0	43.6	1.8	16.3	17.7	23.3	8.8	29.3	29.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.0	43.6	1.8	16.3	17.7	23.3	8.8	29.3	29.1
Queue Length 50th (m)	0.6	144.6	0.0	8.6	38.7	4.6	3.9	14.3	33.4
Queue Length 95th (m)	2.5	176.9	3.0	13.5	48.5	12.4	14.9	29.9	58.5
Internal Link Dist (m)		465.5			1349.5		1464.0		452.2
Turn Bay Length (m)	30.0			60.0		30.0		30.0	
Base Capacity (vph)	401	894	741	381	1271	386	671	499	726
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.74	0.05	0.20	0.23	0.06	0.08	0.17	0.26

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 2: Humber Station Road & Healey Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	618	35	73	265	4	23	18	34	79	175	4
Future Volume (vph)	4	618	35	73	265	4	23	18	34	79	175	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.8	6.8	6.8	3.0	6.8		6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	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	0.90		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1348	1842	1463	1668	1833		1546	1660		1685	1855	
Flt Permitted	0.58	1.00	1.00	0.12	1.00		0.61	1.00		0.72	1.00	
Satd. Flow (perm)	827	1842	1463	219	1833		989	1660		1278	1855	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	4	665	38	78	285	4	25	19	37	85	188	4
RTOR Reduction (vph)	0	0	22	0	0	0	0	23	0	0	1	0
Lane Group Flow (vph)	4	665	16	78	289	0	25	33	0	85	191	0
Heavy Vehicles (%)	25%	2%	3%	1%	2%	25%	9%	0%	3%	0%	1%	0%
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	50.2	50.2	50.2	60.2	60.2		46.3	46.3		46.3	46.3	
Effective Green, g (s)	50.2	50.2	50.2	60.2	60.2		46.3	46.3		46.3	46.3	
Actuated g/C Ratio	0.42	0.42	0.42	0.50	0.50		0.39	0.39		0.39	0.39	
Clearance Time (s)	6.8	6.8	6.8	3.0	6.8		6.7	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	345	770	612	194	919		381	640		493	715	
v/s Ratio Prot		c0.36		c0.02	0.16			0.02			c0.10	
v/s Ratio Perm	0.00		0.01	0.18			0.03			0.07		
v/c Ratio	0.01	0.86	0.03	0.40	0.31		0.07	0.05		0.17	0.27	
Uniform Delay, d1	20.4	31.8	20.5	22.1	17.7		23.2	23.1		24.2	25.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.80	0.62		1.00	1.00	
Incremental Delay, d2	0.0	9.9	0.0	1.4	0.2		0.3	0.2		0.8	0.9	
Delay (s)	20.4	41.7	20.5	23.4	17.9		18.9	14.5		25.0	26.2	
Level of Service	C	D	C	C	B		B	B		C	C	
Approach Delay (s)		40.4			19.1			15.8			25.8	
Approach LOS		D			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	30.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

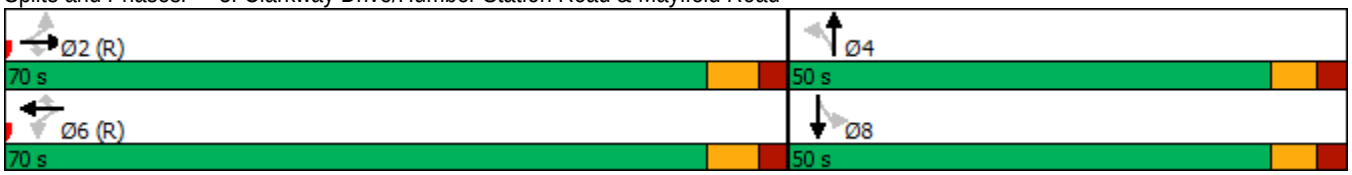
c Critical Lane Group

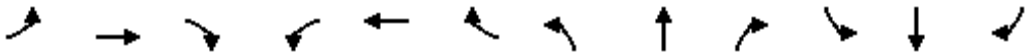
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	8	754	28	102	567	21	11	52	23	259
Future Volume (vph)	8	754	28	102	567	21	11	52	23	259
Lane Group Flow (vph)	8	785	29	106	591	22	11	260	24	278
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		2			6			4		8
Permitted Phases	2		2	6		6	4		8	
Detector Phase	2	2	2	6	6	6	4	4	8	8
Switch Phase										
Minimum Initial (s)	12.0	12.0	12.0	12.0	12.0	12.0	8.0	8.0	8.0	8.0
Minimum Split (s)	27.3	27.3	27.3	27.5	27.5	27.5	26.0	26.0	27.5	27.5
Total Split (s)	70.0	70.0	70.0	70.0	70.0	70.0	50.0	50.0	50.0	50.0
Total Split (%)	58.3%	58.3%	58.3%	58.3%	58.3%	58.3%	41.7%	41.7%	41.7%	41.7%
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.2	4.2	4.2	4.2
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.0	7.0	7.0	7.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None
v/c Ratio	0.02	0.26	0.03	0.27	0.29	0.02	0.12	0.60	0.21	0.76
Control Delay	8.1	8.1	2.2	10.9	8.5	1.4	39.3	23.0	54.0	70.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.1	8.1	2.2	10.9	8.5	1.4	39.3	23.0	54.0	70.9
Queue Length 50th (m)	0.6	24.6	0.0	9.3	27.4	0.0	2.3	23.7	5.9	71.3
Queue Length 95th (m)	2.8	38.0	3.1	23.0	44.4	2.0	7.4	48.4	14.6	98.3
Internal Link Dist (m)		1635.6			198.1			1951.8		1542.4
Turn Bay Length (m)	150.0		105.0	150.0		115.0	75.0		105.0	
Base Capacity (vph)	457	3051	836	388	2069	948	174	669	211	663
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.26	0.03	0.27	0.29	0.02	0.06	0.39	0.11	0.42

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 3: Clarkway Drive/Humber Station Road & Mayfield Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	754	28	102	567	21	11	52	198	23	259	8
Future Volume (vph)	8	754	28	102	567	21	11	52	198	23	259	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.88		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1491	4460	1206	1574	3025	1370	1428	1598		1546	1853	
Flt Permitted	0.43	1.00	1.00	0.34	1.00	1.00	0.32	1.00		0.36	1.00	
Satd. Flow (perm)	668	4460	1206	568	3025	1370	487	1598		591	1853	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	8	785	29	106	591	22	11	54	206	24	270	8
RTOR Reduction (vph)	0	0	9	0	0	7	0	121	0	0	0	0
Lane Group Flow (vph)	8	785	20	106	591	15	11	139	0	24	278	0
Heavy Vehicles (%)	13%	15%	25%	7%	18%	10%	18%	2%	4%	9%	1%	0%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	82.1	82.1	82.1	82.1	82.1	82.1	23.6	23.6		23.6	23.6	
Effective Green, g (s)	82.1	82.1	82.1	82.1	82.1	82.1	23.6	23.6		23.6	23.6	
Actuated g/C Ratio	0.68	0.68	0.68	0.68	0.68	0.68	0.20	0.20		0.20	0.20	
Clearance Time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	457	3051	825	388	2069	937	95	314		116	364	
v/s Ratio Prot		0.18			c0.20			0.09			c0.15	
v/s Ratio Perm	0.01		0.02	0.19		0.01	0.02			0.04		
v/c Ratio	0.02	0.26	0.02	0.27	0.29	0.02	0.12	0.44		0.21	0.76	
Uniform Delay, d1	6.1	7.3	6.1	7.4	7.4	6.1	39.6	42.4		40.4	45.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.31	1.27	
Incremental Delay, d2	0.1	0.2	0.1	1.7	0.3	0.0	0.5	1.0		0.9	9.1	
Delay (s)	6.1	7.5	6.1	9.1	7.8	6.1	40.2	43.4		53.8	67.1	
Level of Service	A	A	A	A	A	A	D	D		D	E	
Approach Delay (s)		7.4			7.9			43.3			66.0	
Approach LOS		A			A			D			E	

Intersection Summary			
HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.3
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		

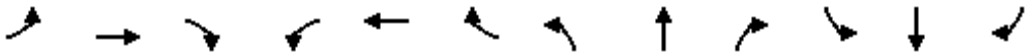
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	286	491	44	503	20	133	67	339
Future Volume (vph)	286	491	44	503	20	133	67	339
Lane Group Flow (vph)	325	615	50	615	23	161	76	626
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases	5	2		6		4	3	8
Permitted Phases	2		6		4		8	
Detector Phase	5	2	6	6	4	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	12.0	12.0	12.0	12.0	12.0	5.0	12.0
Minimum Split (s)	8.0	37.0	37.0	37.0	37.0	37.0	8.0	37.0
Total Split (s)	15.0	80.0	65.0	65.0	32.0	32.0	18.0	50.0
Total Split (%)	11.5%	61.5%	50.0%	50.0%	24.6%	24.6%	13.8%	38.5%
Yellow Time (s)	3.0	4.6	4.6	4.6	4.2	4.2	3.0	4.2
All-Red Time (s)	0.0	2.4	2.4	2.4	2.8	2.8	0.0	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0
Lead/Lag	Lead		Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None	None
v/c Ratio	0.60	0.29	0.13	0.35	0.37	0.38	0.30	0.82
Control Delay	12.5	9.1	19.3	19.1	71.1	54.4	40.9	49.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.5	9.1	19.3	19.1	71.1	54.4	40.9	49.3
Queue Length 50th (m)	28.4	30.7	6.5	47.3	5.9	21.1	16.6	71.3
Queue Length 95th (m)	50.6	47.4	16.6	71.9	15.2	31.2	27.6	84.2
Internal Link Dist (m)		290.4		1003.7		192.7		576.8
Turn Bay Length (m)	100.0		85.0		105.0		145.0	
Base Capacity (vph)	545	2095	399	1742	101	679	272	1127
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	0.60	0.29	0.13	0.35	0.23	0.24	0.28	0.56

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 92 (71%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 4: Coleraine Drive & Mayfield Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	286	491	50	44	503	38	20	133	9	67	339	212
Future Volume (vph)	286	491	50	44	503	38	20	133	9	67	339	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.99		1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1560	3069		1685	3233		1532	3513		1452	3180	
Flt Permitted	0.36	1.00		0.42	1.00		0.33	1.00		0.54	1.00	
Satd. Flow (perm)	599	3069		743	3233		527	3513		832	3180	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	325	558	57	50	572	43	23	151	10	76	385	241
RTOR Reduction (vph)	0	4	0	0	4	0	0	4	0	0	89	0
Lane Group Flow (vph)	325	611	0	50	611	0	23	157	0	76	537	0
Heavy Vehicles (%)	8%	16%	2%	0%	8%	26%	10%	0%	11%	16%	0%	15%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	5	2			6			4		3	8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	88.0	88.0		69.3	69.3		15.4	15.4		28.0	28.0	
Effective Green, g (s)	88.0	88.0		69.3	69.3		15.4	15.4		28.0	28.0	
Actuated g/C Ratio	0.68	0.68		0.53	0.53		0.12	0.12		0.22	0.22	
Clearance Time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	521	2077		396	1723		62	416		224	684	
v/s Ratio Prot	c0.08	0.20			0.19			0.04		0.02	c0.17	
v/s Ratio Perm	c0.35			0.07			0.04			0.05		
v/c Ratio	0.62	0.29		0.13	0.35		0.37	0.38		0.34	0.79	
Uniform Delay, d1	9.2	8.5		15.2	17.5		52.8	52.9		42.3	48.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.3	0.4		0.7	0.6		3.7	0.6		0.9	5.9	
Delay (s)	11.5	8.8		15.8	18.0		56.6	53.4		43.2	54.1	
Level of Service	B	A		B	B		E	D		D	D	
Approach Delay (s)		9.8			17.9			53.8			52.9	
Approach LOS		A			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	27.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		

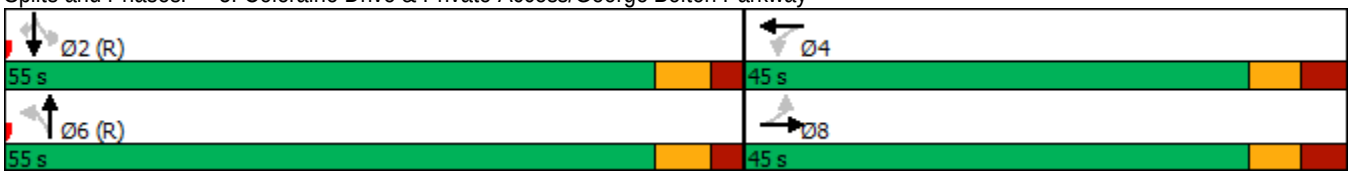
c Critical Lane Group

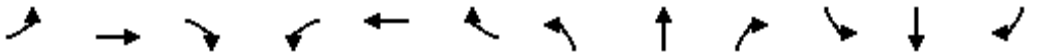
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	4	12	63	23	30	339	84	476	11
Future Volume (vph)	4	12	63	23	30	339	84	476	11
Lane Group Flow (vph)	5	29	73	191	35	506	98	553	13
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		8		4		6		2	
Permitted Phases	8		4		6		2		2
Detector Phase	8	8	4	4	6	6	2	2	2
Switch Phase									
Minimum Initial (s)	8.0	8.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.5	32.5	32.5	32.5	34.2	34.2	33.7	33.7	33.7
Total Split (s)	45.0	45.0	45.0	45.0	55.0	55.0	55.0	55.0	55.0
Total Split (%)	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.2	4.2	4.2	4.2	4.2
All-Red Time (s)	3.5	3.5	3.5	3.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	7.5	7.5	6.7	6.7	6.7	6.7	6.7
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.04	0.15	0.52	0.56	0.08	0.24	0.18	0.25	0.01
Control Delay	35.2	24.0	52.1	15.3	5.6	5.0	6.2	5.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.2	24.0	52.1	15.3	5.6	5.0	6.2	5.6	0.0
Queue Length 50th (m)	0.9	2.6	14.2	5.0	1.7	13.1	5.2	16.4	0.0
Queue Length 95th (m)	3.9	9.7	25.9	21.4	5.7	23.3	13.4	28.2	0.0
Internal Link Dist (m)		152.4		468.8		784.9		1711.9	
Turn Bay Length (m)	70.0		105.0		75.0		100.0		100.0
Base Capacity (vph)	345	486	369	633	458	2127	556	2216	1001
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.06	0.20	0.30	0.08	0.24	0.18	0.25	0.01

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 5: Coleraine Drive & Private Access/George Bolton Parkway





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	12	13	63	23	141	30	339	96	84	476	11
Future Volume (vph)	4	12	13	63	23	141	30	339	96	84	476	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.92		1.00	0.87		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1685	1271		1267	1417		1370	2958		1589	3104	1383
Flt Permitted	0.52	1.00		0.74	1.00		0.45	1.00		0.47	1.00	1.00
Satd. Flow (perm)	921	1271		984	1417		642	2958		779	3104	1383
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	5	14	15	73	27	164	35	394	112	98	553	13
RTOR Reduction (vph)	0	13	0	0	140	0	0	15	0	0	0	4
Lane Group Flow (vph)	5	16	0	73	51	0	35	491	0	98	553	9
Heavy Vehicles (%)	0%	42%	31%	33%	43%	11%	23%	16%	19%	6%	15%	9%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	14.4	14.4		14.4	14.4		71.4	71.4		71.4	71.4	71.4
Effective Green, g (s)	14.4	14.4		14.4	14.4		71.4	71.4		71.4	71.4	71.4
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.71	0.71		0.71	0.71	0.71
Clearance Time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	132	183		141	204		458	2112		556	2216	987
v/s Ratio Prot		0.01			0.04			0.17			c0.18	
v/s Ratio Perm	0.01			c0.07			0.05			0.13		0.01
v/c Ratio	0.04	0.09		0.52	0.25		0.08	0.23		0.18	0.25	0.01
Uniform Delay, d1	36.8	37.1		39.6	38.0		4.3	4.9		4.7	5.0	4.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.1	0.2		3.2	0.6		0.3	0.3		0.7	0.3	0.0
Delay (s)	37.0	37.3		42.8	38.6		4.7	5.2		5.4	5.2	4.1
Level of Service	D	D		D	D		A	A		A	A	A
Approach Delay (s)		37.3			39.8			5.1			5.2	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		

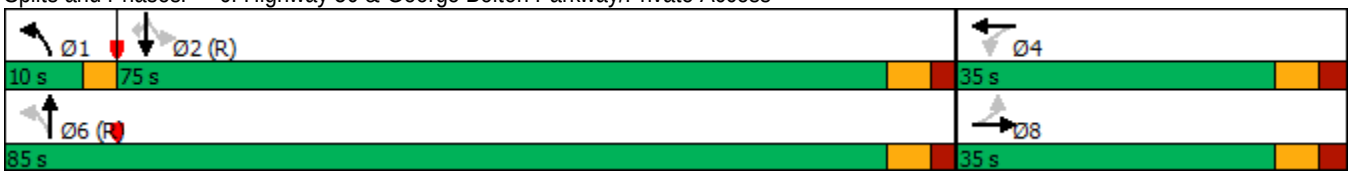
c Critical Lane Group

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	76	0	0	153	886	3	1144	138
Future Volume (vph)	76	0	0	153	886	3	1144	138
Lane Group Flow (vph)	79	108	1	159	923	3	1192	144
Turn Type	Perm	NA	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases		8	4	1	6		2	
Permitted Phases	8			6		2		2
Detector Phase	8	8	4	1	6	2	2	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	5.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.6	32.6	32.6	8.0	27.3	27.3	27.3	27.3
Total Split (s)	35.0	35.0	35.0	10.0	85.0	75.0	75.0	75.0
Total Split (%)	29.2%	29.2%	29.2%	8.3%	70.8%	62.5%	62.5%	62.5%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.6	2.6	0.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	3.0	6.3	6.3	6.3	6.3
Lead/Lag				Lead		Lag	Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.59	0.40	0.00	0.52	0.35	0.01	0.53	0.14
Control Delay	67.3	5.8	0.0	9.2	4.7	9.0	11.8	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.3	5.8	0.0	9.2	4.7	9.0	11.8	2.1
Queue Length 50th (m)	18.9	0.0	0.0	6.7	29.8	0.2	70.3	0.5
Queue Length 95th (m)	34.2	4.3	0.0	15.3	48.3	1.7	114.1	9.1
Internal Link Dist (m)		846.5	43.0		1045.6		1307.8	
Turn Bay Length (m)	85.0			40.0		135.0		60.0
Base Capacity (vph)	286	399	515	306	2655	370	2235	1024
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	0.28	0.27	0.00	0.52	0.35	0.01	0.53	0.14

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 113 (94%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 6: Highway 50 & George Bolton Parkway/Private Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	0	104	0	0	1	153	886	0	3	1144	138
Future Volume (vph)	76	0	104	0	0	1	153	886	0	3	1144	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.6	6.6			6.6		3.0	6.3		6.3	6.3	6.3
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.85			0.86		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1518	1166			1625		1370	3400		1685	3305	1449
Flt Permitted	0.76	1.00			1.00		0.19	1.00		0.31	1.00	1.00
Satd. Flow (perm)	1210	1166			1625		270	3400		549	3305	1449
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	79	0	108	0	0	1	159	923	0	3	1192	144
RTOR Reduction (vph)	0	96	0	0	1	0	0	0	0	0	0	44
Lane Group Flow (vph)	79	12	0	0	0	0	159	923	0	3	1192	100
Heavy Vehicles (%)	11%	0%	37%	0%	0%	0%	23%	5%	0%	0%	8%	4%
Turn Type	Perm	NA			NA		pm+pt	NA		Perm	NA	Perm
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	13.4	13.4			13.4		93.7	93.7		81.1	81.1	81.1
Effective Green, g (s)	13.4	13.4			13.4		93.7	93.7		81.1	81.1	81.1
Actuated g/C Ratio	0.11	0.11			0.11		0.78	0.78		0.68	0.68	0.68
Clearance Time (s)	6.6	6.6			6.6		3.0	6.3		6.3	6.3	6.3
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	135	130			181		298	2654		371	2233	979
v/s Ratio Prot		0.01			0.00		c0.04	0.27			0.36	
v/s Ratio Perm	c0.07						c0.37			0.01		0.07
v/c Ratio	0.59	0.09			0.00		0.53	0.35		0.01	0.53	0.10
Uniform Delay, d1	50.7	47.8			47.4		5.7	4.0		6.3	9.9	6.8
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.3	0.3			0.0		1.8	0.4		0.0	0.9	0.2
Delay (s)	57.0	48.2			47.4		7.5	4.3		6.4	10.8	7.0
Level of Service	E	D			D		A	A		A	B	A
Approach Delay (s)		51.9			47.4			4.8			10.4	
Approach LOS		D			D			A			B	

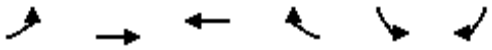
Intersection Summary			
HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.9
Intersection Capacity Utilization	65.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	81	0	0	290
Future Volume (Veh/h)	0	0	81	0	0	290
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)	0	0	81	0	0	290
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	371	81			81	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	371	81			81	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	634	985			1529	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	0	0	81	0	0	290
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.05	0.00	0.00	0.17
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	A				
Approach Delay (s)	0.0		0.0		0.0	
Approach LOS	A					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	18.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	160	815	618	108	33	72
Future Volume (Veh/h)	160	815	618	108	33	72
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)	160	815	618	108	33	72
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			314			
pX, platoon unblocked	0.93				0.93	0.93
vC, conflicting volume	726				1400	363
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	547				1273	155
tC, single (s)	4.2				7.0	7.2
tC, 2 stage (s)						
tF (s)	2.3				3.6	3.4
p0 queue free %	82				70	91
cM capacity (veh/h)	913				112	769

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	160	408	408	412	314	33	72
Volume Left	160	0	0	0	0	33	0
Volume Right	0	0	0	0	108	0	72
cSH	913	1700	1700	1700	1700	112	769
Volume to Capacity	0.18	0.24	0.24	0.24	0.18	0.30	0.09
Queue Length 95th (m)	5.1	0.0	0.0	0.0	0.0	9.0	2.5
Control Delay (s)	9.8	0.0	0.0	0.0	0.0	50.2	10.2
Lane LOS	A					F	B
Approach Delay (s)	1.6			0.0		22.7	
Approach LOS						C	

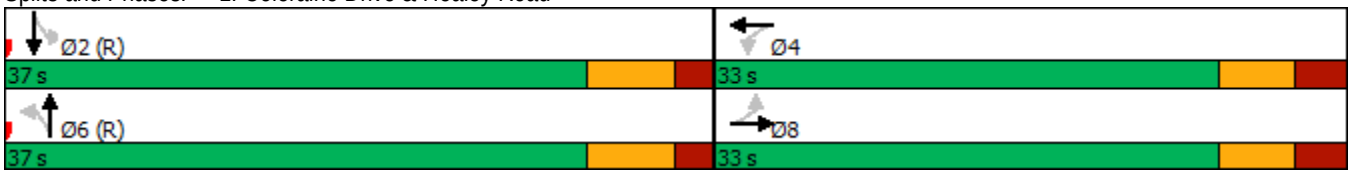
Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	42.7%	ICU Level of Service	A
Analysis Period (min)	15		

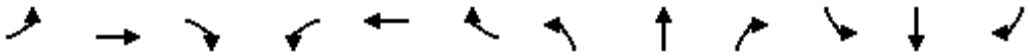
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	117	172	56	312	301	350	47	188
Future Volume (vph)	117	172	56	312	301	350	47	188
Lane Group Flow (vph)	129	352	62	436	331	442	52	283
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	32.8	32.8	32.8	32.8	36.7	36.7	36.7	36.7
Total Split (s)	33.0	33.0	33.0	33.0	37.0	37.0	37.0	37.0
Total Split (%)	47.1%	47.1%	47.1%	47.1%	52.9%	52.9%	52.9%	52.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	2.8	2.8	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.7	6.7	6.7	6.7
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.83	0.62	0.30	0.80	0.65	0.29	0.14	0.19
Control Delay	61.5	20.7	21.2	32.2	22.6	11.0	12.4	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.5	20.7	21.2	32.2	22.6	11.0	12.4	8.2
Queue Length 50th (m)	16.1	31.9	6.4	51.1	32.1	16.5	3.7	7.6
Queue Length 95th (m)	#41.1	52.1	14.8	76.0	#79.7	29.2	11.1	16.1
Internal Link Dist (m)		1349.5		424.0		1711.9		1121.0
Turn Bay Length (m)	55.0		50.0		80.0		155.0	
Base Capacity (vph)	193	689	255	672	512	1513	372	1487
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	0.67	0.51	0.24	0.65	0.65	0.29	0.14	0.19

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 12 (17%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Coleraine Drive & Healey Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	172	148	56	312	85	301	350	52	47	188	69
Future Volume (vph)	117	172	148	56	312	85	301	350	52	47	188	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.8	6.8		6.8	6.8		6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.93		1.00	0.97		1.00	0.98		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1652	1723		1546	1759		1668	2970		1416	2872	
Flt Permitted	0.30	1.00		0.42	1.00		0.58	1.00		0.50	1.00	
Satd. Flow (perm)	518	1723		681	1759		1015	2970		739	2872	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	129	189	163	62	343	93	331	385	57	52	207	76
RTOR Reduction (vph)	0	49	0	0	15	0	0	14	0	0	38	0
Lane Group Flow (vph)	129	303	0	62	421	0	331	428	0	52	245	0
Heavy Vehicles (%)	2%	1%	2%	9%	0%	16%	1%	18%	17%	19%	26%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	21.2	21.2		21.2	21.2		35.3	35.3		35.3	35.3	
Effective Green, g (s)	21.2	21.2		21.2	21.2		35.3	35.3		35.3	35.3	
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.50	0.50		0.50	0.50	
Clearance Time (s)	6.8	6.8		6.8	6.8		6.7	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	156	521		206	532		511	1497		372	1448	
v/s Ratio Prot		0.18			0.24			0.14			0.09	
v/s Ratio Perm	c0.25			0.09			c0.33			0.07		
v/c Ratio	0.83	0.58		0.30	0.79		0.65	0.29		0.14	0.17	
Uniform Delay, d1	22.7	20.6		18.7	22.4		12.8	10.0		9.3	9.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	28.7	1.7		0.8	7.9		6.2	0.5		0.8	0.3	
Delay (s)	51.4	22.3		19.5	30.2		19.0	10.5		10.0	9.7	
Level of Service	D	C		B	C		B	B		B	A	
Approach Delay (s)		30.1			28.9			14.2			9.7	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		

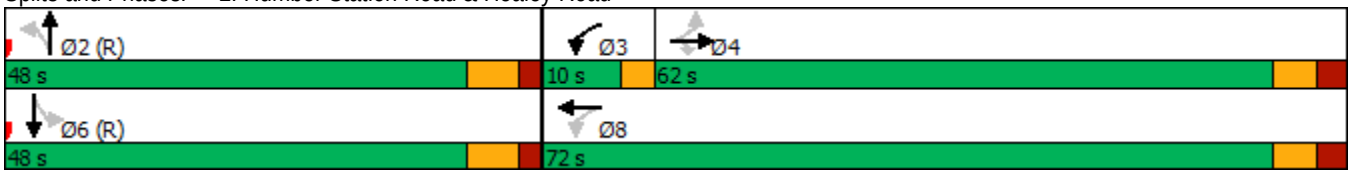
c Critical Lane Group

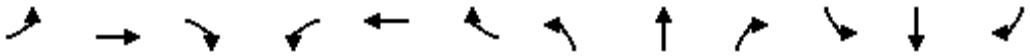
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	21	308	14	34	627	54	206	25	47
Future Volume (vph)	21	308	14	34	627	54	206	25	47
Lane Group Flow (vph)	22	318	14	35	669	56	286	26	54
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		4		3	8		2		6
Permitted Phases	4		4	8		2		6	
Detector Phase	4	4	4	3	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	5.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	24.8	24.8	24.8	9.5	24.8	24.7	24.7	24.7	24.7
Total Split (s)	62.0	62.0	62.0	10.0	72.0	48.0	48.0	48.0	48.0
Total Split (%)	51.7%	51.7%	51.7%	8.3%	60.0%	40.0%	40.0%	40.0%	40.0%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	2.8	0.0	2.8	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.8	3.0	6.8	6.7	6.7	6.7	6.7
Lead/Lag	Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.17	0.44	0.02	0.09	0.82	0.11	0.35	0.06	0.07
Control Delay	26.0	28.7	0.1	14.8	38.0	8.7	7.6	23.5	20.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.0	28.7	0.1	14.8	38.0	8.7	7.6	23.5	20.6
Queue Length 50th (m)	3.7	60.5	0.0	4.5	141.0	2.2	9.4	3.6	6.7
Queue Length 95th (m)	9.4	75.3	0.0	8.6	161.2	m6.0	21.7	11.1	17.1
Internal Link Dist (m)		465.5			1349.5		1464.0		452.2
Turn Bay Length (m)	30.0			60.0		30.0		30.0	
Base Capacity (vph)	155	847	681	401	1004	526	806	411	816
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.38	0.02	0.09	0.67	0.11	0.35	0.06	0.07

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Humber Station Road & Healey Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	308	14	34	627	22	54	206	72	25	47	6
Future Volume (vph)	21	308	14	34	627	22	54	206	72	25	47	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.8	6.8	6.8	3.0	6.8		6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	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	0.99		1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1685	1842	1409	1636	1848		1546	1779		1685	1815	
Flt Permitted	0.19	1.00	1.00	0.43	1.00		0.72	1.00		0.52	1.00	
Satd. Flow (perm)	337	1842	1409	743	1848		1174	1779		918	1815	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	22	318	14	35	646	23	56	212	74	26	48	6
RTOR Reduction (vph)	0	0	9	0	1	0	0	9	0	0	3	0
Lane Group Flow (vph)	22	318	5	35	668	0	56	277	0	26	51	0
Heavy Vehicles (%)	0%	2%	7%	3%	1%	5%	9%	1%	3%	0%	2%	0%
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	46.7	46.7	46.7	53.9	53.9		52.6	52.6		52.6	52.6	
Effective Green, g (s)	46.7	46.7	46.7	53.9	53.9		52.6	52.6		52.6	52.6	
Actuated g/C Ratio	0.39	0.39	0.39	0.45	0.45		0.44	0.44		0.44	0.44	
Clearance Time (s)	6.8	6.8	6.8	3.0	6.8		6.7	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	131	716	548	364	830		514	779		402	795	
v/s Ratio Prot		0.17		0.00	c0.36			c0.16			0.03	
v/s Ratio Perm	0.07		0.00	0.04			0.05			0.03		
v/c Ratio	0.17	0.44	0.01	0.10	0.80		0.11	0.36		0.06	0.06	
Uniform Delay, d1	24.0	27.1	22.5	19.2	28.5		19.9	22.4		19.5	19.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.36	0.28		1.00	1.00	
Incremental Delay, d2	0.6	0.4	0.0	0.1	5.7		0.4	1.1		0.3	0.2	
Delay (s)	24.6	27.5	22.5	19.3	34.2		7.6	7.5		19.8	19.6	
Level of Service	C	C	C	B	C		A	A		B	B	
Approach Delay (s)		27.1			33.5			7.5			19.7	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	25.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	66.4%	ICU Level of Service	C
Analysis Period (min)	15		

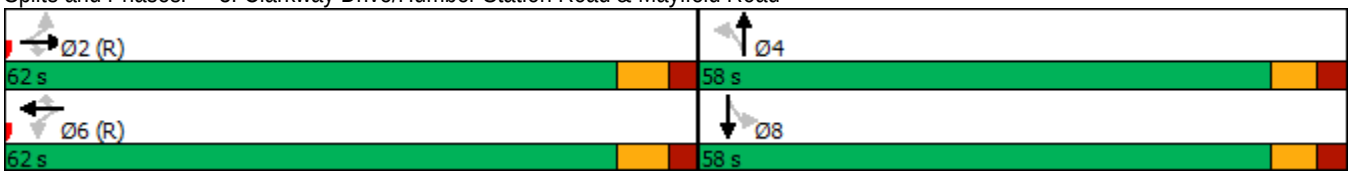
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	10	688	19	135	828	42	59	270	11	65
Future Volume (vph)	10	688	19	135	828	42	59	270	11	65
Lane Group Flow (vph)	10	709	20	139	854	43	61	444	11	79
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		2			6			4		8
Permitted Phases	2		2	6		6	4		8	
Detector Phase	2	2	2	6	6	6	4	4	8	8
Switch Phase										
Minimum Initial (s)	12.0	12.0	12.0	12.0	12.0	12.0	8.0	8.0	8.0	8.0
Minimum Split (s)	27.3	27.3	27.3	27.3	27.3	27.3	26.0	26.0	26.0	26.0
Total Split (s)	62.0	62.0	62.0	62.0	62.0	62.0	58.0	58.0	58.0	58.0
Total Split (%)	51.7%	51.7%	51.7%	51.7%	51.7%	51.7%	48.3%	48.3%	48.3%	48.3%
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.2	4.2	4.2	4.2
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.0	7.0	7.0	7.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None
v/c Ratio	0.04	0.26	0.02	0.40	0.45	0.05	0.19	0.83	0.12	0.16
Control Delay	14.4	13.5	2.1	20.1	16.2	4.5	30.3	50.0	29.5	30.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.4	13.5	2.1	20.1	16.2	4.5	30.3	50.0	29.5	30.2
Queue Length 50th (m)	1.0	29.9	0.0	17.7	59.6	0.0	11.3	96.3	2.4	17.2
Queue Length 95th (m)	4.4	46.0	2.2	42.2	92.2	6.1	20.1	121.7	6.6	25.1
Internal Link Dist (m)		1635.6			198.1			1951.8		1542.4
Turn Bay Length (m)	150.0		105.0	150.0		115.0	75.0		105.0	
Base Capacity (vph)	249	2685	811	348	1885	807	475	756	144	767
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.26	0.02	0.40	0.45	0.05	0.13	0.59	0.08	0.10

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 3: Clarkway Drive/Humber Station Road & Mayfield Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	688	19	135	828	42	59	270	161	11	65	12
Future Volume (vph)	10	688	19	135	828	42	59	270	161	11	65	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1404	4580	1358	1546	3216	1346	1504	1737		1546	1805	
Flt Permitted	0.29	1.00	1.00	0.36	1.00	1.00	0.71	1.00		0.21	1.00	
Satd. Flow (perm)	425	4580	1358	594	3216	1346	1117	1737		339	1805	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	10	709	20	139	854	43	61	278	166	11	67	12
RTOR Reduction (vph)	0	0	8	0	0	18	0	22	0	0	0	0
Lane Group Flow (vph)	10	709	12	139	854	25	61	422	0	11	79	0
Heavy Vehicles (%)	20%	12%	11%	9%	11%	12%	12%	1%	4%	9%	2%	0%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	70.4	70.4	70.4	70.4	70.4	70.4	35.3	35.3		35.3	35.3	
Effective Green, g (s)	70.4	70.4	70.4	70.4	70.4	70.4	35.3	35.3		35.3	35.3	
Actuated g/C Ratio	0.59	0.59	0.59	0.59	0.59	0.59	0.29	0.29		0.29	0.29	
Clearance Time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	249	2686	796	348	1886	789	328	510		99	530	
v/s Ratio Prot		0.15			c0.27			c0.24			0.04	
v/s Ratio Perm	0.02		0.01	0.23		0.02	0.05			0.03		
v/c Ratio	0.04	0.26	0.01	0.40	0.45	0.03	0.19	0.83		0.11	0.15	
Uniform Delay, d1	10.5	12.1	10.3	13.4	14.0	10.4	31.6	39.5		30.9	31.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.97	1.00	
Incremental Delay, d2	0.3	0.2	0.0	3.4	0.8	0.1	0.3	10.6		0.5	0.1	
Delay (s)	10.8	12.4	10.4	16.8	14.7	10.5	31.9	50.1		30.5	31.3	
Level of Service	B	B	B	B	B	B	C	D		C	C	
Approach Delay (s)		12.3			14.8			47.9			31.2	
Approach LOS		B			B			D			C	

Intersection Summary			
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.3
Intersection Capacity Utilization	74.9%	ICU Level of Service	D
Analysis Period (min)	15		

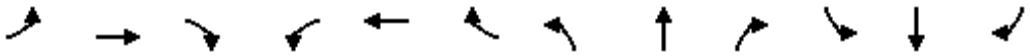
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	229	616	13	592	52	305	52	201
Future Volume (vph)	229	616	13	592	52	305	52	201
Lane Group Flow (vph)	241	679	14	706	55	343	55	486
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases	5	2		6		4	3	8
Permitted Phases	2		6		4		8	
Detector Phase	5	2	6	6	4	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	12.0	12.0	12.0	12.0	12.0	5.0	12.0
Minimum Split (s)	8.0	37.0	37.0	37.0	37.0	37.0	8.0	37.0
Total Split (s)	12.0	80.0	68.0	68.0	36.0	36.0	14.0	50.0
Total Split (%)	9.2%	61.5%	52.3%	52.3%	27.7%	27.7%	10.8%	38.5%
Yellow Time (s)	3.0	4.6	4.6	4.6	4.2	4.2	3.0	4.2
All-Red Time (s)	0.0	2.4	2.4	2.4	2.8	2.8	0.0	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0
Lead/Lag	Lead		Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None	None
v/c Ratio	0.54	0.30	0.04	0.40	0.48	0.71	0.32	0.56
Control Delay	12.7	9.8	18.0	18.9	65.3	60.8	40.1	20.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.7	9.8	18.0	18.9	65.3	60.8	40.1	20.9
Queue Length 50th (m)	22.1	37.7	1.8	57.0	13.9	46.5	11.5	25.9
Queue Length 95th (m)	39.6	55.3	6.1	82.6	27.7	61.0	21.6	41.1
Internal Link Dist (m)		290.4		1003.7		192.7		576.8
Turn Bay Length (m)	100.0		85.0		105.0		145.0	
Base Capacity (vph)	445	2269	356	1770	187	792	187	1187
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	0.54	0.30	0.04	0.40	0.29	0.43	0.29	0.41

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 116 (89%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 4: Coleraine Drive & Mayfield Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	229	616	29	13	592	79	52	305	21	52	201	260
Future Volume (vph)	229	616	29	13	592	79	52	305	21	52	201	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.98		1.00	0.99		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1440	3353		1560	3195		1685	3536		1348	3045	
Flt Permitted	0.33	1.00		0.39	1.00		0.48	1.00		0.32	1.00	
Satd. Flow (perm)	493	3353		646	3195		842	3536		456	3045	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	241	648	31	14	623	83	55	321	22	55	212	274
RTOR Reduction (vph)	0	2	0	0	7	0	0	4	0	0	211	0
Lane Group Flow (vph)	241	677	0	14	699	0	55	339	0	55	275	0
Heavy Vehicles (%)	17%	6%	0%	8%	8%	23%	0%	0%	0%	25%	0%	13%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	5	2			6			4		3	8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	87.4	87.4		71.3	71.3		17.7	17.7		28.6	28.6	
Effective Green, g (s)	87.4	87.4		71.3	71.3		17.7	17.7		28.6	28.6	
Actuated g/C Ratio	0.67	0.67		0.55	0.55		0.14	0.14		0.22	0.22	
Clearance Time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	426	2254		354	1752		114	481		154	669	
v/s Ratio Prot	c0.06	0.20			0.22			c0.10		0.02	c0.09	
v/s Ratio Perm	c0.32			0.02			0.07			0.06		
v/c Ratio	0.57	0.30		0.04	0.40		0.48	0.70		0.36	0.41	
Uniform Delay, d1	9.2	8.7		13.5	17.0		51.9	53.6		41.5	43.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.7	0.3		0.2	0.7		3.2	4.6		1.4	0.4	
Delay (s)	10.9	9.1		13.8	17.6		55.1	58.3		43.0	43.9	
Level of Service	B	A		B	B		E	E		D	D	
Approach Delay (s)		9.6			17.6			57.9			43.8	
Approach LOS		A			B			E			D	

Intersection Summary			
HCM 2000 Control Delay	26.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		

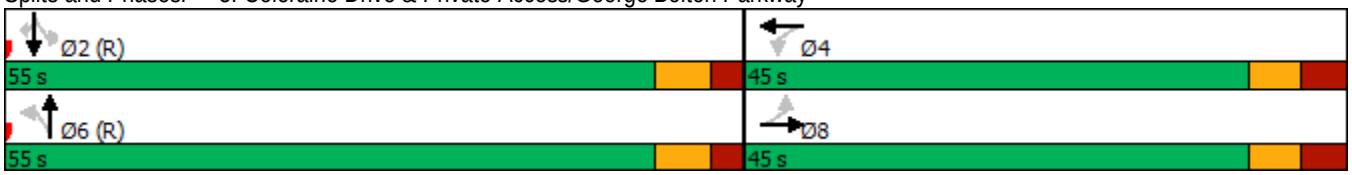
c Critical Lane Group

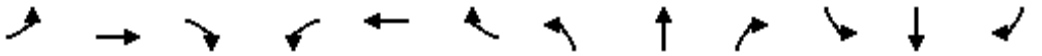
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	7	26	61	9	6	539	145	499	1
Future Volume (vph)	7	26	61	9	6	539	145	499	1
Lane Group Flow (vph)	8	58	73	198	7	733	175	601	1
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		8		4		6		2	
Permitted Phases	8		4		6		2		2
Detector Phase	8	8	4	4	6	6	2	2	2
Switch Phase									
Minimum Initial (s)	8.0	8.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.5	32.5	32.5	32.5	34.2	34.2	33.7	33.7	33.7
Total Split (s)	45.0	45.0	45.0	45.0	55.0	55.0	55.0	55.0	55.0
Total Split (%)	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.2	4.2	4.2	4.2	4.2
All-Red Time (s)	3.5	3.5	3.5	3.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	7.5	7.5	6.7	6.7	6.7	6.7	6.7
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.07	0.24	0.48	0.54	0.02	0.33	0.39	0.26	0.00
Control Delay	37.4	25.7	50.0	12.8	4.8	5.6	8.9	5.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	25.7	50.0	12.8	4.8	5.6	8.9	5.3	0.0
Queue Length 50th (m)	1.5	5.8	14.2	2.0	0.3	21.9	11.0	17.5	0.0
Queue Length 95th (m)	5.3	14.8	24.9	16.8	1.7	33.5	24.8	27.3	0.0
Internal Link Dist (m)		152.4		468.8		784.9		1711.9	
Turn Bay Length (m)	70.0		105.0		75.0		100.0		100.0
Base Capacity (vph)	322	619	423	675	362	2244	449	2280	1101
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.09	0.17	0.29	0.02	0.33	0.39	0.26	0.00

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 5: Coleraine Drive & Private Access/George Bolton Parkway





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	26	22	61	9	155	6	539	70	145	499	1
Future Volume (vph)	7	26	22	61	9	155	6	539	70	145	499	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.93		1.00	0.86		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1685	1608		1491	1491		1123	3102		1604	3159	1507
Flt Permitted	0.49	1.00		0.72	1.00		0.42	1.00		0.37	1.00	1.00
Satd. Flow (perm)	861	1608		1129	1491		502	3102		623	3159	1507
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	8	31	27	73	11	187	7	649	84	175	601	1
RTOR Reduction (vph)	0	23	0	0	162	0	0	5	0	0	0	0
Lane Group Flow (vph)	8	35	0	73	36	0	7	728	0	175	601	1
Heavy Vehicles (%)	0%	4%	14%	13%	11%	8%	50%	13%	14%	5%	13%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	13.6	13.6		13.6	13.6		72.2	72.2		72.2	72.2	72.2
Effective Green, g (s)	13.6	13.6		13.6	13.6		72.2	72.2		72.2	72.2	72.2
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.72	0.72		0.72	0.72	0.72
Clearance Time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	117	218		153	202		362	2239		449	2280	1088
v/s Ratio Prot		0.02			0.02			0.23			0.19	
v/s Ratio Perm	0.01			c0.06			0.01			c0.28		0.00
v/c Ratio	0.07	0.16		0.48	0.18		0.02	0.33		0.39	0.26	0.00
Uniform Delay, d1	37.7	38.1		39.9	38.3		3.9	5.0		5.4	4.8	3.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	0.3		2.3	0.4		0.1	0.4		2.5	0.3	0.0
Delay (s)	37.9	38.5		42.3	38.7		4.0	5.4		7.9	5.1	3.9
Level of Service	D	D		D	D		A	A		A	A	A
Approach Delay (s)		38.4			39.7			5.4			5.7	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	54.6%	ICU Level of Service	A
Analysis Period (min)	15		

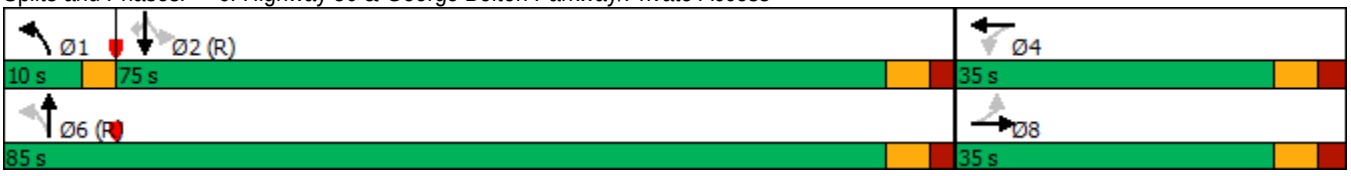
c Critical Lane Group

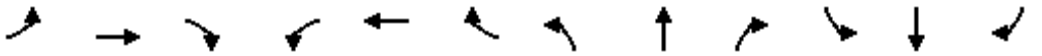
Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	209	0	0	135	1320	1	983	169
Future Volume (vph)	209	0	0	135	1320	1	983	169
Lane Group Flow (vph)	218	201	7	141	1375	1	1024	176
Turn Type	Perm	NA	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases		8	4	1	6		2	
Permitted Phases	8			6		2		2
Detector Phase	8	8	4	1	6	2	2	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	5.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.6	32.6	32.6	8.0	27.3	27.3	27.3	27.3
Total Split (s)	35.0	35.0	35.0	10.0	85.0	75.0	75.0	75.0
Total Split (%)	29.2%	29.2%	29.2%	8.3%	70.8%	62.5%	62.5%	62.5%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.6	2.6	0.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	3.0	6.3	6.3	6.3	6.3
Lead/Lag				Lead		Lag	Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.83	0.47	0.02	0.47	0.58	0.01	0.49	0.19
Control Delay	70.6	9.8	0.1	11.1	11.3	11.0	14.8	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.6	9.8	0.1	11.1	11.3	11.0	14.8	2.2
Queue Length 50th (m)	51.6	1.6	0.0	9.9	85.7	0.1	75.0	0.0
Queue Length 95th (m)	#78.9	21.6	0.0	18.9	116.1	0.9	94.9	9.7
Internal Link Dist (m)		846.5	43.0		1045.6		1307.8	
Turn Bay Length (m)	85.0			40.0		135.0		60.0
Base Capacity (vph)	315	479	434	301	2362	189	2103	945
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	0.69	0.42	0.02	0.47	0.58	0.01	0.49	0.19

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 116 (97%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Highway 50 & George Bolton Parkway/Private Access





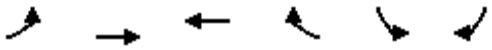
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	209	0	193	0	0	7	135	1320	0	1	983	169
Future Volume (vph)	209	0	193	0	0	7	135	1320	0	1	983	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.6	6.6			6.6		3.0	6.3		6.3	6.3	6.3
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99			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	1.00
Frt	1.00	0.85			0.86		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1685	1405			1625		1404	3400		1685	3466	1444
Flt Permitted	0.75	1.00			1.00		0.22	1.00		0.18	1.00	1.00
Satd. Flow (perm)	1336	1405			1625		321	3400		312	3466	1444
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	218	0	201	0	0	7	141	1375	0	1	1024	176
RTOR Reduction (vph)	0	155	0	0	6	0	0	0	0	0	0	69
Lane Group Flow (vph)	218	46	0	0	1	0	141	1375	0	1	1024	107
Confl. Peds. (#/hr)			2	2			1					1
Heavy Vehicles (%)	0%	0%	12%	0%	0%	0%	20%	5%	0%	0%	3%	2%
Turn Type	Perm	NA			NA		pm+pt	NA		Perm	NA	Perm
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	23.7	23.7			23.7		83.4	83.4		72.8	72.8	72.8
Effective Green, g (s)	23.7	23.7			23.7		83.4	83.4		72.8	72.8	72.8
Actuated g/C Ratio	0.20	0.20			0.20		0.70	0.70		0.61	0.61	0.61
Clearance Time (s)	6.6	6.6			6.6		3.0	6.3		6.3	6.3	6.3
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	263	277			320		291	2363		189	2102	876
v/s Ratio Prot		0.03			0.00		0.03	c0.40			0.30	
v/s Ratio Perm	c0.16						0.30			0.00		0.07
v/c Ratio	0.83	0.17			0.00		0.48	0.58		0.01	0.49	0.12
Uniform Delay, d1	46.2	40.0			38.7		8.0	9.4		9.3	13.2	10.0
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	18.9	0.3			0.0		1.3	1.1		0.1	0.8	0.3
Delay (s)	65.1	40.2			38.7		9.3	10.4		9.4	14.0	10.3
Level of Service	E	D			D		A	B		A	B	B
Approach Delay (s)		53.2			38.7			10.3			13.4	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.9
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	322	0	0	88
Future Volume (Veh/h)	0	0	322	0	0	88
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)	0	0	322	0	0	88
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	410	322			322	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	410	322			322	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	602	724			1249	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	0	0	322	0	0	88
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.19	0.00	0.00	0.05
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	A				
Approach Delay (s)	0.0		0.0		0.0	
Approach LOS	A					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	20.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	85	775	838	57	75	167
Future Volume (Veh/h)	85	775	838	57	75	167
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)	85	775	838	57	75	167
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			314			
pX, platoon unblocked	0.91				0.91	0.91
vC, conflicting volume	895				1424	448
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	675				1259	180
tC, single (s)	4.4				7.1	7.2
tC, 2 stage (s)						
tF (s)	2.3				3.6	3.4
p0 queue free %	89				36	77
cM capacity (veh/h)	757				117	720

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	85	388	388	559	336	75	167
Volume Left	85	0	0	0	0	75	0
Volume Right	0	0	0	0	57	0	167
cSH	757	1700	1700	1700	1700	117	720
Volume to Capacity	0.11	0.23	0.23	0.33	0.20	0.64	0.23
Queue Length 95th (m)	3.0	0.0	0.0	0.0	0.0	26.3	7.2
Control Delay (s)	10.4	0.0	0.0	0.0	0.0	78.9	11.5
Lane LOS	B					F	B
Approach Delay (s)	1.0			0.0		32.4	
Approach LOS						D	

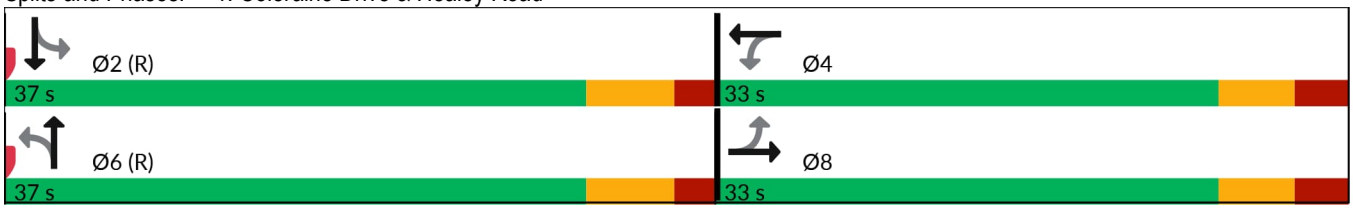
Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	43.8%	ICU Level of Service	A
Analysis Period (min)	15		

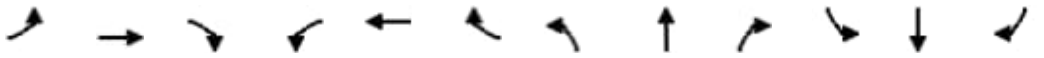
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	162	397	49	149	35	142	64	324
Future Volume (vph)	162	397	49	149	35	142	64	324
Lane Group Flow (vph)	174	687	53	184	38	182	69	522
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	32.8	32.8	32.8	32.8	36.7	36.7	36.7	36.7
Total Split (s)	33.0	33.0	33.0	33.0	37.0	37.0	37.0	37.0
Total Split (%)	47.1%	47.1%	47.1%	47.1%	52.9%	52.9%	52.9%	52.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	2.8	2.8	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.7	6.7	6.7	6.7
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.61	0.69	0.56	0.42	0.08	0.12	0.14	0.29
Control Delay (s/veh)	31.5	19.1	44.0	22.0	10.3	7.9	10.7	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	31.5	19.1	44.0	22.0	10.3	7.9	10.7	7.1
Queue Length 50th (m)	21.5	31.1	6.5	20.0	2.2	4.6	4.1	11.9
Queue Length 95th (m)	34.7	40.3	16.1	31.2	8.4	12.0	13.3	26.6
Internal Link Dist (m)		823.7		424.0		1711.9		1121.0
Turn Bay Length (m)	55.0		50.0		80.0		155.0	
Base Capacity (vph)	416	1366	139	630	436	1476	488	1753
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	0.42	0.50	0.38	0.29	0.09	0.12	0.14	0.30

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 6 (9%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 1: Coleraine Drive & Healey Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	397	242	49	149	22	35	142	27	64	324	162
Future Volume (vph)	162	397	242	49	149	22	35	142	27	64	324	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.8	6.8		6.8	6.8		6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.94		1.00	0.98		1.00	0.97		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1652	3301		1404	1665		1636	2648		1316	3046	
Flt Permitted	0.64	1.00		0.25	1.00		0.45	1.00		0.63	1.00	
Satd. Flow (perm)	1115	3301		372	1665		790	2648		883	3046	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	174	427	260	53	160	24	38	153	29	69	348	174
RTOR Reduction (vph)	0	157	0	0	9	0	0	13	0	0	70	0
Lane Group Flow (vph)	174	530	0	53	175	0	38	169	0	69	452	0
Heavy Vehicles (%)	2%	2%	2%	20%	2%	68%	3%	34%	19%	28%	16%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	17.8	17.8		17.8	17.8		38.7	38.7		38.7	38.7	
Effective Green, g (s)	17.8	17.8		17.8	17.8		38.7	38.7		38.7	38.7	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.55	0.55		0.55	0.55	
Clearance Time (s)	6.8	6.8		6.8	6.8		6.7	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	283	839		94	423		436	1463		488	1684	
v/s Ratio Prot		c0.16			0.11			0.06			c0.15	
v/s Ratio Perm	0.16			0.14			0.05			0.08		
v/c Ratio	0.61	0.63		0.56	0.41		0.08	0.11		0.14	0.26	
Uniform Delay, d1	23.0	23.1		22.7	21.7		7.3	7.4		7.5	8.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.9	1.5		7.5	0.6		0.3	0.1		0.6	0.3	
Delay (s)	27.0	24.7		30.2	22.4		7.7	7.6		8.1	8.6	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s/veh)		25.2			24.1			7.6			8.5	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		

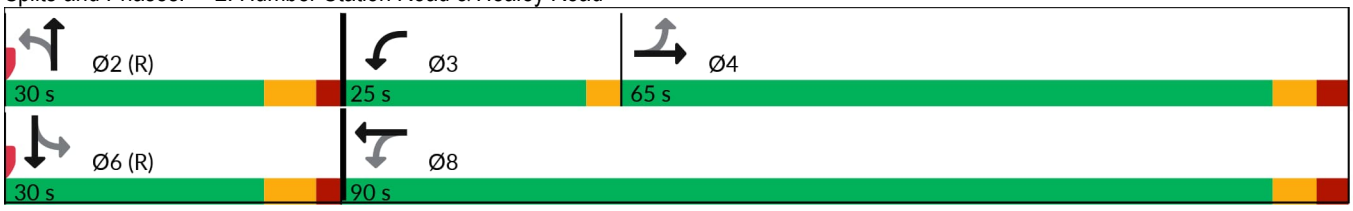
c Critical Lane Group

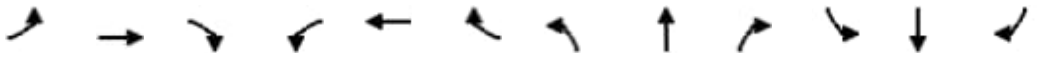
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	4	708	73	320	23	20	79	183
Future Volume (vph)	4	708	73	320	23	20	79	183
Lane Group Flow (vph)	4	799	78	348	25	63	85	201
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		4	3	8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	8.0	8.0	5.0	8.0	8.0	8.0	5.0	5.0
Minimum Split (s)	24.8	24.8	9.5	24.8	24.7	24.7	24.8	24.8
Total Split (s)	65.0	65.0	25.0	90.0	30.0	30.0	30.0	30.0
Total Split (%)	54.2%	54.2%	20.8%	75.0%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	0.0	2.8	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	3.0	6.8	6.7	6.7	6.7	6.7
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.01	0.78	0.36	0.26	0.04	0.03	0.13	0.11
Control Delay (s/veh)	26.7	44.0	23.6	24.6	11.6	2.7	19.7	17.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	26.7	44.0	23.6	24.6	11.6	2.7	19.7	17.8
Queue Length 50th (m)	0.7	94.8	11.4	29.7	2.0	0.2	11.2	13.6
Queue Length 95th (m)	3.2	107.4	18.0	34.7	6.6	2.7	25.1	24.7
Internal Link Dist (m)		465.5		505.1		463.9		452.2
Turn Bay Length (m)	30.0		60.0		30.0		30.0	
Base Capacity (vph)	373	1687	364	2416	516	1623	642	1789
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	0.01	0.47	0.21	0.14	0.05	0.04	0.13	0.11

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 2: Humber Station Road & Healey Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	708	35	73	320	4	23	20	38	79	183	4
Future Volume (vph)	4	708	35	73	320	4	23	20	38	79	183	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.8	6.8		3.0	6.8		6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.99		1.00	0.90		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1348	3473		1668	3485		1546	3160		1685	3525	
Flt Permitted	0.54	1.00		0.14	1.00		0.62	1.00		0.71	1.00	
Satd. Flow (perm)	770	3473		258	3485		1018	3160		1266	3525	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	4	761	38	78	344	4	25	22	41	85	197	4
RTOR Reduction (vph)	0	4	0	0	1	0	0	20	0	0	0	0
Lane Group Flow (vph)	4	795	0	78	347	0	25	43	0	85	201	0
Heavy Vehicles (%)	25%	2%	3%	1%	2%	25%	9%	0%	3%	0%	1%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	35.1	35.1		46.1	46.1		60.4	60.4		60.4	60.4	
Effective Green, g (s)	35.1	35.1		46.1	46.1		60.4	60.4		60.4	60.4	
Actuated g/C Ratio	0.29	0.29		0.38	0.38		0.50	0.50		0.50	0.50	
Clearance Time (s)	6.8	6.8		3.0	6.8		6.7	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	225	1015		193	1338		512	1590		637	1774	
v/s Ratio Prot		c0.23		c0.03	0.10			0.01			0.06	
v/s Ratio Perm	0.01			0.13			0.02			c0.07		
v/c Ratio	0.01	0.78		0.40	0.25		0.04	0.02		0.13	0.11	
Uniform Delay, d1	30.1	38.9		26.1	25.2		15.1	15.0		15.8	15.6	
Progression Factor	1.00	1.00		1.00	1.00		0.58	0.30		1.00	1.00	
Incremental Delay, d2	0.0	4.0		1.3	0.1		0.1	0.0		0.4	0.1	
Delay (s)	30.2	42.9		27.5	25.3		9.1	4.5		16.3	15.8	
Level of Service	C	D		C	C		A	A		B	B	
Approach Delay (s/veh)		42.8			25.7			5.8			15.9	
Approach LOS		D			C			A			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	56.9%	ICU Level of Service	B
Analysis Period (min)	15		

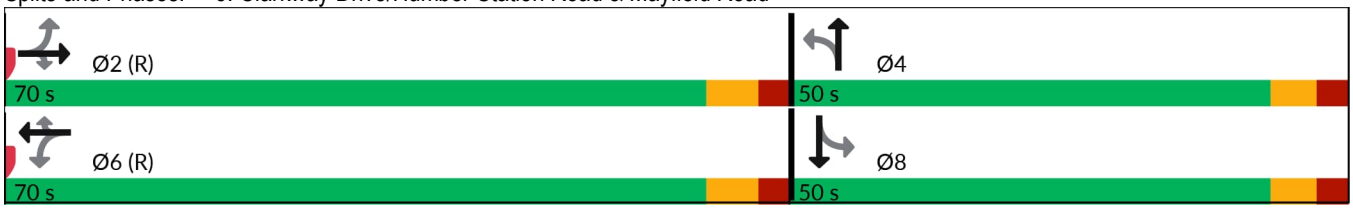
c Critical Lane Group

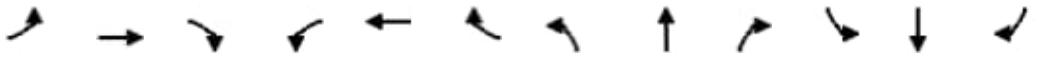
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	8	848	28	102	623	21	11	57	23	272
Future Volume (vph)	8	848	28	102	623	21	11	57	23	272
Lane Group Flow (vph)	8	883	29	106	649	22	11	280	24	291
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		2			6			4		8
Permitted Phases	2		2	6		6	4		8	
Detector Phase	2	2	2	6	6	6	4	4	8	8
Switch Phase										
Minimum Initial (s)	12.0	12.0	12.0	12.0	12.0	12.0	8.0	8.0	8.0	8.0
Minimum Split (s)	27.3	27.3	27.3	27.5	27.5	27.5	26.0	26.0	27.5	27.5
Total Split (s)	70.0	70.0	70.0	70.0	70.0	70.0	50.0	50.0	50.0	50.0
Total Split (%)	58.3%	58.3%	58.3%	58.3%	58.3%	58.3%	41.7%	41.7%	41.7%	41.7%
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.2	4.2	4.2	4.2
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.0	7.0	7.0	7.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None
v/c Ratio	0.01	0.27	0.03	0.28	0.29	0.02	0.09	0.79	0.40	0.51
Control Delay (s/veh)	6.8	6.6	1.9	9.5	6.8	1.1	40.6	43.5	74.5	57.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	6.8	6.6	1.9	9.5	6.8	1.1	40.6	43.5	74.5	57.9
Queue Length 50th (m)	0.5	24.1	0.0	8.0	26.0	0.0	2.4	40.0	5.8	36.7
Queue Length 95th (m)	2.6	40.1	2.9	21.1	43.4	1.6	7.4	66.0	14.9	49.4
Internal Link Dist (m)		1635.6			201.2			1951.8		1542.4
Turn Bay Length (m)	150.0		105.0	150.0		115.0	75.0		105.0	
Base Capacity (vph)	456	3245	880	370	2220	998	270	648	134	1263
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.27	0.03	0.29	0.29	0.02	0.04	0.43	0.18	0.23

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 3: Clarkway Drive/Humber Station Road & Mayfield Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	848	28	102	623	21	11	57	212	23	272	8
Future Volume (vph)	8	848	28	102	623	21	11	57	212	23	272	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.88		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1491	4499	1206	1574	3077	1370	1428	1599		1546	3521	
Flt Permitted	0.40	1.00	1.00	0.30	1.00	1.00	0.50	1.00		0.23	1.00	
Satd. Flow (perm)	632	4499	1206	513	3077	1370	755	1599		376	3521	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	8	883	29	106	649	22	11	59	221	24	283	8
RTOR Reduction (vph)	0	0	8	0	0	6	0	98	0	0	3	0
Lane Group Flow (vph)	8	883	21	106	649	16	11	182	0	24	288	0
Heavy Vehicles (%)	13%	14%	25%	7%	16%	10%	18%	2%	4%	9%	1%	0%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	86.6	86.6	86.6	86.6	86.6	86.6	19.1	19.1		19.1	19.1	
Effective Green, g (s)	86.6	86.6	86.6	86.6	86.6	86.6	19.1	19.1		19.1	19.1	
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72	0.72	0.16	0.16		0.16	0.16	
Clearance Time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	456	3246	870	370	2220	988	120	254		59	560	
v/s Ratio Prot		0.20			c0.21			c0.11			0.08	
v/s Ratio Perm	0.01		0.02	0.21		0.01	0.01			0.06		
v/c Ratio	0.01	0.27	0.02	0.28	0.29	0.01	0.09	0.71		0.40	0.51	
Uniform Delay, d1	4.7	5.7	4.7	5.8	5.8	4.7	43.0	47.8		45.3	46.2	
Progression Factor	1.00	1.00	1.00	0.97	0.97	0.92	1.00	1.00		1.27	1.22	
Incremental Delay, d2	0.0	0.2	0.0	1.9	0.3	0.0	0.3	9.1		4.5	0.8	
Delay (s)	4.7	5.9	4.7	7.6	6.0	4.3	43.3	57.0		62.5	57.4	
Level of Service	A	A	A	A	A	A	D	E		E	E	
Approach Delay (s/veh)		5.9			6.2			56.5			57.8	
Approach LOS		A			A			E			E	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.3
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		

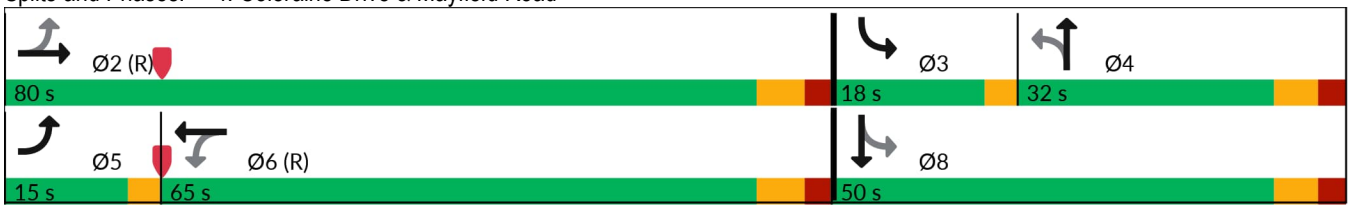
c Critical Lane Group

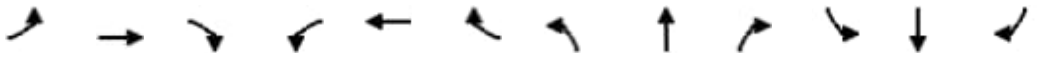
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	329	551	44	552	20	148	67	339
Future Volume (vph)	329	551	44	552	20	148	67	339
Lane Group Flow (vph)	374	683	50	670	23	178	76	626
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases	5	2		6		4	3	8
Permitted Phases	2		6		4		8	
Detector Phase	5	2	6	6	4	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	12.0	12.0	12.0	12.0	12.0	5.0	12.0
Minimum Split (s)	8.0	37.0	37.0	37.0	37.0	37.0	8.0	37.0
Total Split (s)	15.0	80.0	65.0	65.0	32.0	32.0	18.0	50.0
Total Split (%)	11.5%	61.5%	50.0%	50.0%	24.6%	24.6%	13.8%	38.5%
Yellow Time (s)	3.0	4.6	4.6	4.6	4.2	4.2	3.0	4.2
All-Red Time (s)	0.0	2.4	2.4	2.4	2.8	2.8	0.0	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0
Lead/Lag	Lead		Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None	None
v/c Ratio	0.68	0.32	0.14	0.40	0.37	0.42	0.30	0.82
Control Delay (s/veh)	14.9	9.3	21.3	21.9	71.1	55.6	41.0	49.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	14.9	9.3	21.3	21.9	71.1	55.6	41.0	49.2
Queue Length 50th (m)	34.0	35.2	7.2	58.3	5.9	23.7	16.6	71.3
Queue Length 95th (m)	59.4	53.6	16.7	79.2	15.2	34.2	27.6	84.2
Internal Link Dist (m)		290.4		1003.7		791.2		576.8
Turn Bay Length (m)	100.0		85.0		105.0		145.0	
Base Capacity (vph)	546	2112	350	1650	101	680	270	1127
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	0.68	0.32	0.14	0.41	0.23	0.26	0.28	0.56

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 92 (71%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 4: Coleraine Drive & Mayfield Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	329	551	50	44	552	38	20	148	9	67	339	212
Future Volume (vph)	329	551	50	44	552	38	20	148	9	67	339	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.99		1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1574	3095		1685	3267		1532	3518		1452	3180	
Flt Permitted	0.32	1.00		0.39	1.00		0.32	1.00		0.53	1.00	
Satd. Flow (perm)	543	3095		695	3267		527	3518		818	3180	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	374	626	57	50	627	43	23	168	10	76	385	241
RTOR Reduction (vph)	0	4	0	0	4	0	0	4	0	0	89	0
Lane Group Flow (vph)	374	679	0	50	666	0	23	174	0	76	537	0
Heavy Vehicles (%)	7%	15%	2%	0%	7%	26%	10%	0%	11%	16%	0%	15%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	5	2			6			4		3	8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	88.0	88.0		64.9	64.9		15.4	15.4		28.0	28.0	
Effective Green, g (s)	88.0	88.0		64.9	64.9		15.4	15.4		28.0	28.0	
Actuated g/C Ratio	0.68	0.68		0.50	0.50		0.12	0.12		0.22	0.22	
Clearance Time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	526	2095		346	1630		62	416		223	684	
v/s Ratio Prot	c0.11	0.22			0.20			0.05		0.03	c0.17	
v/s Ratio Perm	c0.37			0.07			0.04			0.05		
v/c Ratio	0.71	0.32		0.14	0.40		0.37	0.41		0.34	0.78	
Uniform Delay, d1	10.1	8.6		17.5	20.4		52.8	53.1		42.2	48.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.5	0.4		0.8	0.7		3.7	0.6		0.9	5.9	
Delay (s)	14.6	9.1		18.4	21.2		56.5	53.8		43.1	54.0	
Level of Service	B	A		B	C		E	D		D	D	
Approach Delay (s/veh)		11.0			21.0			54.1			52.9	
Approach LOS		B			C			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	27.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	81.7%	ICU Level of Service	D
Analysis Period (min)	15		

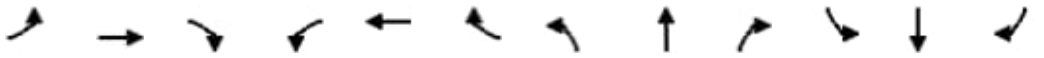
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	4	12	63	23	30	372	84	476	11
Future Volume (vph)	4	12	63	23	30	372	84	476	11
Lane Group Flow (vph)	5	29	73	191	35	545	98	553	13
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		8		4		6		2	
Permitted Phases	8		4		6		2		2
Detector Phase	8	8	4	4	6	6	2	2	2
Switch Phase									
Minimum Initial (s)	8.0	8.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.5	32.5	32.5	32.5	34.2	34.2	33.7	33.7	33.7
Total Split (s)	45.0	45.0	45.0	45.0	55.0	55.0	55.0	55.0	55.0
Total Split (%)	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.2	4.2	4.2	4.2	4.2
All-Red Time (s)	3.5	3.5	3.5	3.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	7.5	7.5	6.7	6.7	6.7	6.7	6.7
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.03	0.14	0.51	0.55	0.07	0.25	0.18	0.24	0.01
Control Delay (s/veh)	35.2	24.0	52.1	15.2	5.6	5.1	6.3	5.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	35.2	24.0	52.1	15.2	5.6	5.1	6.3	5.6	0.0
Queue Length 50th (m)	0.9	2.6	14.2	5.0	1.7	14.6	5.2	16.4	0.0
Queue Length 95th (m)	3.9	9.7	25.9	21.4	5.7	25.7	13.5	28.2	0.0
Internal Link Dist (m)		152.4		468.8		784.9		1711.9	
Turn Bay Length (m)	70.0		105.0		75.0		100.0		100.0
Base Capacity (vph)	345	486	369	633	458	2145	536	2216	1001
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.06	0.20	0.30	0.08	0.25	0.18	0.25	0.01

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 5: Coleraine Drive & Private Access/George Bolton Parkway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	12	13	63	23	141	30	372	96	84	476	11
Future Volume (vph)	4	12	13	63	23	141	30	372	96	84	476	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.92		1.00	0.87		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1685	1271		1267	1417		1370	2987		1589	3104	1383
Flt Permitted	0.51	1.00		0.73	1.00		0.44	1.00		0.44	1.00	1.00
Satd. Flow (perm)	921	1271		984	1417		642	2987		750	3104	1383
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	5	14	15	73	27	164	35	433	112	98	553	13
RTOR Reduction (vph)	0	13	0	0	140	0	0	13	0	0	0	4
Lane Group Flow (vph)	5	16	0	73	51	0	35	532	0	98	553	9
Heavy Vehicles (%)	0%	42%	31%	33%	43%	11%	23%	15%	19%	6%	15%	9%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	14.4	14.4		14.4	14.4		71.4	71.4		71.4	71.4	71.4
Effective Green, g (s)	14.4	14.4		14.4	14.4		71.4	71.4		71.4	71.4	71.4
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.71	0.71		0.71	0.71	0.71
Clearance Time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	132	183		141	204		458	2132		535	2216	987
v/s Ratio Prot		0.01			0.04			0.18			c0.18	
v/s Ratio Perm	0.01			c0.07			0.05			0.13		0.01
v/c Ratio	0.03	0.08		0.51	0.24		0.07	0.24		0.18	0.24	0.00
Uniform Delay, d1	36.8	37.1		39.5	37.9		4.3	4.9		4.7	4.9	4.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.1	0.2		3.1	0.6		0.3	0.2		0.7	0.2	0.0
Delay (s)	36.9	37.3		42.7	38.6		4.6	5.2		5.4	5.2	4.1
Level of Service	D	D		D	D		A	A		A	A	A
Approach Delay (s/veh)		37.2			39.7			5.2			5.2	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		

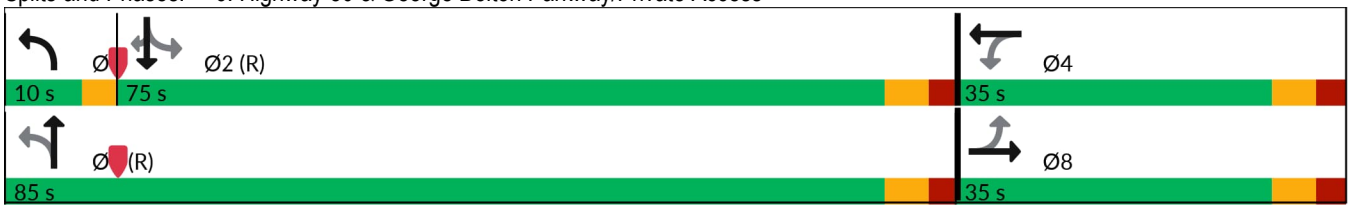
c Critical Lane Group

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	76	0	0	161	933	3	1144	138
Future Volume (vph)	76	0	0	161	933	3	1144	138
Lane Group Flow (vph)	79	108	1	168	972	3	1192	144
Turn Type	Perm	NA	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases		8	4	1	6		2	
Permitted Phases	8			6		2		2
Detector Phase	8	8	4	1	6	2	2	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	5.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.6	32.6	32.6	8.0	27.3	27.3	27.3	27.3
Total Split (s)	35.0	35.0	35.0	10.0	85.0	75.0	75.0	75.0
Total Split (%)	29.2%	29.2%	29.2%	8.3%	70.8%	62.5%	62.5%	62.5%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.6	2.6	0.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	3.0	6.3	6.3	6.3	6.3
Lead/Lag				Lead		Lag	Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.58	0.39	0.00	0.54	0.36	0.00	0.53	0.14
Control Delay (s/veh)	67.3	5.7	0.0	9.5	4.8	9.0	12.1	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	67.3	5.7	0.0	9.5	4.8	9.0	12.1	2.1
Queue Length 50th (m)	18.9	0.0	0.0	7.2	32.0	0.2	71.1	0.5
Queue Length 95th (m)	34.2	4.3	0.0	16.1	51.7	1.7	116.7	9.3
Internal Link Dist (m)		846.5	43.0		1045.6		1307.8	
Turn Bay Length (m)	85.0			40.0		135.0		60.0
Base Capacity (vph)	286	399	502	311	2655	351	2221	1018
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	0.28	0.27	0.00	0.54	0.37	0.01	0.54	0.14

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 113 (94%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 6: Highway 50 & George Bolton Parkway/Private Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	0	104	0	0	1	161	933	0	3	1144	138
Future Volume (vph)	76	0	104	0	0	1	161	933	0	3	1144	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.6	6.6			6.6		3.0	6.3		6.3	6.3	6.3
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.85			0.86		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1518	1166			1625		1381	3400		1685	3305	1449
Flt Permitted	0.75	1.00			1.00		0.18	1.00		0.29	1.00	1.00
Satd. Flow (perm)	1210	1166			1625		271	3400		523	3305	1449
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	79	0	108	0	0	1	168	972	0	3	1192	144
RTOR Reduction (vph)	0	96	0	0	1	0	0	0	0	0	0	45
Lane Group Flow (vph)	79	12	0	0	0	0	168	972	0	3	1192	99
Heavy Vehicles (%)	11%	0%	37%	0%	0%	0%	22%	5%	0%	0%	8%	4%
Turn Type	Perm	NA			NA		pm+pt	NA		Perm	NA	Perm
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	13.4	13.4			13.4		93.7	93.7		80.6	80.6	80.6
Effective Green, g (s)	13.4	13.4			13.4		93.7	93.7		80.6	80.6	80.6
Actuated g/C Ratio	0.11	0.11			0.11		0.78	0.78		0.67	0.67	0.67
Clearance Time (s)	6.6	6.6			6.6		3.0	6.3		6.3	6.3	6.3
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	135	130			181		305	2654		351	2219	973
v/s Ratio Prot		0.01			0.00		c0.05	0.29			0.36	
v/s Ratio Perm	c0.07						c0.38			0.01		0.07
v/c Ratio	0.58	0.09			0.00		0.55	0.36		0.00	0.53	0.10
Uniform Delay, d1	50.6	47.8			47.3		5.8	4.0		6.5	10.1	6.9
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.3	0.3			0.0		2.1	0.3		0.0	0.9	0.2
Delay (s)	56.9	48.1			47.3		8.0	4.4		6.5	11.0	7.1
Level of Service	E	D			D		A	A		A	B	A
Approach Delay (s/veh)		51.8			47.3			4.9			10.6	
Approach LOS		D			D			A			B	

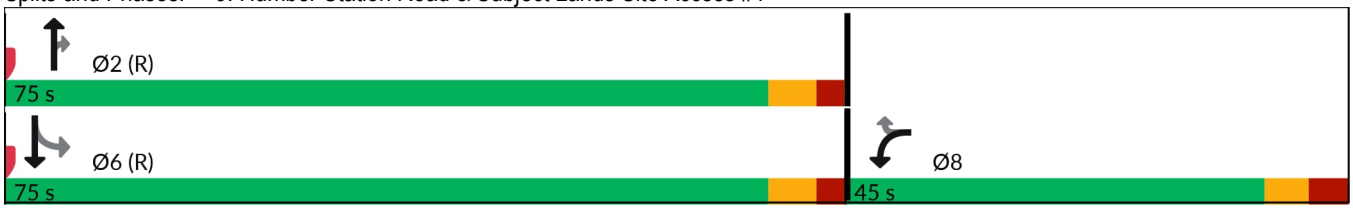
Intersection Summary			
HCM 2000 Control Delay (s/veh)	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.9
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	NBT	SBT	Ø8
Lane Configurations			
Traffic Volume (vph)	86	303	
Future Volume (vph)	86	303	
Lane Group Flow (vph)	86	303	
Turn Type	NA	NA	
Protected Phases	2	6	8
Permitted Phases			
Detector Phase	2	6	
Switch Phase			
Minimum Initial (s)	12.0	12.0	12.0
Minimum Split (s)	32.7	32.7	29.5
Total Split (s)	75.0	75.0	45.0
Total Split (%)	62.5%	62.5%	38%
Yellow Time (s)	4.2	4.2	4.0
All-Red Time (s)	2.5	2.5	3.5
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	6.7	6.7	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	C-Max	C-Max	None
v/c Ratio	0.02	0.08	
Control Delay (s/veh)	0.0	0.0	
Queue Delay	0.0	0.0	
Total Delay (s/veh)	0.0	0.0	
Queue Length 50th (m)	0.0	0.0	
Queue Length 95th (m)	0.0	0.0	
Internal Link Dist (m)	1542.4	460.2	
Turn Bay Length (m)			
Base Capacity (vph)	3400	3535	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.03	0.09	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 9: Humber Station Road & Subject Lands Site Access #1



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	86	0	0	303
Future Volume (vph)	0	0	86	0	0	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.0	3.5	3.0	3.0	3.5
Total Lost time (s)			6.7			6.7
Lane Util. Factor			0.95			0.95
Frt			1.00			1.00
Flt Protected			1.00			1.00
Satd. Flow (prot)			3400			3535
Flt Permitted			1.00			1.00
Satd. Flow (perm)			3400			3535
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	86	0	0	303
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	86	0	0	303
Heavy Vehicles (%)	0%	0%	5%	0%	0%	1%
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Actuated Green, G (s)			120.0			120.0
Effective Green, g (s)			120.0			120.0
Actuated g/C Ratio			1.00			1.00
Clearance Time (s)			6.7			6.7
Vehicle Extension (s)			3.0			3.0
Lane Grp Cap (vph)			3400			3535
v/s Ratio Prot			0.03			c0.09
v/s Ratio Perm						
v/c Ratio			0.02			0.08
Uniform Delay, d1			0.0			0.0
Progression Factor			1.00			1.00
Incremental Delay, d2			0.0			0.0
Delay (s)			0.0			0.0
Level of Service			A			A
Approach Delay (s/veh)	0.0		0.0			0.0
Approach LOS	A		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	0.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.10		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	15.6%	ICU Level of Service	A
Analysis Period (min)	15		

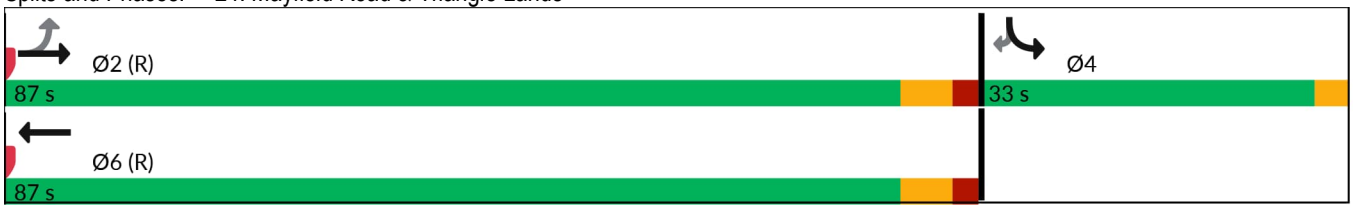
c Critical Lane Group

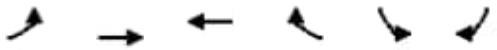
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	160	923	674	33	72
Future Volume (vph)	160	923	674	33	72
Lane Group Flow (vph)	160	923	782	33	72
Turn Type	Perm	NA	NA	Prot	Perm
Protected Phases		2	6	4	
Permitted Phases	2				4
Detector Phase	2	2	6	4	4
Switch Phase					
Minimum Initial (s)	12.0	12.0	12.0	5.0	5.0
Minimum Split (s)	37.0	37.0	37.0	33.0	33.0
Total Split (s)	87.0	87.0	87.0	33.0	33.0
Total Split (%)	72.5%	72.5%	72.5%	27.5%	27.5%
Yellow Time (s)	4.6	4.6	4.6	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	3.0	3.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max	C-Max	None	None
v/c Ratio	0.31	0.29	0.25	0.32	0.45
Control Delay (s/veh)	3.7	1.7	1.8	60.9	21.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	3.7	1.7	1.8	60.9	21.4
Queue Length 50th (m)	4.9	14.5	13.4	8.0	0.0
Queue Length 95th (m)	10.8	21.7	21.6	18.5	14.6
Internal Link Dist (m)		764.7	290.4	250.9	
Turn Bay Length (m)	30.0			30.0	
Base Capacity (vph)	515	3091	3030	376	387
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	0.31	0.30	0.26	0.09	0.19

Intersection Summary

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

Splits and Phases: 24: Mayfield Road & Triangle Lands





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	160	923	674	108	33	72
Future Volume (vph)	160	923	674	108	33	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.0	3.0
Total Lost time (s)	7.0	7.0	7.0		3.0	3.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1574	3535	3462		1504	1334
Flt Permitted	0.35	1.00	1.00		0.95	1.00
Satd. Flow (perm)	589	3535	3462		1504	1334
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	160	923	674	108	33	72
RTOR Reduction (vph)	0	0	5	0	0	68
Lane Group Flow (vph)	160	923	777	0	33	4
Heavy Vehicles (%)	7%	1%	0%	7%	12%	13%
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Actuated Green, G (s)	102.9	102.9	102.9		7.1	7.1
Effective Green, g (s)	102.9	102.9	102.9		7.1	7.1
Actuated g/C Ratio	0.86	0.86	0.86		0.06	0.06
Clearance Time (s)	7.0	7.0	7.0		3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	505	3031	2968		88	78
v/s Ratio Prot		0.26	0.22		c0.02	
v/s Ratio Perm	c0.27					0.00
v/c Ratio	0.31	0.30	0.26		0.37	0.05
Uniform Delay, d1	1.6	1.6	1.5		54.3	53.2
Progression Factor	1.00	0.85	1.00		1.00	1.00
Incremental Delay, d2	1.5	0.2	0.2		2.6	0.2
Delay (s)	3.2	1.6	1.7		56.9	53.5
Level of Service	A	A	A		E	D
Approach Delay (s/veh)		1.9	1.7		54.6	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	4.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	51.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	86	0	0	303
Future Volume (Veh/h)	0	0	86	0	0	303
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)	0	0	86	0	0	303
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	238	43			86	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	238	43			86	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	735	1025			1523	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	0	43	43	0	0	152	152
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.03	0.03	0.00	0.00	0.09	0.09
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	A						
Approach Delay (s/veh)	0.0		0.0			0.0		
Approach LOS	A							

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	11.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	825	0	0	397	0	0
Future Volume (Veh/h)	825	0	0	397	0	0
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)	825	0	0	397	0	0
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			825		1024	413
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			825		1024	413
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			814		235	594

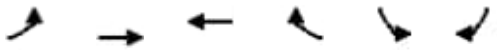
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	550	275	132	265	0	0
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	1700	1700	814	1700	1700	1700
Volume to Capacity	0.32	0.16	0.00	0.16	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS					A	A
Approach Delay (s/veh)	0.0		0.0		0.0	
Approach LOS					A	

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	26.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	86	0	0	303
Future Volume (Veh/h)	0	0	86	0	0	303
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)	0	0	86	0	0	303
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	238	43			86	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	238	43			86	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	735	1025			1523	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	0	43	43	0	0	152	152
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.03	0.03	0.00	0.00	0.09	0.09
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	A						
Approach Delay (s/veh)	0.0		0.0			0.0		
Approach LOS	A							

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	11.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1083	746	0	0	0
Future Volume (Veh/h)	0	1083	746	0	0	0
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)	0	1083	746	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		266				
pX, platoon unblocked					0.92	
vC, conflicting volume	746				1288	373
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	746				1142	373
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	871				182	630

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	0	542	542	497	249	0	0
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.32	0.32	0.29	0.15	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						A	A
Approach Delay (s/veh)	0.0			0.0		0.0	
Approach LOS						A	

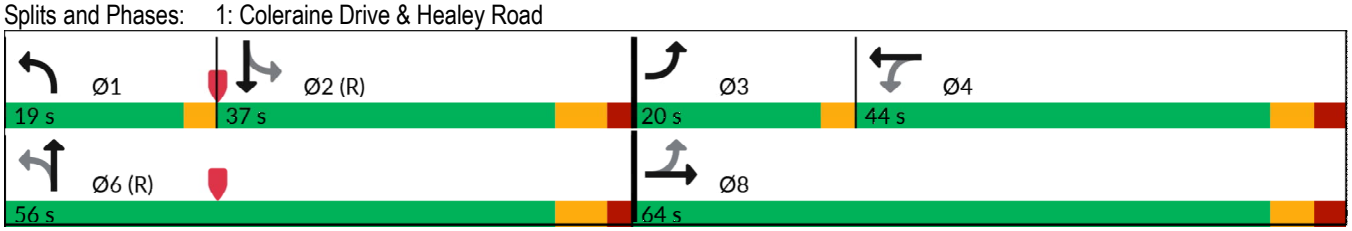
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	33.3%	ICU Level of Service	A
Analysis Period (min)	15		

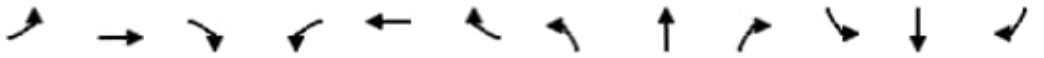
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	135	198	56	379	332	418	47	188
Future Volume (vph)	135	198	56	379	332	418	47	188
Lane Group Flow (vph)	148	381	62	509	365	516	52	283
Turn Type	pm+pt	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases	3	8		4	1	6		2
Permitted Phases	8		4		6		2	
Detector Phase	3	8	4	4	1	6	2	2
Switch Phase								
Minimum Initial (s)	5.0	8.0	8.0	8.0	5.0	8.0	8.0	8.0
Minimum Split (s)	9.5	32.8	32.8	32.8	9.5	36.7	36.7	36.7
Total Split (s)	20.0	64.0	44.0	44.0	19.0	56.0	37.0	37.0
Total Split (%)	16.7%	53.3%	36.7%	36.7%	15.8%	46.7%	30.8%	30.8%
Yellow Time (s)	3.0	4.0	4.0	4.0	3.0	4.6	4.6	4.6
All-Red Time (s)	0.0	2.8	2.8	2.8	0.0	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	6.8	6.8	6.8	3.0	6.7	6.7	6.7
Lead/Lag	Lead		Lag	Lag	Lead		Lag	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max
v/c Ratio	0.58	0.24	0.22	0.89	0.67	0.37	0.26	0.33
Control Delay (s/veh)	23.5	10.2	31.8	57.7	29.9	23.1	40.6	31.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	23.5	10.2	31.8	57.7	29.9	23.1	40.6	31.2
Queue Length 50th (m)	28.3	31.4	10.9	113.6	61.0	44.2	10.5	25.8
Queue Length 95th (m)	42.7	40.2	23.2	#177.9	92.3	61.0	23.0	39.3
Internal Link Dist (m)		823.7		424.0		1711.9		1121.0
Turn Bay Length (m)	55.0		50.0		80.0		155.0	
Base Capacity (vph)	319	1655	279	586	544	1377	196	851
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	0.46	0.23	0.22	0.87	0.67	0.37	0.27	0.33

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, 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: 1: Coleraine Drive & Healey Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	198	148	56	379	85	332	418	52	47	188	69
Future Volume (vph)	135	198	148	56	379	85	332	418	52	47	188	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	3.0	6.8		6.8	6.8		3.0	6.7		6.7	6.7	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.93		1.00	0.97		1.00	0.98		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1668	3294		1546	1775		1668	3047		1416	2872	
Flt Permitted	0.14	1.00		0.52	1.00		0.51	1.00		0.46	1.00	
Satd. Flow (perm)	254	3294		856	1775		905	3047		688	2872	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	148	218	163	62	416	93	365	459	57	52	207	76
RTOR Reduction (vph)	0	92	0	0	7	0	0	7	0	0	30	0
Lane Group Flow (vph)	148	289	0	62	502	0	365	509	0	52	253	0
Heavy Vehicles (%)	1%	1%	2%	9%	0%	16%	1%	15%	17%	19%	26%	1%
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	3	8			4		1	6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	52.5	52.5		38.0	38.0		54.0	54.0		34.3	34.3	
Effective Green, g (s)	52.5	52.5		38.0	38.0		54.0	54.0		34.3	34.3	
Actuated g/C Ratio	0.44	0.44		0.32	0.32		0.45	0.45		0.29	0.29	
Clearance Time (s)	3.0	6.8		6.8	6.8		3.0	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	246	1441		271	562		513	1371		196	820	
v/s Ratio Prot	c0.06	0.09			c0.28		c0.10	0.17			0.09	
v/s Ratio Perm	0.20			0.07			c0.22			0.08		
v/c Ratio	0.60	0.20		0.22	0.89		0.71	0.37		0.26	0.30	
Uniform Delay, d1	24.9	20.8		30.2	39.0		23.7	21.7		33.1	33.5	
Progression Factor	0.80	0.88		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.0	0.0		0.4	16.4		4.6	0.7		3.2	0.9	
Delay (s)	24.2	18.5		30.6	55.5		28.3	22.5		36.3	34.5	
Level of Service	C	B		C	E		C	C		D	C	
Approach Delay (s/veh)		20.1			52.8			24.9			34.8	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	32.2	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)	19.5
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		

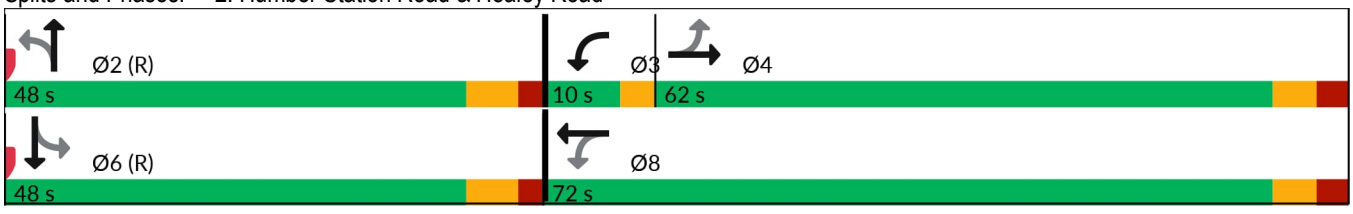
c Critical Lane Group

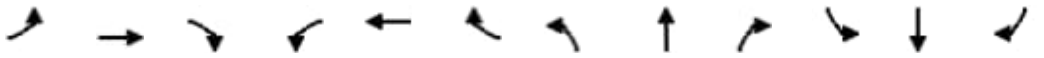
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	21	352	34	756	54	228	25	49
Future Volume (vph)	21	352	34	756	54	228	25	49
Lane Group Flow (vph)	22	377	35	802	56	316	26	57
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		4	3	8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	8.0	8.0	5.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	24.8	24.8	8.0	24.8	24.7	24.7	24.7	24.7
Total Split (s)	62.0	62.0	10.0	72.0	48.0	48.0	48.0	48.0
Total Split (%)	51.7%	51.7%	8.3%	60.0%	40.0%	40.0%	40.0%	40.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	0.0	2.8	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	3.0	6.8	6.7	6.7	6.7	6.7
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.23	0.43	0.12	0.76	0.08	0.15	0.04	0.02
Control Delay (s/veh)	42.9	39.3	18.4	32.7	25.7	24.2	12.7	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	42.9	39.3	18.4	32.7	25.7	24.2	12.7	10.9
Queue Length 50th (m)	4.6	43.2	5.4	76.5	12.6	35.2	2.6	2.6
Queue Length 95th (m)	12.2	53.7	m6.2	m89.6	25.8	49.7	8.0	6.6
Internal Link Dist (m)		465.5		505.1		463.9		452.2
Turn Bay Length (m)	30.0		60.0		30.0		30.0	
Base Capacity (vph)	173	1599	284	1912	690	2016	586	2041
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	0.13	0.24	0.12	0.42	0.08	0.16	0.04	0.03

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Humber Station Road & Healey Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	352	14	34	756	22	54	228	79	25	49	6
Future Volume (vph)	21	352	14	34	756	22	54	228	79	25	49	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.8	6.8		3.0	6.8		6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.99		1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1685	3474		1636	3515		1546	3381		1685	3452	
Flt Permitted	0.21	1.00		0.40	1.00		0.71	1.00		0.56	1.00	
Satd. Flow (perm)	378	3474		703	3515		1168	3381		993	3452	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	22	363	14	35	779	23	56	235	81	26	51	6
RTOR Reduction (vph)	0	3	0	0	3	0	0	18	0	0	3	0
Lane Group Flow (vph)	22	374	0	35	799	0	56	298	0	26	54	0
Heavy Vehicles (%)	0%	2%	7%	3%	1%	5%	9%	1%	3%	0%	2%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	29.6	29.6		36.8	36.8		69.7	69.7		69.7	69.7	
Effective Green, g (s)	29.6	29.6		36.8	36.8		69.7	69.7		69.7	69.7	
Actuated g/C Ratio	0.25	0.25		0.31	0.31		0.58	0.58		0.58	0.58	
Clearance Time (s)	6.8	6.8		3.0	6.8		6.7	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	93	856		248	1077		678	1963		576	2005	
v/s Ratio Prot		0.11		0.00	c0.23			c0.09			0.02	
v/s Ratio Perm	0.06			0.04			0.05			0.03		
v/c Ratio	0.23	0.43		0.14	0.74		0.08	0.15		0.04	0.02	
Uniform Delay, d1	36.1	38.1		29.7	37.3		11.0	11.5		10.8	10.7	
Progression Factor	1.00	1.00		0.70	0.77		2.02	2.32		1.00	1.00	
Incremental Delay, d2	1.3	0.3		0.1	1.9		0.2	0.1		0.1	0.0	
Delay (s)	37.4	38.5		21.1	30.6		22.6	26.9		10.9	10.7	
Level of Service	D	D		C	C		C	C		B	B	
Approach Delay (s/veh)		38.4			30.2			26.3			10.8	
Approach LOS		D			C			C			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	30.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		

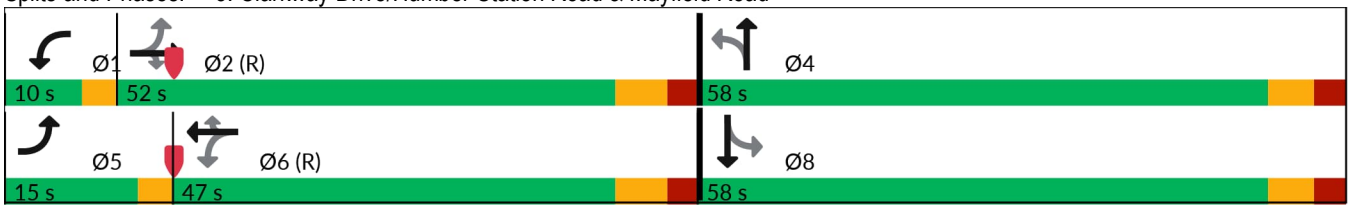
c Critical Lane Group

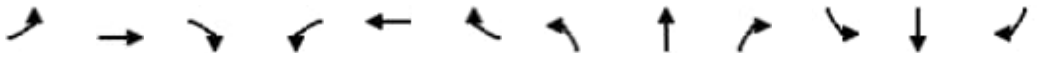
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	10	783	19	135	905	42	59	299	11	68
Future Volume (vph)	10	783	19	135	905	42	59	299	11	68
Lane Group Flow (vph)	10	807	20	139	933	43	61	487	11	82
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			4		8
Permitted Phases	2		2	6		6	4		8	
Detector Phase	5	2	2	1	6	6	4	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	12.0	8.0	8.0	8.0	8.0
Minimum Split (s)	9.5	27.3	27.3	9.5	27.3	27.3	26.0	26.0	26.0	26.0
Total Split (s)	15.0	52.0	52.0	10.0	47.0	47.0	58.0	58.0	58.0	58.0
Total Split (%)	12.5%	43.3%	43.3%	8.3%	39.2%	39.2%	48.3%	48.3%	48.3%	48.3%
Yellow Time (s)	3.0	4.6	4.6	3.0	4.6	4.6	4.2	4.2	4.2	4.2
All-Red Time (s)	0.0	2.7	2.7	0.0	2.7	2.7	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.3	7.3	3.0	7.3	7.3	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
v/c Ratio	0.03	0.37	0.03	0.38	0.52	0.05	0.17	0.84	0.12	0.08
Control Delay (s/veh)	13.5	23.5	0.1	15.7	21.0	0.1	27.8	48.8	31.1	25.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	13.5	23.5	0.1	15.7	21.0	0.1	27.8	48.8	31.1	25.1
Queue Length 50th (m)	1.0	47.9	0.0	14.5	71.9	0.0	10.8	105.7	1.8	6.1
Queue Length 95th (m)	4.1	67.9	0.0	30.4	128.3	0.2	19.1	130.9	5.9	10.8
Internal Link Dist (m)		1635.6			201.2			1951.8		1542.4
Turn Bay Length (m)	150.0		105.0	150.0		115.0	75.0		105.0	
Base Capacity (vph)	337	2132	655	361	1766	773	471	756	132	1478
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.38	0.03	0.39	0.53	0.06	0.13	0.64	0.08	0.06

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 105 (88%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 3: Clarkway Drive/Humber Station Road & Mayfield Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	783	19	135	905	42	59	299	174	11	68	12
Future Volume (vph)	10	783	19	135	905	42	59	299	174	11	68	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	3.0	7.3	7.3	3.0	7.3	7.3	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1404	4663	1358	1546	3245	1346	1504	1739		1546	3462	
Flt Permitted	0.27	1.00	1.00	0.28	1.00	1.00	0.70	1.00		0.19	1.00	
Satd. Flow (perm)	402	4663	1358	465	3245	1346	1110	1739		312	3462	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	10	807	20	139	933	43	61	308	179	11	70	12
RTOR Reduction (vph)	0	0	11	0	0	20	0	20	0	0	8	0
Lane Group Flow (vph)	10	807	9	139	933	23	61	467	0	11	74	0
Heavy Vehicles (%)	20%	10%	11%	9%	10%	12%	12%	1%	4%	9%	1%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	56.3	54.9	54.9	67.3	62.9	62.9	38.4	38.4		38.4	38.4	
Effective Green, g (s)	56.3	54.9	54.9	67.3	62.9	62.9	38.4	38.4		38.4	38.4	
Actuated g/C Ratio	0.47	0.46	0.46	0.56	0.52	0.52	0.32	0.32		0.32	0.32	
Clearance Time (s)	3.0	7.3	7.3	3.0	7.3	7.3	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	200	2133	621	345	1700	705	355	556		99	1107	
v/s Ratio Prot	0.00	0.17		c0.03	c0.29			c0.27			0.02	
v/s Ratio Perm	0.02		0.01	0.19		0.02	0.05			0.04		
v/c Ratio	0.05	0.37	0.01	0.40	0.54	0.03	0.17	0.83		0.11	0.06	
Uniform Delay, d1	17.1	21.3	17.7	13.1	19.0	13.8	29.3	37.9		28.7	28.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.11	1.13	
Incremental Delay, d2	0.1	0.5	0.0	0.7	1.2	0.0	0.2	10.7		0.4	0.0	
Delay (s)	17.2	21.8	17.8	13.8	20.3	13.9	29.5	48.6		32.6	32.2	
Level of Service	B	C	B	B	C	B	C	D		C	C	
Approach Delay (s/veh)		21.7			19.2			46.5			32.2	
Approach LOS		C			B			D			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	26.3	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)	17.3
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		

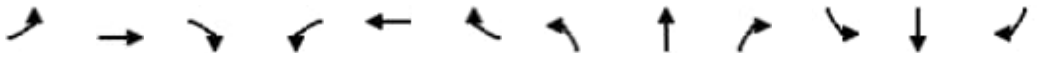
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	259	699	13	647	52	338	52	201
Future Volume (vph)	259	699	13	647	52	338	52	201
Lane Group Flow (vph)	273	767	14	764	55	378	55	486
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases	5	2		6		4	3	8
Permitted Phases	2		6		4		8	
Detector Phase	5	2	6	6	4	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	12.0	12.0	12.0	12.0	12.0	5.0	12.0
Minimum Split (s)	8.0	37.0	37.0	37.0	37.0	37.0	8.0	37.0
Total Split (s)	12.0	80.0	68.0	68.0	36.0	36.0	14.0	50.0
Total Split (%)	9.2%	61.5%	52.3%	52.3%	27.7%	27.7%	10.8%	38.5%
Yellow Time (s)	3.0	4.6	4.6	4.6	4.2	4.2	3.0	4.2
All-Red Time (s)	0.0	2.4	2.4	2.4	2.8	2.8	0.0	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0
Lead/Lag	Lead		Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None	None
v/c Ratio	0.63	0.33	0.04	0.44	0.44	0.72	0.32	0.54
Control Delay (s/veh)	18.9	9.6	19.0	21.0	61.5	60.5	39.3	20.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	18.9	9.6	19.0	21.0	61.5	60.5	39.3	20.1
Queue Length 50th (m)	24.3	41.3	1.9	68.4	13.8	51.4	11.3	25.5
Queue Length 95th (m)	48.8	56.1	6.2	90.8	27.3	66.2	21.2	40.3
Internal Link Dist (m)		290.4		1003.7		791.2		576.8
Turn Bay Length (m)	100.0		85.0		105.0		145.0	
Base Capacity (vph)	429	2258	314	1718	187	792	185	1187
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	0.64	0.34	0.04	0.44	0.29	0.48	0.30	0.41

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 116 (89%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 4: Coleraine Drive & Mayfield Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	259	699	29	13	647	79	52	338	21	52	201	260
Future Volume (vph)	259	699	29	13	647	79	52	338	21	52	201	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.98		1.00	0.99		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1465	3386		1560	3230		1685	3539		1348	3045	
Flt Permitted	0.29	1.00		0.36	1.00		0.47	1.00		0.29	1.00	
Satd. Flow (perm)	451	3386		593	3230		842	3539		415	3045	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	273	736	31	14	681	83	55	356	22	55	212	274
RTOR Reduction (vph)	0	2	0	0	7	0	0	3	0	0	208	0
Lane Group Flow (vph)	273	765	0	14	757	0	55	375	0	55	278	0
Heavy Vehicles (%)	15%	5%	0%	8%	7%	23%	0%	0%	0%	25%	0%	13%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	5	2			6			4		3	8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	86.1	86.1		68.3	68.3		19.0	19.0		29.9	29.9	
Effective Green, g (s)	86.1	86.1		68.3	68.3		19.0	19.0		29.9	29.9	
Actuated g/C Ratio	0.66	0.66		0.53	0.53		0.15	0.15		0.23	0.23	
Clearance Time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	414	2242		311	1696		123	517		152	700	
v/s Ratio Prot	c0.08	0.23			0.23			c0.11		0.02	c0.09	
v/s Ratio Perm	c0.36			0.02			0.07			0.06		
v/c Ratio	0.65	0.34		0.04	0.44		0.44	0.72		0.36	0.39	
Uniform Delay, d1	10.5	9.5		14.9	19.1		50.7	53.0		40.5	42.4	
Progression Factor	1.32	0.89		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.6	0.4		0.2	0.8		2.5	4.9		1.4	0.3	
Delay (s)	17.6	8.9		15.2	19.9		53.2	58.0		42.0	42.7	
Level of Service	B	A		B	B		D	E		D	D	
Approach Delay (s/veh)		11.2			19.8			57.4			42.7	
Approach LOS		B			B			E			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	26.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	79.5%	ICU Level of Service	D
Analysis Period (min)	15		

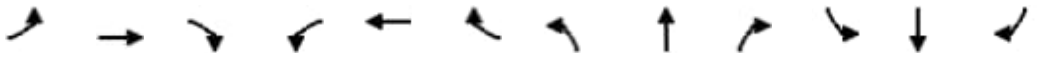
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	7	26	61	9	6	590	145	499	1
Future Volume (vph)	7	26	61	9	6	590	145	499	1
Lane Group Flow (vph)	8	58	73	198	7	795	175	601	1
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		8		4		6		2	
Permitted Phases	8		4		6		2		2
Detector Phase	8	8	4	4	6	6	2	2	2
Switch Phase									
Minimum Initial (s)	8.0	8.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.5	32.5	32.5	32.5	34.2	34.2	33.7	33.7	33.7
Total Split (s)	45.0	45.0	45.0	45.0	55.0	55.0	55.0	55.0	55.0
Total Split (%)	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.2	4.2	4.2	4.2	4.2
All-Red Time (s)	3.5	3.5	3.5	3.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	7.5	7.5	6.7	6.7	6.7	6.7	6.7
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.06	0.23	0.47	0.58	0.01	0.35	0.41	0.26	0.00
Control Delay (s/veh)	37.4	25.7	50.0	18.0	4.8	5.7	9.7	5.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.4	25.7	50.0	18.0	4.8	5.7	9.7	5.3	0.0
Queue Length 50th (m)	1.5	5.8	14.2	7.7	0.3	24.5	11.3	17.5	0.0
Queue Length 95th (m)	5.3	14.8	24.9	23.1	1.7	36.8	26.2	27.3	0.0
Internal Link Dist (m)		152.4		468.8		784.9		1711.9	
Turn Bay Length (m)	70.0		105.0		75.0		100.0		100.0
Base Capacity (vph)	322	619	423	656	362	2264	417	2280	1101
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.09	0.17	0.30	0.02	0.35	0.42	0.26	0.00

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 5: Coleraine Drive & Private Access/George Bolton Parkway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	26	22	61	9	155	6	590	70	145	499	1
Future Volume (vph)	7	26	22	61	9	155	6	590	70	145	499	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.93		1.00	0.85		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1685	1608		1491	1491		1123	3131		1604	3159	1507
Flt Permitted	0.48	1.00		0.71	1.00		0.42	1.00		0.34	1.00	1.00
Satd. Flow (perm)	861	1608		1129	1491		502	3131		579	3159	1507
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	8	31	27	73	11	187	7	711	84	175	601	1
RTOR Reduction (vph)	0	23	0	0	136	0	0	5	0	0	0	0
Lane Group Flow (vph)	8	35	0	73	62	0	7	790	0	175	601	1
Heavy Vehicles (%)	0%	4%	14%	13%	11%	8%	50%	12%	14%	5%	13%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	13.6	13.6		13.6	13.6		72.2	72.2		72.2	72.2	72.2
Effective Green, g (s)	13.6	13.6		13.6	13.6		72.2	72.2		72.2	72.2	72.2
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.72	0.72		0.72	0.72	0.72
Clearance Time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	117	218		153	202		362	2260		418	2280	1088
v/s Ratio Prot		0.02			0.04			0.25			0.19	
v/s Ratio Perm	0.01			c0.06			0.01			c0.30		0.00
v/c Ratio	0.06	0.15		0.47	0.30		0.01	0.34		0.41	0.26	0.00
Uniform Delay, d1	37.6	38.1		39.9	38.9		3.9	5.1		5.5	4.7	3.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	0.3		2.3	0.8		0.0	0.4		3.0	0.2	0.0
Delay (s)	37.9	38.4		42.2	39.8		4.0	5.5		8.6	5.0	3.8
Level of Service	D	D		D	D		A	A		A	A	A
Approach Delay (s/veh)		38.4			40.4			5.5			5.8	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		

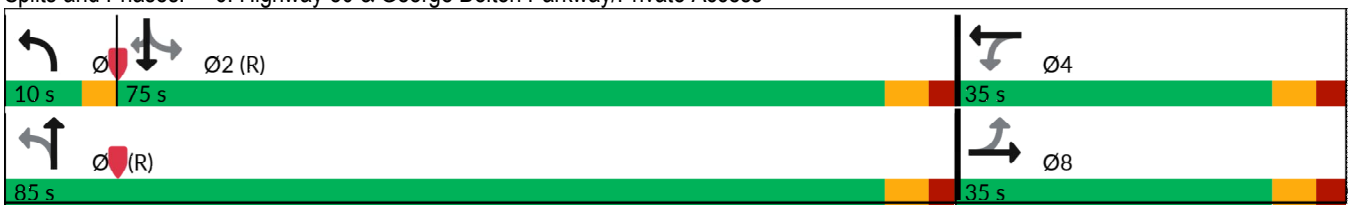
c Critical Lane Group

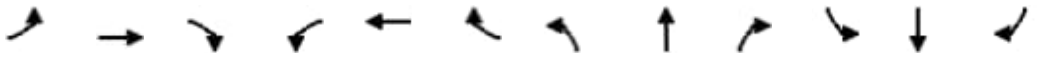
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	209	0	5	0	142	1393	1	988	169
Future Volume (vph)	209	0	5	0	142	1393	1	988	169
Lane Group Flow (vph)	218	201	0	12	148	1451	1	1029	176
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases		8		4	1	6		2	
Permitted Phases	8		4		6		2		2
Detector Phase	8	8	4	4	1	6	2	2	2
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	5.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.6	32.6	32.6	32.6	8.0	27.3	27.3	27.3	27.3
Total Split (s)	35.0	35.0	35.0	35.0	10.0	85.0	75.0	75.0	75.0
Total Split (%)	29.2%	29.2%	29.2%	29.2%	8.3%	70.8%	62.5%	62.5%	62.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.6	2.6	2.6	0.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6		6.6	3.0	6.3	6.3	6.3	6.3
Lead/Lag					Lead		Lag	Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.82	0.46		0.03	0.49	0.60	0.00	0.49	0.18
Control Delay (s/veh)	70.6	9.8		0.1	11.6	11.7	11.0	14.9	2.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	70.6	9.8		0.1	11.6	11.7	11.0	14.9	2.1
Queue Length 50th (m)	51.6	1.8		0.0	10.5	93.7	0.1	76.0	0.0
Queue Length 95th (m)	#79.3	21.8		0.0	19.8	125.8	0.9	95.5	9.7
Internal Link Dist (m)		846.5		43.0		1045.6		1307.8	
Turn Bay Length (m)	85.0				40.0		135.0		60.0
Base Capacity (vph)	314	479		404	302	2383	168	2099	943
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	0.69	0.42		0.03	0.49	0.61	0.01	0.49	0.19

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 116 (97%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Highway 50 & George Bolton Parkway/Private Access





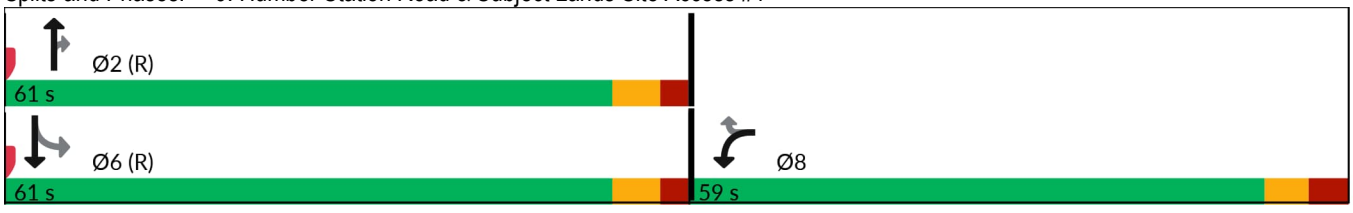
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	209	0	193	5	0	7	142	1393	0	1	988	169
Future Volume (vph)	209	0	193	5	0	7	142	1393	0	1	988	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.6	6.6			6.6		3.0	6.3		6.3	6.3	6.3
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.98			1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00			0.99		0.99	1.00		1.00	1.00	1.00
Frt	1.00	0.85			0.92		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00			0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1685	1405			1694		1416	3433		1685	3466	1444
Flt Permitted	0.74	1.00			0.88		0.21	1.00		0.15	1.00	1.00
Satd. Flow (perm)	1330	1405			1526		321	3433		278	3466	1444
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	218	0	201	5	0	7	148	1451	0	1	1029	176
RTOR Reduction (vph)	0	154	0	0	10	0	0	0	0	0	0	69
Lane Group Flow (vph)	218	47	0	0	2	0	148	1451	0	1	1029	107
Confl. Peds. (#/hr)			2	2			1					1
Heavy Vehicles (%)	0%	0%	12%	0%	0%	0%	19%	4%	0%	0%	3%	2%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	23.8	23.8			23.8		83.3	83.3		72.7	72.7	72.7
Effective Green, g (s)	23.8	23.8			23.8		83.3	83.3		72.7	72.7	72.7
Actuated g/C Ratio	0.20	0.20			0.20		0.69	0.69		0.61	0.61	0.61
Clearance Time (s)	6.6	6.6			6.6		3.0	6.3		6.3	6.3	6.3
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	263	278			302		292	2383		168	2099	874
v/s Ratio Prot		0.03					0.03	c0.42			0.30	
v/s Ratio Perm	c0.16				0.00		0.32			0.00		0.07
v/c Ratio	0.82	0.16			0.00		0.50	0.60		0.00	0.49	0.12
Uniform Delay, d1	46.1	39.9			38.6		8.1	9.7		9.3	13.2	10.0
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	18.9	0.2			0.0		1.3	1.1		0.0	0.8	0.2
Delay (s)	65.0	40.1			38.6		9.5	10.8		9.4	14.0	10.3
Level of Service	E	D			D		A	B		A	B	B
Approach Delay (s/veh)		53.1			38.6			10.7			13.5	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	17.4	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)	15.9
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	NBT	SBT	Ø8
Lane Configurations			
Traffic Volume (vph)	351	91	
Future Volume (vph)	351	91	
Lane Group Flow (vph)	351	91	
Turn Type	NA	NA	
Protected Phases	2	6	8
Permitted Phases			
Detector Phase	2	6	
Switch Phase			
Minimum Initial (s)	12.0	12.0	12.0
Minimum Split (s)	32.7	32.7	29.5
Total Split (s)	61.0	61.0	59.0
Total Split (%)	50.8%	50.8%	49%
Yellow Time (s)	4.2	4.2	4.0
All-Red Time (s)	2.5	2.5	3.5
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	6.7	6.7	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	C-Max	C-Max	None
v/c Ratio	0.10	0.02	
Control Delay (s/veh)	0.0	0.0	
Queue Delay	0.0	0.0	
Total Delay (s/veh)	0.0	0.0	
Queue Length 50th (m)	0.0	0.0	
Queue Length 95th (m)	0.0	0.0	
Internal Link Dist (m)	1542.4	460.2	
Turn Bay Length (m)			
Base Capacity (vph)	3466	3500	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.10	0.03	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 9: Humber Station Road & Subject Lands Site Access #1



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	351	0	0	91
Future Volume (vph)	0	0	351	0	0	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.0	3.5	3.0	3.0	3.5
Total Lost time (s)			6.7			6.7
Lane Util. Factor			0.95			0.95
Frt			1.00			1.00
Flt Protected			1.00			1.00
Satd. Flow (prot)			3466			3500
Flt Permitted			1.00			1.00
Satd. Flow (perm)			3466			3500
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	351	0	0	91
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	351	0	0	91
Heavy Vehicles (%)	0%	0%	3%	0%	0%	2%
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Actuated Green, G (s)			120.0			120.0
Effective Green, g (s)			120.0			120.0
Actuated g/C Ratio			1.00			1.00
Clearance Time (s)			6.7			6.7
Vehicle Extension (s)			3.0			3.0
Lane Grp Cap (vph)			3466			3500
v/s Ratio Prot			c0.10			0.03
v/s Ratio Perm						
v/c Ratio			0.10			0.02
Uniform Delay, d1			0.0			0.0
Progression Factor			1.00			1.00
Incremental Delay, d2			0.0			0.0
Delay (s)			0.0			0.0
Level of Service			A			A
Approach Delay (s/veh)	0.0		0.0			0.0
Approach LOS	A		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	0.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.11		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	15.6%	ICU Level of Service	A
Analysis Period (min)	15		

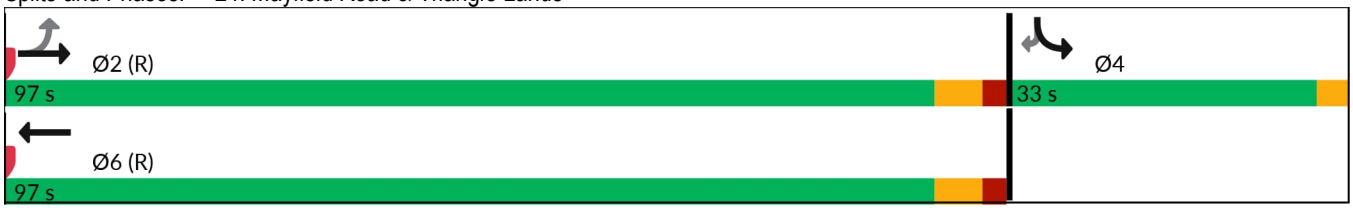
c Critical Lane Group

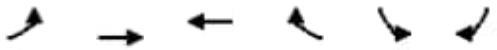
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	85	883	915	75	167
Future Volume (vph)	85	883	915	75	167
Lane Group Flow (vph)	85	883	972	75	167
Turn Type	Perm	NA	NA	Prot	Perm
Protected Phases		2	6	4	
Permitted Phases	2				4
Detector Phase	2	2	6	4	4
Switch Phase					
Minimum Initial (s)	12.0	12.0	12.0	5.0	5.0
Minimum Split (s)	37.0	37.0	37.0	33.0	33.0
Total Split (s)	97.0	97.0	97.0	33.0	33.0
Total Split (%)	74.6%	74.6%	74.6%	25.4%	25.4%
Yellow Time (s)	4.6	4.6	4.6	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	3.0	3.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max	C-Max	None	None
v/c Ratio	0.22	0.30	0.33	0.55	0.61
Control Delay (s/veh)	4.3	2.9	1.2	71.1	17.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	4.3	2.9	1.2	71.1	17.6
Queue Length 50th (m)	3.7	22.0	4.8	19.7	0.0
Queue Length 95th (m)	10.5	35.6	11.6	35.3	21.9
Internal Link Dist (m)		764.7	290.4	250.9	
Turn Bay Length (m)	30.0			30.0	
Base Capacity (vph)	374	2936	2889	338	433
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	0.23	0.30	0.34	0.22	0.39

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 24: Mayfield Road & Triangle Lands





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	85	883	915	57	75	167
Future Volume (vph)	85	883	915	57	75	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.0	3.0
Total Lost time (s)	7.0	7.0	7.0		3.0	3.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1478	3535	3477		1465	1322
Flt Permitted	0.28	1.00	1.00		0.95	1.00
Satd. Flow (perm)	451	3535	3477		1465	1322
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	85	883	915	57	75	167
RTOR Reduction (vph)	0	0	2	0	0	152
Lane Group Flow (vph)	85	883	970	0	75	15
Heavy Vehicles (%)	14%	1%	1%	14%	15%	14%
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Actuated Green, G (s)	108.0	108.0	108.0		12.0	12.0
Effective Green, g (s)	108.0	108.0	108.0		12.0	12.0
Actuated g/C Ratio	0.83	0.83	0.83		0.09	0.09
Clearance Time (s)	7.0	7.0	7.0		3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	374	2936	2888		135	122
v/s Ratio Prot		0.25	c0.28		c0.05	
v/s Ratio Perm	0.19					0.01
v/c Ratio	0.22	0.30	0.33		0.55	0.12
Uniform Delay, d1	2.2	2.4	2.5		56.4	54.1
Progression Factor	1.00	1.00	0.34		1.00	1.00
Incremental Delay, d2	1.4	0.2	0.2		4.8	0.4
Delay (s)	3.7	2.7	1.1		61.3	54.6
Level of Service	A	A	A		E	D
Approach Delay (s/veh)		2.8	1.1		56.7	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	56.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	351	0	0	91
Future Volume (Veh/h)	0	0	351	0	0	91
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)	0	0	351	0	0	91
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	397	176			351	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	397	176			351	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	586	844			1219	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	0	176	176	0	0	46	46
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.10	0.10	0.00	0.00	0.03	0.03
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	A						
Approach Delay (s/veh)	0.0		0.0			0.0		
Approach LOS	A							

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	13.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	456	0	0	812	0	0
Future Volume (Veh/h)	456	0	0	812	0	0
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)	456	0	0	812	0	0
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			456		862	228
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			456		862	228
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1115		298	781

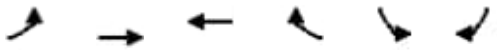
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	304	152	271	541	0	0
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	1700	1700	1115	1700	1700	1700
Volume to Capacity	0.18	0.09	0.00	0.32	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS					A	A
Approach Delay (s/veh)	0.0		0.0		0.0	
Approach LOS					A	

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	25.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	351	0	0	91
Future Volume (Veh/h)	0	0	351	0	0	91
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)	0	0	351	0	0	91
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	397	176			351	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	397	176			351	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	586	844			1219	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	0	176	176	0	0	46	46
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.10	0.10	0.00	0.00	0.03	0.03
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	A						
Approach Delay (s/veh)	0.0		0.0			0.0		
Approach LOS	A							

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	13.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	968	1082	0	0	0
Future Volume (Veh/h)	0	968	1082	0	0	0
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)	0	968	1082	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		266				
pX, platoon unblocked					0.87	
vC, conflicting volume	1082				1566	541
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1082				1346	541
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	652				126	491

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	0	484	484	721	361	0	0
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.28	0.28	0.42	0.21	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						A	A
Approach Delay (s/veh)	0.0			0.0		0.0	
Approach LOS						A	

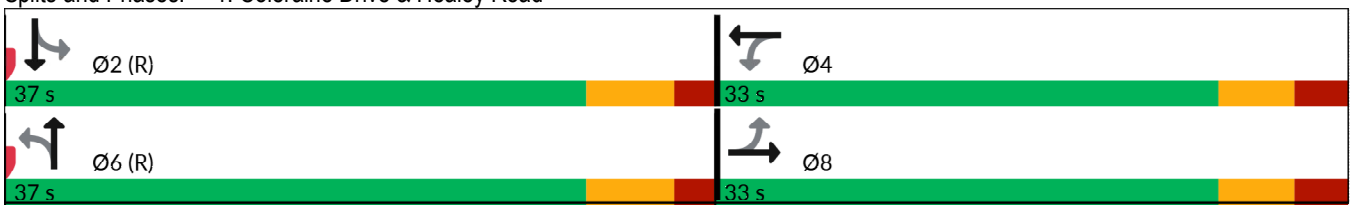
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	33.2%	ICU Level of Service	A
Analysis Period (min)	15		

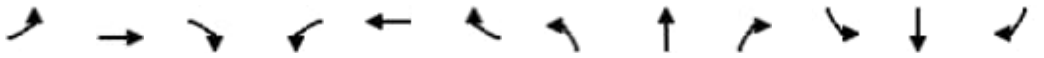
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	219	536	49	221	35	168	64	324
Future Volume (vph)	219	536	49	221	35	168	64	324
Lane Group Flow (vph)	235	836	53	262	38	210	69	522
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	32.8	32.8	32.8	32.8	36.7	36.7	36.7	36.7
Total Split (s)	33.0	33.0	33.0	33.0	37.0	37.0	37.0	37.0
Total Split (%)	47.1%	47.1%	47.1%	47.1%	52.9%	52.9%	52.9%	52.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	2.8	2.8	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.7	6.7	6.7	6.7
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.77	0.73	0.56	0.47	0.09	0.15	0.16	0.32
Control Delay (s/veh)	39.0	22.0	44.4	20.9	12.2	9.7	12.8	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	39.0	22.0	44.4	20.9	12.2	9.7	12.8	8.7
Queue Length 50th (m)	28.3	44.7	5.9	27.2	2.7	6.8	5.1	14.7
Queue Length 95th (m)	#53.4	59.6	#20.3	43.9	8.6	14.0	13.6	27.2
Internal Link Dist (m)		823.7		424.0		1711.9		1121.0
Turn Bay Length (m)	55.0		50.0		80.0		155.0	
Base Capacity (vph)	363	1331	111	652	389	1367	424	1582
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	0.65	0.63	0.48	0.40	0.10	0.15	0.16	0.33

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 3 (4%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Coleraine Drive & Healey Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	219	536	242	49	221	22	35	168	27	64	324	162
Future Volume (vph)	219	536	242	49	221	22	35	168	27	64	324	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.8	6.8		6.8	6.8		6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.95		1.00	0.98		1.00	0.97		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1652	3359		1404	1730		1636	2739		1316	3046	
Flt Permitted	0.55	1.00		0.20	1.00		0.45	1.00		0.62	1.00	
Satd. Flow (perm)	973	3359		299	1730		790	2739		859	3046	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	235	576	260	53	238	24	38	181	29	69	348	174
RTOR Reduction (vph)	0	82	0	0	5	0	0	15	0	0	79	0
Lane Group Flow (vph)	235	754	0	53	257	0	38	195	0	69	443	0
Heavy Vehicles (%)	2%	1%	2%	20%	1%	68%	3%	29%	19%	28%	16%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	21.9	21.9		21.9	21.9		34.6	34.6		34.6	34.6	
Effective Green, g (s)	21.9	21.9		21.9	21.9		34.6	34.6		34.6	34.6	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.49	0.49		0.49	0.49	
Clearance Time (s)	6.8	6.8		6.8	6.8		6.7	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	304	1050		93	541		390	1353		424	1505	
v/s Ratio Prot		0.22			0.15			0.07			c0.15	
v/s Ratio Perm	c0.24			0.18			0.05			0.08		
v/c Ratio	0.77	0.71		0.56	0.47		0.09	0.14		0.16	0.29	
Uniform Delay, d1	21.7	21.3		20.1	19.4		9.4	9.6		9.7	10.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.5	2.3		7.7	0.6		0.4	0.2		0.8	0.4	
Delay (s)	33.3	23.6		27.9	20.0		9.9	9.8		10.5	10.9	
Level of Service	C	C		C	C		A	A		B	B	
Approach Delay (s/veh)		25.8			21.3			9.8			10.9	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		

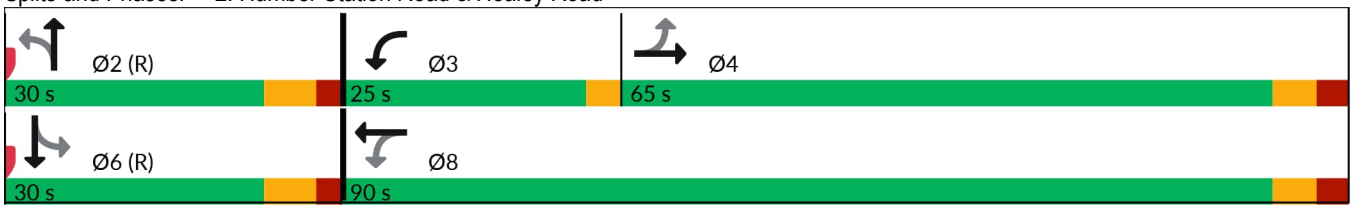
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	4	943	73	469	23	24	78	203
Future Volume (vph)	4	943	73	469	23	24	78	203
Lane Group Flow (vph)	4	1052	78	508	25	75	84	222
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		4	3	8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	8.0	8.0	5.0	8.0	8.0	8.0	5.0	5.0
Minimum Split (s)	24.8	24.8	9.5	24.8	24.7	24.7	24.8	24.8
Total Split (s)	65.0	65.0	25.0	90.0	30.0	30.0	30.0	30.0
Total Split (%)	54.2%	54.2%	20.8%	75.0%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	0.0	2.8	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	3.0	6.8	6.7	6.7	6.7	6.7
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.01	0.80	0.40	0.31	0.05	0.05	0.15	0.14
Control Delay (s/veh)	20.7	38.6	20.1	20.4	9.2	1.6	25.3	23.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	20.7	38.6	20.1	20.4	9.2	1.6	25.3	23.2
Queue Length 50th (m)	0.6	121.1	9.7	39.6	1.3	0.0	12.9	17.6
Queue Length 95th (m)	2.8	132.0	15.1	43.3	7.2	2.7	28.0	30.3
Internal Link Dist (m)		465.5		505.1		463.9		452.2
Turn Bay Length (m)	30.0		60.0		30.0		30.0	
Base Capacity (vph)	320	1706	359	2443	432	1406	542	1544
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	0.01	0.62	0.22	0.21	0.06	0.05	0.15	0.14

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 43 (36%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 2: Humber Station Road & Healey Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	943	35	73	469	4	23	24	46	78	203	4
Future Volume (vph)	4	943	35	73	469	4	23	24	46	78	203	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.8	6.8		3.0	6.8		6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.99		1.00	0.90		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1348	3513		1668	3524		1546	3179		1685	3560	
Flt Permitted	0.46	1.00		0.10	1.00		0.61	1.00		0.70	1.00	
Satd. Flow (perm)	660	3513		179	3524		997	3179		1251	3560	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	4	1014	38	78	504	4	25	26	49	84	218	4
RTOR Reduction (vph)	0	3	0	0	1	0	0	28	0	0	1	0
Lane Group Flow (vph)	4	1049	0	78	507	0	25	47	0	84	221	0
Heavy Vehicles (%)	25%	1%	3%	1%	1%	25%	9%	0%	2%	0%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	44.5	44.5		55.0	55.0		51.5	51.5		51.5	51.5	
Effective Green, g (s)	44.5	44.5		55.0	55.0		51.5	51.5		51.5	51.5	
Actuated g/C Ratio	0.37	0.37		0.46	0.46		0.43	0.43		0.43	0.43	
Clearance Time (s)	6.8	6.8		3.0	6.8		6.7	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	244	1302		175	1615		427	1364		536	1527	
v/s Ratio Prot		c0.30		c0.03	0.14			0.01			0.06	
v/s Ratio Perm	0.01			0.18			0.03			c0.07		
v/c Ratio	0.01	0.80		0.44	0.31		0.05	0.03		0.15	0.14	
Uniform Delay, d1	23.8	33.8		22.8	20.5		20.0	19.8		20.9	20.8	
Progression Factor	1.00	1.00		1.00	1.00		0.36	0.13		1.00	1.00	
Incremental Delay, d2	0.0	3.7		1.8	0.1		0.2	0.0		0.6	0.1	
Delay (s)	23.9	37.6		24.6	20.6		7.5	2.8		21.5	21.0	
Level of Service	C	D		C	C		A	A		C	C	
Approach Delay (s/veh)		37.5			21.2			3.9			21.1	
Approach LOS		D			C			A			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	28.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		

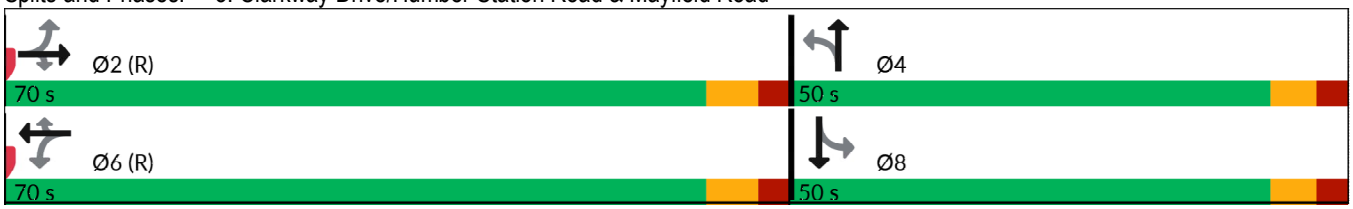
c Critical Lane Group

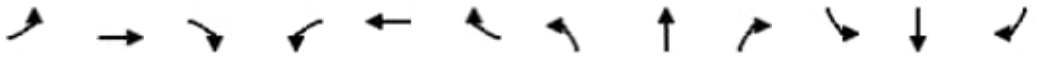
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	8	1878	28	51	751	21	11	70	23	301
Future Volume (vph)	8	1878	28	51	751	21	11	70	23	301
Lane Group Flow (vph)	8	1956	29	53	782	22	11	198	24	322
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		2			6			4		8
Permitted Phases	2		2	6		6	4		8	
Detector Phase	2	2	2	6	6	6	4	4	8	8
Switch Phase										
Minimum Initial (s)	12.0	12.0	12.0	12.0	12.0	12.0	8.0	8.0	8.0	8.0
Minimum Split (s)	27.3	27.3	27.3	27.5	27.5	27.5	26.0	26.0	27.5	27.5
Total Split (s)	70.0	70.0	70.0	70.0	70.0	70.0	50.0	50.0	50.0	50.0
Total Split (%)	58.3%	58.3%	58.3%	58.3%	58.3%	58.3%	41.7%	41.7%	41.7%	41.7%
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.2	4.2	4.2	4.2
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.0	7.0	7.0	7.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None
v/c Ratio	0.02	0.56	0.03	0.56	0.24	0.02	0.09	0.72	0.19	0.55
Control Delay (s/veh)	6.6	9.4	1.8	38.4	5.7	0.8	41.4	60.7	47.4	51.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	6.6	9.4	1.8	38.4	5.7	0.8	41.4	60.7	47.4	51.0
Queue Length 50th (m)	0.5	74.5	0.0	3.6	18.8	0.0	2.4	45.7	5.2	42.1
Queue Length 95th (m)	2.5	108.4	2.8	#33.2	25.1	1.0	7.6	67.4	14.6	56.1
Internal Link Dist (m)		1635.6			245.9			1187.5		1542.4
Turn Bay Length (m)	150.0		105.0	150.0		115.0			105.0	
Base Capacity (vph)	387	3471	875	94	3228	993	247	592	267	1262
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.56	0.03	0.56	0.24	0.02	0.04	0.33	0.09	0.26

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 36 (30%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Clarkway Drive/Humber Station Road & Mayfield Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	1878	28	51	751	21	11	70	120	23	301	8
Future Volume (vph)	8	1878	28	51	751	21	11	70	120	23	301	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1491	4839	1206	1532	4499	1370	1428	1643		1546	3522	
Flt Permitted	0.34	1.00	1.00	0.08	1.00	1.00	0.45	1.00		0.45	1.00	
Satd. Flow (perm)	539	4839	1206	132	4499	1370	690	1643		746	3522	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	8	1956	29	53	782	22	11	73	125	24	314	8
RTOR Reduction (vph)	0	0	8	0	0	6	0	5	0	0	2	0
Lane Group Flow (vph)	8	1956	21	53	782	16	11	193	0	24	320	0
Heavy Vehicles (%)	13%	6%	25%	10%	14%	10%	18%	1%	5%	9%	1%	0%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	86.1	86.1	86.1	86.1	86.1	86.1	19.6	19.6		19.6	19.6	
Effective Green, g (s)	86.1	86.1	86.1	86.1	86.1	86.1	19.6	19.6		19.6	19.6	
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72	0.72	0.16	0.16		0.16	0.16	
Clearance Time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	386	3471	865	94	3228	982	112	268		121	575	
v/s Ratio Prot		c0.40			0.17			c0.12			0.09	
v/s Ratio Perm	0.01		0.02	0.40		0.01	0.02			0.03		
v/c Ratio	0.02	0.56	0.02	0.56	0.24	0.01	0.09	0.72		0.19	0.55	
Uniform Delay, d1	4.8	8.0	4.8	8.0	5.7	4.8	42.6	47.5		43.4	46.2	
Progression Factor	1.00	1.00	1.00	1.00	0.88	0.72	1.00	1.00		1.06	1.04	
Incremental Delay, d2	0.0	0.6	0.0	21.9	0.1	0.0	0.3	9.1		0.8	1.1	
Delay (s)	4.9	8.7	4.9	30.0	5.3	3.5	43.0	56.7		47.1	49.5	
Level of Service	A	A	A	C	A	A	D	E		D	D	
Approach Delay (s/veh)		8.6			6.8			56.0			49.3	
Approach LOS		A			A			E			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.3
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		

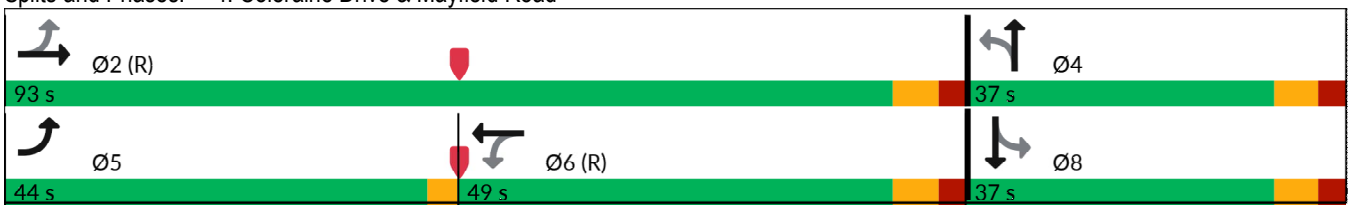
c Critical Lane Group

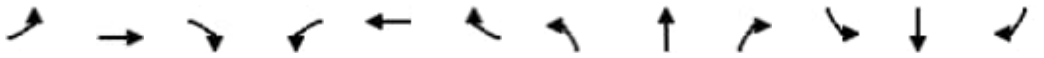
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	439	709	44	812	10	180	67	339
Future Volume (vph)	439	709	44	812	10	180	67	339
Lane Group Flow (vph)	499	834	50	965	11	215	76	626
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	5	2		6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	5	2	6	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	5.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	8.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (s)	44.0	93.0	49.0	49.0	37.0	37.0	37.0	37.0
Total Split (%)	33.8%	71.5%	37.7%	37.7%	28.5%	28.5%	28.5%	28.5%
Yellow Time (s)	3.0	4.6	4.6	4.6	4.2	4.2	4.2	4.2
All-Red Time (s)	0.0	2.4	2.4	2.4	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
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	0.88	0.26	0.23	0.76	0.22	0.29	0.39	0.86
Control Delay (s/veh)	45.8	8.1	35.2	41.7	54.5	43.6	50.4	54.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	45.8	8.1	35.2	41.7	54.5	43.6	50.4	54.6
Queue Length 50th (m)	94.2	28.9	9.7	126.4	2.5	25.5	17.8	73.3
Queue Length 95th (m)	#149.6	36.8	21.5	#154.2	8.6	35.7	32.4	91.3
Internal Link Dist (m)		290.4		195.1		791.2		576.8
Turn Bay Length (m)	100.0		85.0		105.0		145.0	
Base Capacity (vph)	601	3177	217	1262	54	816	217	809
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	0.26	0.23	0.76	0.20	0.26	0.35	0.77

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 92 (71%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
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: 4: Coleraine Drive & Mayfield Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	439	709	25	44	812	37	10	180	9	67	339	212
Future Volume (vph)	439	709	25	44	812	37	10	180	9	67	339	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	3.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.91		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.99		1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1604	4608		1685	3347		1404	3527		1452	3180	
Flt Permitted	0.13	1.00		0.32	1.00		0.15	1.00		0.61	1.00	
Satd. Flow (perm)	233	4608		578	3347		236	3527		944	3180	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	499	806	28	50	923	42	11	205	10	76	385	241
RTOR Reduction (vph)	0	2	0	0	2	0	0	2	0	0	79	0
Lane Group Flow (vph)	499	832	0	50	963	0	11	213	0	76	547	0
Heavy Vehicles (%)	5%	11%	4%	0%	5%	27%	20%	0%	11%	16%	0%	15%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	89.6	89.6		49.0	49.0		26.4	26.4		26.4	26.4	
Effective Green, g (s)	89.6	89.6		49.0	49.0		26.4	26.4		26.4	26.4	
Actuated g/C Ratio	0.69	0.69		0.38	0.38		0.20	0.20		0.20	0.20	
Clearance Time (s)	3.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	557	3175		217	1261		47	716		191	645	
v/s Ratio Prot	c0.26	0.18			0.29			0.06			c0.17	
v/s Ratio Perm	c0.36			0.09			0.05			0.08		
v/c Ratio	0.89	0.26		0.23	0.76		0.23	0.29		0.39	0.84	
Uniform Delay, d1	31.1	7.6		27.6	35.4		43.3	43.9		44.9	49.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	16.8	0.2		2.4	4.4		2.5	0.2		1.3	10.1	
Delay (s)	47.9	7.8		30.1	39.8		45.8	44.1		46.2	59.9	
Level of Service	D	A		C	D		D	D		D	E	
Approach Delay (s/veh)		22.8			39.3			44.2			58.4	
Approach LOS		C			D			D			E	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	37.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	94.9%	ICU Level of Service	F
Analysis Period (min)	15		

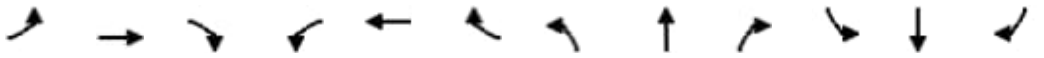
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	4	12	63	23	30	446	84	476	11
Future Volume (vph)	4	12	63	23	30	446	84	476	11
Lane Group Flow (vph)	5	29	73	191	35	631	98	553	13
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		8		4		6		2	
Permitted Phases	8		4		6		2		2
Detector Phase	8	8	4	4	6	6	2	2	2
Switch Phase									
Minimum Initial (s)	8.0	8.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.5	32.5	32.5	32.5	34.2	34.2	33.7	33.7	33.7
Total Split (s)	45.0	45.0	45.0	45.0	55.0	55.0	55.0	55.0	55.0
Total Split (%)	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.2	4.2	4.2	4.2	4.2
All-Red Time (s)	3.5	3.5	3.5	3.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	7.5	7.5	6.7	6.7	6.7	6.7	6.7
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.03	0.14	0.51	0.55	0.07	0.28	0.19	0.24	0.01
Control Delay (s/veh)	35.2	24.0	52.1	15.2	5.6	5.5	6.5	5.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	35.2	24.0	52.1	15.2	5.6	5.5	6.5	5.6	0.0
Queue Length 50th (m)	0.9	2.6	14.2	5.0	1.7	18.1	5.3	16.4	0.0
Queue Length 95th (m)	3.9	9.7	25.9	21.4	5.7	30.9	13.9	28.2	0.0
Internal Link Dist (m)		152.4		468.8		784.9		1711.9	
Turn Bay Length (m)	70.0		105.0		75.0		100.0		100.0
Base Capacity (vph)	345	486	369	633	458	2199	491	2216	1001
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.06	0.20	0.30	0.08	0.29	0.20	0.25	0.01

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 5: Coleraine Drive & Private Access/George Bolton Parkway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	12	13	63	23	141	30	446	96	84	476	11
Future Volume (vph)	4	12	13	63	23	141	30	446	96	84	476	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.92		1.00	0.87		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1685	1271		1267	1417		1370	3068		1589	3104	1383
Flt Permitted	0.51	1.00		0.73	1.00		0.44	1.00		0.41	1.00	1.00
Satd. Flow (perm)	921	1271		984	1417		642	3068		690	3104	1383
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	5	14	15	73	27	164	35	519	112	98	553	13
RTOR Reduction (vph)	0	13	0	0	140	0	0	10	0	0	0	4
Lane Group Flow (vph)	5	16	0	73	51	0	35	621	0	98	553	9
Heavy Vehicles (%)	0%	42%	31%	33%	43%	11%	23%	12%	19%	6%	15%	9%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	14.4	14.4		14.4	14.4		71.4	71.4		71.4	71.4	71.4
Effective Green, g (s)	14.4	14.4		14.4	14.4		71.4	71.4		71.4	71.4	71.4
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.71	0.71		0.71	0.71	0.71
Clearance Time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	132	183		141	204		458	2190		492	2216	987
v/s Ratio Prot		0.01			0.04			c0.20			0.18	
v/s Ratio Perm	0.01			c0.07			0.05			0.14		0.01
v/c Ratio	0.03	0.08		0.51	0.24		0.07	0.28		0.19	0.24	0.00
Uniform Delay, d1	36.8	37.1		39.5	37.9		4.3	5.1		4.7	4.9	4.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.1	0.2		3.1	0.6		0.3	0.3		0.9	0.2	0.0
Delay (s)	36.9	37.3		42.7	38.6		4.6	5.4		5.6	5.2	4.1
Level of Service	D	D		D	D		A	A		A	A	A
Approach Delay (s/veh)		37.2			39.7			5.4			5.2	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	53.0%	ICU Level of Service	A
Analysis Period (min)	15		

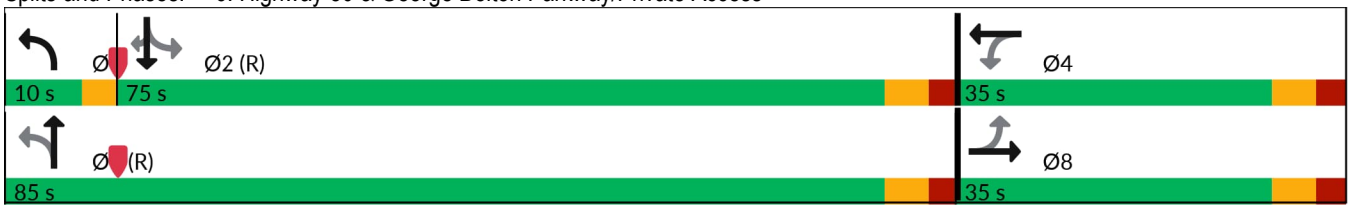
c Critical Lane Group

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	76	0	0	178	1030	3	1144	138
Future Volume (vph)	76	0	0	178	1030	3	1144	138
Lane Group Flow (vph)	79	108	1	185	1073	3	1192	144
Turn Type	Perm	NA	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases		8	4	1	6		2	
Permitted Phases	8			6		2		2
Detector Phase	8	8	4	1	6	2	2	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	5.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.6	32.6	32.6	8.0	27.3	27.3	27.3	27.3
Total Split (s)	35.0	35.0	35.0	10.0	85.0	75.0	75.0	75.0
Total Split (%)	29.2%	29.2%	29.2%	8.3%	70.8%	62.5%	62.5%	62.5%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.6	2.6	0.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	3.0	6.3	6.3	6.3	6.3
Lead/Lag				Lead		Lag	Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.58	0.39	0.00	0.56	0.40	0.00	0.54	0.14
Control Delay (s/veh)	67.3	5.7	0.0	10.5	5.0	9.6	12.8	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	67.3	5.7	0.0	10.5	5.0	9.6	12.8	2.3
Queue Length 50th (m)	18.9	0.0	0.0	8.0	36.6	0.2	73.5	0.5
Queue Length 95th (m)	34.2	4.3	0.0	18.6	58.9	1.8	121.1	9.6
Internal Link Dist (m)		846.5	43.0		1045.6		1307.8	
Turn Bay Length (m)	85.0			40.0		135.0		60.0
Base Capacity (vph)	286	399	480	325	2681	313	2190	1006
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	0.28	0.27	0.00	0.57	0.40	0.01	0.54	0.14

Intersection Summary

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

Splits and Phases: 6: Highway 50 & George Bolton Parkway/Private Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	0	104	0	0	1	178	1030	0	3	1144	138
Future Volume (vph)	76	0	104	0	0	1	178	1030	0	3	1144	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.6	6.6			6.6		3.0	6.3		6.3	6.3	6.3
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.85			0.86		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1518	1166			1625		1404	3433		1685	3305	1449
Flt Permitted	0.75	1.00			1.00		0.18	1.00		0.26	1.00	1.00
Satd. Flow (perm)	1210	1166			1625		272	3433		473	3305	1449
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	79	0	108	0	0	1	185	1073	0	3	1192	144
RTOR Reduction (vph)	0	96	0	0	1	0	0	0	0	0	0	46
Lane Group Flow (vph)	79	12	0	0	0	0	185	1073	0	3	1192	98
Heavy Vehicles (%)	11%	0%	37%	0%	0%	0%	20%	4%	0%	0%	8%	4%
Turn Type	Perm	NA			NA		pm+pt	NA		Perm	NA	Perm
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	13.4	13.4			13.4		93.7	93.7		79.5	79.5	79.5
Effective Green, g (s)	13.4	13.4			13.4		93.7	93.7		79.5	79.5	79.5
Actuated g/C Ratio	0.11	0.11			0.11		0.78	0.78		0.66	0.66	0.66
Clearance Time (s)	6.6	6.6			6.6		3.0	6.3		6.3	6.3	6.3
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	135	130			181		318	2680		313	2189	959
v/s Ratio Prot		0.01			0.00		c0.05	0.31			0.36	
v/s Ratio Perm	c0.07						c0.40			0.01		0.07
v/c Ratio	0.58	0.09			0.00		0.58	0.40		0.00	0.54	0.10
Uniform Delay, d1	50.6	47.8			47.3		6.3	4.1		6.8	10.6	7.3
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.3	0.3			0.0		2.7	0.4		0.0	0.9	0.2
Delay (s)	56.9	48.1			47.3		9.0	4.6		6.9	11.6	7.5
Level of Service	E	D			D		A	A		A	B	A
Approach Delay (s/veh)		51.8			47.3			5.2			11.2	
Approach LOS		D			D			A			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.9
Intersection Capacity Utilization	66.4%	ICU Level of Service	C
Analysis Period (min)	15		

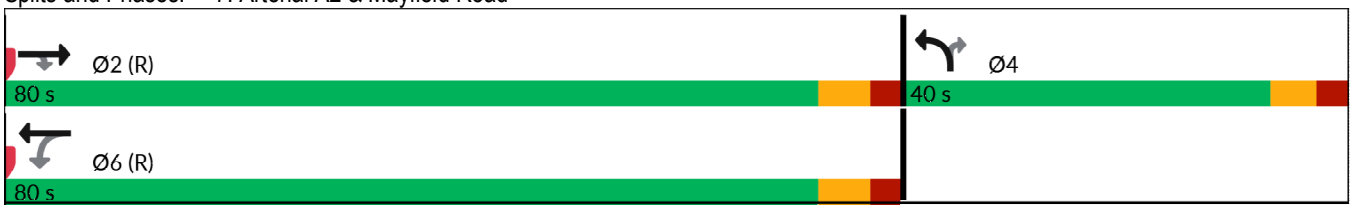
c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1213	808	212	813	10	121
Future Volume (vph)	1213	808	212	813	10	121
Lane Group Flow (vph)	1264	842	221	847	73	63
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	4	
Permitted Phases		2	6			4
Detector Phase	2	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	12.0	12.0	12.0	12.0	8.0	8.0
Minimum Split (s)	30.3	30.3	30.3	30.3	30.0	30.0
Total Split (s)	80.0	80.0	80.0	80.0	40.0	40.0
Total Split (%)	66.7%	66.7%	66.7%	66.7%	33.3%	33.3%
Yellow Time (s)	4.6	4.6	4.6	4.6	4.2	4.2
All-Red Time (s)	2.7	2.7	2.7	2.7	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	7.3	7.3	7.3	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
v/c Ratio	0.32	0.59	0.71	0.22	0.27	0.40
Control Delay (s/veh)	1.1	4.7	29.6	3.0	18.8	21.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	1.1	4.7	29.6	3.0	18.8	21.0
Queue Length 50th (m)	3.1	94.9	30.3	13.8	1.2	0.0
Queue Length 95th (m)	5.5	179.1	#85.2	28.0	8.7	15.6
Internal Link Dist (m)	117.8			619.0	876.4	
Turn Bay Length (m)		60.0	100.0			
Base Capacity (vph)	3949	1405	309	3844	850	415
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	0.32	0.60	0.72	0.22	0.09	0.15

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 61 (51%), Referenced to phase 2:EBT 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: 7: Arterial A2 & Mayfield Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1213	808	212	813	10	121
Future Volume (vph)	1213	808	212	813	10	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.0	3.0	3.5	3.0	3.0
Total Lost time (s)	7.3	7.3	7.3	7.3	7.0	7.0
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Frt	1.00	0.85	1.00	1.00	0.87	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.99	1.00
Satd. Flow (prot)	4663	1507	1668	4539	2924	1345
Flt Permitted	1.00	1.00	0.20	1.00	0.99	1.00
Satd. Flow (perm)	4663	1507	365	4539	2924	1345
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1264	842	221	847	10	126
RTOR Reduction (vph)	0	149	0	0	59	59
Lane Group Flow (vph)	1264	693	221	847	14	4
Heavy Vehicles (%)	10%	0%	1%	13%	0%	2%
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	4	
Permitted Phases		2	6			4
Actuated Green, G (s)	98.8	98.8	98.8	98.8	6.9	6.9
Effective Green, g (s)	98.8	98.8	98.8	98.8	6.9	6.9
Actuated g/C Ratio	0.82	0.82	0.82	0.82	0.06	0.06
Clearance Time (s)	7.3	7.3	7.3	7.3	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3839	1240	300	3737	168	77
v/s Ratio Prot	0.27			0.19	c0.00	
v/s Ratio Perm		0.46	c0.61			0.00
v/c Ratio	0.32	0.55	0.73	0.22	0.08	0.04
Uniform Delay, d1	2.5	3.4	4.7	2.3	53.5	53.4
Progression Factor	0.37	13.62	2.17	1.23	1.00	1.00
Incremental Delay, d2	0.1	1.5	14.7	0.1	0.2	0.2
Delay (s)	1.1	48.8	25.0	2.9	53.7	53.6
Level of Service	A	D	C	A	D	D
Approach Delay (s/veh)	20.2			7.5	53.7	
Approach LOS	C			A	D	

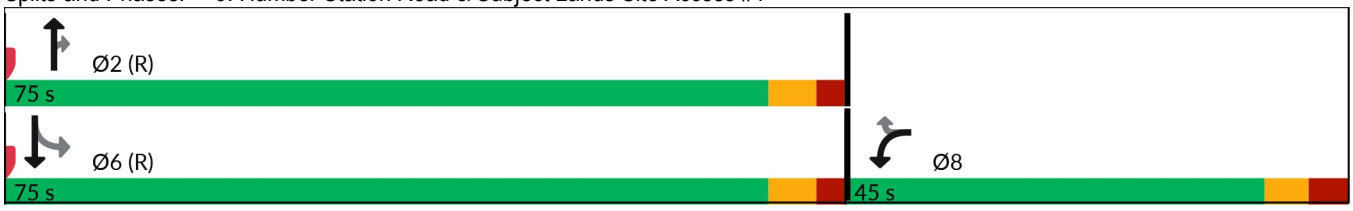
Intersection Summary			
HCM 2000 Control Delay (s/veh)	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.3
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	NBT	SBT	Ø8
Lane Configurations			
Traffic Volume (vph)	99	332	
Future Volume (vph)	99	332	
Lane Group Flow (vph)	99	332	
Turn Type	NA	NA	
Protected Phases	2	6	8
Permitted Phases			
Detector Phase	2	6	
Switch Phase			
Minimum Initial (s)	12.0	12.0	12.0
Minimum Split (s)	24.7	24.7	25.5
Total Split (s)	75.0	75.0	45.0
Total Split (%)	62.5%	62.5%	38%
Yellow Time (s)	4.2	4.2	4.0
All-Red Time (s)	2.5	2.5	3.5
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	6.7	6.7	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	C-Max	C-Max	None
v/c Ratio	0.02	0.09	
Control Delay (s/veh)	0.0	0.0	
Queue Delay	0.0	0.0	
Total Delay (s/veh)	0.0	0.0	
Queue Length 50th (m)	0.0	0.0	
Queue Length 95th (m)	0.0	0.0	
Internal Link Dist (m)	1542.4	469.4	
Turn Bay Length (m)			
Base Capacity (vph)	3433	3535	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.03	0.09	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 116 (97%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Splits and Phases: 9: Humber Station Road & Subject Lands Site Access #1



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	99	0	0	332
Future Volume (vph)	0	0	99	0	0	332
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.0	3.5	3.0	3.0	3.5
Total Lost time (s)			6.7			6.7
Lane Util. Factor			0.95			0.95
Frt			1.00			1.00
Flt Protected			1.00			1.00
Satd. Flow (prot)			3433			3535
Flt Permitted			1.00			1.00
Satd. Flow (perm)			3433			3535
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	99	0	0	332
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	99	0	0	332
Heavy Vehicles (%)	0%	0%	4%	0%	0%	1%
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Actuated Green, G (s)			120.0			120.0
Effective Green, g (s)			120.0			120.0
Actuated g/C Ratio			1.00			1.00
Clearance Time (s)			6.7			6.7
Vehicle Extension (s)			3.0			3.0
Lane Grp Cap (vph)			3433			3535
v/s Ratio Prot			0.03			c0.09
v/s Ratio Perm						
v/c Ratio			0.02			0.09
Uniform Delay, d1			0.0			0.0
Progression Factor			1.00			1.00
Incremental Delay, d2			0.0			0.0
Delay (s)			0.0			0.0
Level of Service			A			A
Approach Delay (s/veh)	0.0		0.0			0.0
Approach LOS	A		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	0.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.11		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	15.6%	ICU Level of Service	A
Analysis Period (min)	15		

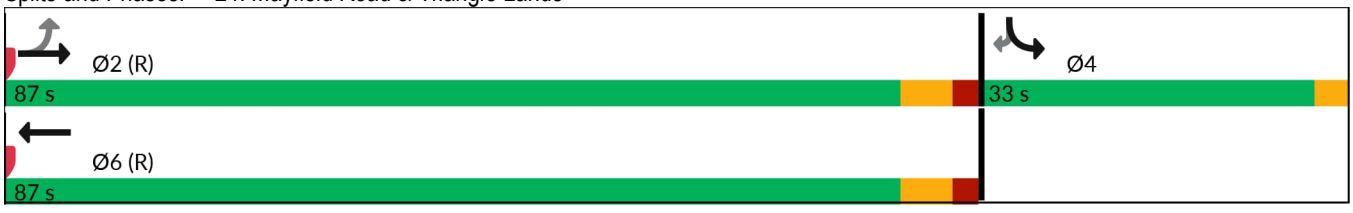
c Critical Lane Group

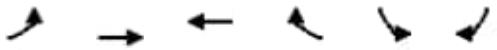
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	160	1174	943	33	72
Future Volume (vph)	160	1174	943	33	72
Lane Group Flow (vph)	160	1174	1051	33	72
Turn Type	Perm	NA	NA	Prot	Perm
Protected Phases		2	6	4	
Permitted Phases	2				4
Detector Phase	2	2	6	4	4
Switch Phase					
Minimum Initial (s)	12.0	12.0	12.0	5.0	5.0
Minimum Split (s)	37.0	37.0	37.0	33.0	33.0
Total Split (s)	87.0	87.0	87.0	33.0	33.0
Total Split (%)	72.5%	72.5%	72.5%	27.5%	27.5%
Yellow Time (s)	4.6	4.6	4.6	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	3.0	3.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max	C-Max	None	None
v/c Ratio	0.42	0.26	0.23	0.32	0.45
Control Delay (s/veh)	11.2	3.1	1.7	60.9	21.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	11.2	3.1	1.7	60.9	21.4
Queue Length 50th (m)	10.5	17.9	12.4	8.0	0.0
Queue Length 95th (m)	43.7	50.4	18.9	18.5	14.6
Internal Link Dist (m)		619.0	290.4	250.9	
Turn Bay Length (m)	30.0			30.0	
Base Capacity (vph)	377	4441	4390	376	387
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	0.42	0.26	0.24	0.09	0.19

Intersection Summary

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

Splits and Phases: 24: Mayfield Road & Triangle Lands





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	160	1174	943	108	33	72
Future Volume (vph)	160	1174	943	108	33	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.0	3.0
Total Lost time (s)	7.0	7.0	7.0		3.0	3.0
Lane Util. Factor	1.00	0.91	0.91		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1574	5079	5014		1504	1334
Flt Permitted	0.26	1.00	1.00		0.95	1.00
Satd. Flow (perm)	431	5079	5014		1504	1334
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	160	1174	943	108	33	72
RTOR Reduction (vph)	0	0	5	0	0	68
Lane Group Flow (vph)	160	1174	1046	0	33	4
Heavy Vehicles (%)	7%	1%	0%	7%	12%	13%
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Actuated Green, G (s)	102.9	102.9	102.9		7.1	7.1
Effective Green, g (s)	102.9	102.9	102.9		7.1	7.1
Actuated g/C Ratio	0.86	0.86	0.86		0.06	0.06
Clearance Time (s)	7.0	7.0	7.0		3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	369	4355	4299		88	78
v/s Ratio Prot		0.23	0.21		c0.02	
v/s Ratio Perm	c0.37					0.00
v/c Ratio	0.43	0.26	0.24		0.37	0.05
Uniform Delay, d1	1.9	1.5	1.5		54.3	53.2
Progression Factor	2.83	1.76	1.00		1.00	1.00
Incremental Delay, d2	3.5	0.1	0.1		2.6	0.2
Delay (s)	9.0	2.9	1.6		56.9	53.5
Level of Service	A	A	A		E	D
Approach Delay (s/veh)		3.6	1.6		54.6	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	5.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	99	0	0	332
Future Volume (Veh/h)	0	0	99	0	0	332
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)	0	0	99	0	0	332
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	265	50			99	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	265	50			99	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	707	1015			1507	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	0	50	50	0	0	166	166
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.03	0.03	0.00	0.00	0.10	0.10
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	A						
Approach Delay (s/veh)	0.0		0.0			0.0		
Approach LOS	A							

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	12.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1067	0	0	546	0	0
Future Volume (Veh/h)	1067	0	0	546	0	0
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)	1067	0	0	546	0	0
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			1067		1340	534
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1067		1340	534
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			661		146	496

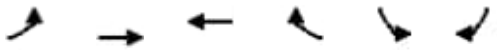
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	711	356	182	364	0	0
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	1700	1700	661	1700	1700	1700
Volume to Capacity	0.42	0.21	0.00	0.21	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS					A	A
Approach Delay (s/veh)	0.0		0.0		0.0	
Approach LOS					A	

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	32.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	99	0	0	332
Future Volume (Veh/h)	0	0	99	0	0	332
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)	0	0	99	0	0	332
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	265	50			99	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	265	50			99	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	707	1015			1507	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	0	50	50	0	0	166	166
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.03	0.03	0.00	0.00	0.10	0.10
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	A						
Approach Delay (s/veh)	0.0		0.0			0.0		
Approach LOS	A							

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	12.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	2021	823	0	0	0
Future Volume (Veh/h)	0	2021	823	0	0	0
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)	0	2021	823	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (m)		270	142			
pX, platoon unblocked	0.97				0.83	0.97
vC, conflicting volume	823				1497	274
vC1, stage 1 conf vol					823	
vC2, stage 2 conf vol					674	
vCu, unblocked vol	724				648	161
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	864				421	839

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	0	674	674	674	329	329	165	0	0
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.40	0.40	0.40	0.19	0.19	0.10	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS								A	A
Approach Delay (s/veh)	0.0				0.0			0.0	
Approach LOS								A	

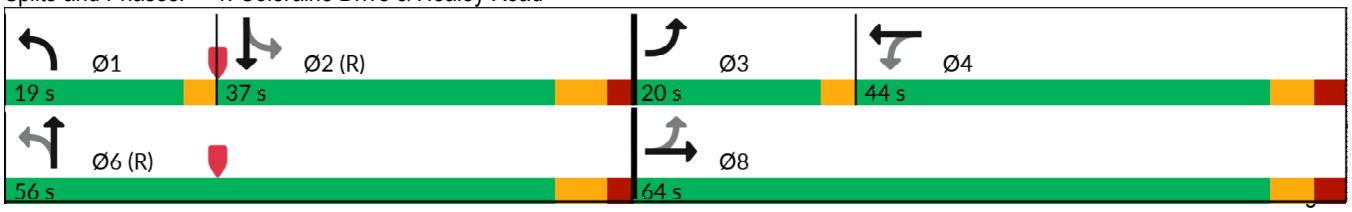
Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	42.4%	ICU Level of Service		A
Analysis Period (min)	15			

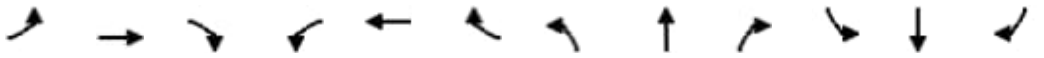
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	183	268	56	561	400	501	47	187
Future Volume (vph)	183	268	56	561	400	501	47	187
Lane Group Flow (vph)	201	459	62	709	440	608	52	281
Turn Type	pm+pt	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases	3	8		4	1	6		2
Permitted Phases	8		4		6		2	
Detector Phase	3	8	4	4	1	6	2	2
Switch Phase								
Minimum Initial (s)	5.0	8.0	8.0	8.0	5.0	8.0	8.0	8.0
Minimum Split (s)	9.5	32.8	32.8	32.8	9.5	36.7	36.7	36.7
Total Split (s)	20.0	64.0	44.0	44.0	19.0	56.0	37.0	37.0
Total Split (%)	16.7%	53.3%	36.7%	36.7%	15.8%	46.7%	30.8%	30.8%
Yellow Time (s)	3.0	4.0	4.0	4.0	3.0	4.6	4.6	4.6
All-Red Time (s)	0.0	2.8	2.8	2.8	0.0	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	6.8	6.8	6.8	3.0	6.7	6.7	6.7
Lead/Lag	Lead		Lag	Lag	Lead		Lag	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max
v/c Ratio	0.78	0.27	0.23	1.16	0.88	0.47	0.32	0.37
Control Delay (s/veh)	48.4	23.7	33.0	126.6	49.1	26.8	43.6	32.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	48.4	23.7	33.0	126.6	49.1	26.8	43.6	32.8
Queue Length 50th (m)	42.7	43.7	11.1	~209.9	81.1	56.1	10.6	25.6
Queue Length 95th (m)	#63.5	55.5	24.1	#296.4	#142.3	73.2	23.4	39.0
Internal Link Dist (m)		823.7		424.0		1711.9		1121.0
Turn Bay Length (m)	55.0		50.0		80.0		155.0	
Base Capacity (vph)	295	1655	267	610	495	1282	158	756
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	0.68	0.28	0.23	1.16	0.89	0.47	0.33	0.37

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 31 (26%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 120
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: Coleraine Drive & Healey Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	183	268	149	56	561	85	400	501	52	47	187	69
Future Volume (vph)	183	268	149	56	561	85	400	501	52	47	187	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	3.0	6.8		6.8	6.8		3.0	6.7		6.7	6.7	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.94		1.00	0.98		1.00	0.98		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1668	3343		1546	1804		1668	3104		1416	2872	
Flt Permitted	0.09	1.00		0.48	1.00		0.50	1.00		0.42	1.00	
Satd. Flow (perm)	162	3343		793	1804		885	3104		629	2872	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	201	295	164	62	616	93	440	551	57	52	205	76
RTOR Reduction (vph)	0	63	0	0	5	0	0	6	0	0	31	0
Lane Group Flow (vph)	201	396	0	62	704	0	440	602	0	52	250	0
Heavy Vehicles (%)	1%	0%	3%	9%	0%	16%	1%	13%	17%	19%	26%	1%
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	3	8			4		1	6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	57.2	57.2		40.3	40.3		49.3	49.3		30.3	30.3	
Effective Green, g (s)	57.2	57.2		40.3	40.3		49.3	49.3		30.3	30.3	
Actuated g/C Ratio	0.48	0.48		0.34	0.34		0.41	0.41		0.25	0.25	
Clearance Time (s)	3.0	6.8		6.8	6.8		3.0	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	251	1593		266	605		467	1275		158	725	
v/s Ratio Prot	c0.09	0.12			c0.39		c0.13	0.19			0.09	
v/s Ratio Perm	0.29			0.08			c0.26			0.08		
v/c Ratio	0.80	0.24		0.23	1.16		0.94	0.47		0.32	0.34	
Uniform Delay, d1	30.9	18.6		28.7	39.8		31.2	25.8		36.5	36.7	
Progression Factor	1.08	1.70		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	16.2	0.0		0.4	91.0		27.5	1.2		5.4	1.2	
Delay (s)	49.6	31.8		29.1	130.8		58.7	27.0		42.0	38.0	
Level of Service	D	C		C	F		E	C		D	D	
Approach Delay (s/veh)		37.2			122.6			40.4			38.6	
Approach LOS		D			F			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	62.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		

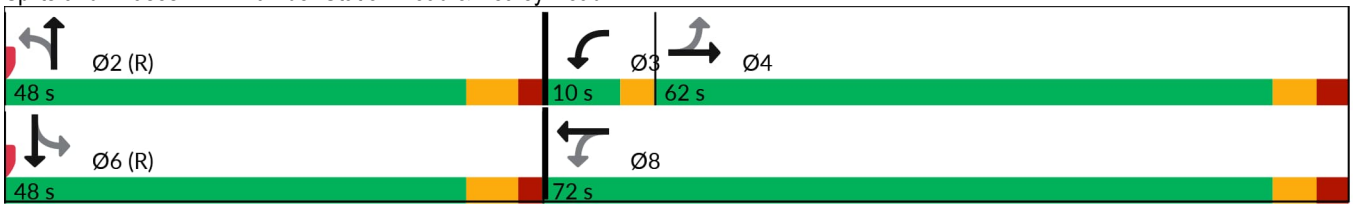
c Critical Lane Group

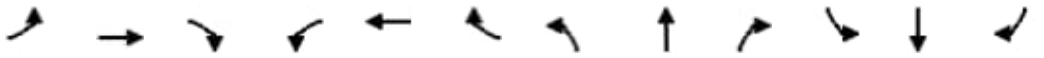
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	21	468	34	1108	54	279	26	53
Future Volume (vph)	21	468	34	1108	54	279	26	53
Lane Group Flow (vph)	22	496	35	1165	56	388	27	61
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		4	3	8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	8.0	8.0	5.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	24.8	24.8	8.0	24.8	24.7	24.7	24.7	24.7
Total Split (s)	62.0	62.0	10.0	72.0	48.0	48.0	48.0	48.0
Total Split (%)	51.7%	51.7%	8.3%	60.0%	40.0%	40.0%	40.0%	40.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	0.0	2.8	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	3.0	6.8	6.7	6.7	6.7	6.7
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.28	0.38	0.10	0.78	0.10	0.23	0.06	0.03
Control Delay (s/veh)	37.1	28.7	12.0	26.3	27.7	21.3	20.8	17.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.1	28.7	12.0	26.3	27.7	21.3	20.8	17.6
Queue Length 50th (m)	4.0	49.7	3.1	123.1	5.1	16.1	3.6	3.7
Queue Length 95th (m)	11.5	57.8	m2.4	m96.9	20.4	45.9	10.7	9.0
Internal Link Dist (m)		465.5		505.1		463.9		452.2
Turn Bay Length (m)	30.0		60.0		30.0		30.0	
Base Capacity (vph)	99	1618	347	1933	550	1625	409	1636
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	0.22	0.31	0.10	0.60	0.10	0.24	0.07	0.04

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 11 (9%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Humber Station Road & Healey Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	468	14	34	1108	22	54	279	97	26	53	6
Future Volume (vph)	21	468	14	34	1108	22	54	279	97	26	53	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.8	6.8		3.0	6.8		6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.99		1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1685	3514		1636	3556		1546	3389		1620	3455	
Flt Permitted	0.12	1.00		0.37	1.00		0.71	1.00		0.50	1.00	
Satd. Flow (perm)	217	3514		651	3556		1163	3389		866	3455	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	22	482	14	35	1142	23	56	288	100	27	55	6
RTOR Reduction (vph)	0	2	0	0	2	0	0	24	0	0	3	0
Lane Group Flow (vph)	22	494	0	35	1163	0	56	364	0	27	58	0
Heavy Vehicles (%)	0%	1%	7%	3%	0%	5%	9%	1%	2%	4%	2%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	43.7	43.7		50.9	50.9		55.6	55.6		55.6	55.6	
Effective Green, g (s)	43.7	43.7		50.9	50.9		55.6	55.6		55.6	55.6	
Actuated g/C Ratio	0.36	0.36		0.42	0.42		0.46	0.46		0.46	0.46	
Clearance Time (s)	6.8	6.8		3.0	6.8		6.7	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	79	1279		310	1508		538	1570		401	1600	
v/s Ratio Prot		0.14		0.00	c0.33			c0.11			0.02	
v/s Ratio Perm	0.10			0.04			0.05			0.03		
v/c Ratio	0.27	0.38		0.11	0.77		0.10	0.23		0.06	0.03	
Uniform Delay, d1	26.9	28.2		20.6	29.5		18.1	19.3		17.8	17.5	
Progression Factor	1.00	1.00		0.71	0.82		1.34	1.17		1.00	1.00	
Incremental Delay, d2	1.9	0.1		0.0	0.8		0.3	0.3		0.3	0.0	
Delay (s)	28.9	28.4		14.8	25.3		24.7	23.1		18.1	17.6	
Level of Service	C	C		B	C		C	C		B	B	
Approach Delay (s/veh)		28.4			25.0			23.3			17.7	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	25.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

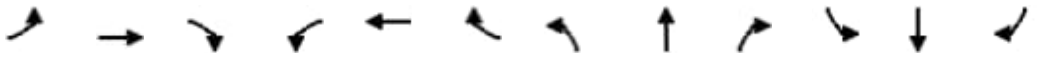
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	10	1232	19	68	1479	42	59	365	10	76
Future Volume (vph)	10	1232	19	68	1479	42	59	365	10	76
Lane Group Flow (vph)	10	1270	20	70	1525	43	61	481	10	90
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	pm+pt	NA
Protected Phases	5	2		1	6			4	3	8
Permitted Phases	2		2	6		6	4		8	
Detector Phase	5	2	2	1	6	6	4	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	12.0	8.0	8.0	5.0	8.0
Minimum Split (s)	9.5	27.3	27.3	9.5	27.3	27.3	26.0	26.0	9.5	26.0
Total Split (s)	15.0	52.0	52.0	10.0	47.0	47.0	48.0	48.0	10.0	58.0
Total Split (%)	12.5%	43.3%	43.3%	8.3%	39.2%	39.2%	40.0%	40.0%	8.3%	48.3%
Yellow Time (s)	3.0	4.6	4.6	3.0	4.6	4.6	4.2	4.2	3.0	4.2
All-Red Time (s)	0.0	2.7	2.7	0.0	2.7	2.7	2.8	2.8	0.0	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.3	7.3	3.0	7.3	7.3	7.0	7.0	3.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
v/c Ratio	0.06	0.53	0.02	0.32	0.57	0.05	0.18	0.88	0.06	0.08
Control Delay (s/veh)	14.0	23.8	0.0	13.5	16.3	0.1	30.8	57.3	23.3	21.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	14.0	23.8	0.0	13.5	16.3	0.1	30.8	57.3	23.3	21.7
Queue Length 50th (m)	0.9	78.8	0.0	4.7	72.1	0.0	11.0	109.1	1.5	6.1
Queue Length 95th (m)	4.3	114.7	0.0	15.0	152.8	0.3	21.4	146.8	4.3	9.9
Internal Link Dist (m)		1635.6			245.9			1187.5		1542.4
Turn Bay Length (m)	150.0		105.0	150.0		115.0			105.0	
Base Capacity (vph)	227	2394	717	219	2655	791	376	620	161	1480
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.53	0.03	0.32	0.57	0.05	0.16	0.78	0.06	0.06

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 86 (72%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 3: Clarkway Drive/Humber Station Road & Mayfield Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	1232	19	68	1479	42	59	365	102	10	76	12
Future Volume (vph)	10	1232	19	68	1479	42	59	365	102	10	76	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	3.0	7.3	7.3	3.0	7.3	7.3	7.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1404	4839	1358	1532	4839	1346	1504	1788		1532	3468	
Flt Permitted	0.11	1.00	1.00	0.14	1.00	1.00	0.69	1.00		0.15	1.00	
Satd. Flow (perm)	173	4839	1358	233	4839	1346	1101	1788		248	3468	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	10	1270	20	70	1525	43	61	376	105	10	78	12
RTOR Reduction (vph)	0	0	11	0	0	21	0	9	0	0	8	0
Lane Group Flow (vph)	10	1270	9	70	1525	22	61	472	0	10	82	0
Heavy Vehicles (%)	20%	6%	11%	10%	6%	12%	12%	1%	4%	10%	1%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases	5	2		1	6			4		3	8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	57.7	56.3	56.3	65.4	61.0	61.0	35.9	35.9		40.3	40.3	
Effective Green, g (s)	57.7	56.3	56.3	65.4	61.0	61.0	35.9	35.9		40.3	40.3	
Actuated g/C Ratio	0.48	0.47	0.47	0.55	0.51	0.51	0.30	0.30		0.34	0.34	
Clearance Time (s)	3.0	7.3	7.3	3.0	7.3	7.3	7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	97	2270	637	193	2459	684	329	534		98	1164	
v/s Ratio Prot	0.00	0.26		c0.02	c0.32			c0.26		c0.00	0.02	
v/s Ratio Perm	0.05		0.01	0.18		0.02	0.06			0.03		
v/c Ratio	0.10	0.55	0.01	0.36	0.62	0.03	0.18	0.88		0.10	0.07	
Uniform Delay, d1	17.2	22.9	17.0	14.7	21.1	14.7	31.2	40.0		29.6	27.1	
Progression Factor	1.00	1.00	1.00	0.78	0.76	1.00	1.00	1.00		1.05	0.96	
Incremental Delay, d2	0.4	1.0	0.0	1.1	1.1	0.0	0.2	15.8		0.4	0.0	
Delay (s)	17.6	23.9	17.0	12.6	17.3	14.8	31.4	55.9		31.8	26.1	
Level of Service	B	C	B	B	B	B	C	E		C	C	
Approach Delay (s/veh)		23.7			17.0			53.1			26.6	
Approach LOS		C			B			D			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	25.2	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)	20.3
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		

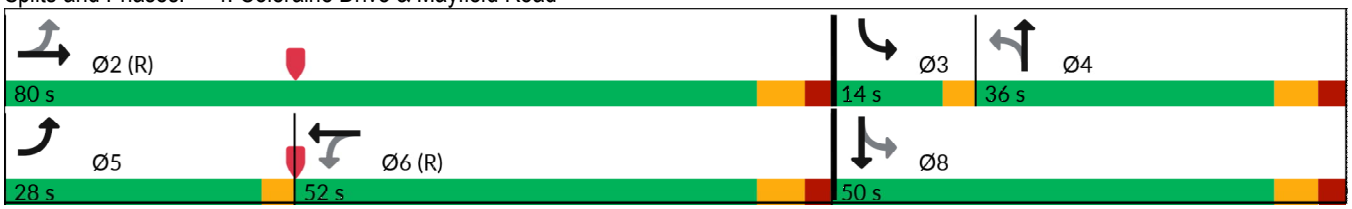
c Critical Lane Group

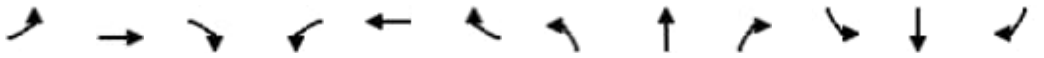
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	338	1051	13	892	26	413	52	201
Future Volume (vph)	338	1051	13	892	26	413	52	201
Lane Group Flow (vph)	356	1121	14	1022	27	457	55	486
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases	5	2		6		4	3	8
Permitted Phases	2		6		4		8	
Detector Phase	5	2	6	6	4	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	12.0	12.0	12.0	12.0	12.0	5.0	12.0
Minimum Split (s)	8.0	37.0	37.0	37.0	37.0	37.0	8.0	37.0
Total Split (s)	28.0	80.0	52.0	52.0	36.0	36.0	14.0	50.0
Total Split (%)	21.5%	61.5%	40.0%	40.0%	27.7%	27.7%	10.8%	38.5%
Yellow Time (s)	3.0	4.6	4.6	4.6	4.2	4.2	3.0	4.2
All-Red Time (s)	0.0	2.4	2.4	2.4	2.8	2.8	0.0	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0
Lead/Lag	Lead		Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None	None
v/c Ratio	0.80	0.34	0.09	0.80	0.19	0.76	0.33	0.50
Control Delay (s/veh)	55.2	10.9	31.0	42.9	48.1	59.6	37.7	18.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	55.2	10.9	31.0	42.9	48.1	59.6	37.7	18.7
Queue Length 50th (m)	72.9	46.5	2.6	135.4	6.3	62.0	10.9	24.7
Queue Length 95th (m)	#137.2	58.3	8.0	#169.7	15.2	77.7	20.4	38.7
Internal Link Dist (m)		290.4		195.1		791.2		576.8
Turn Bay Length (m)	100.0		85.0		105.0		145.0	
Base Capacity (vph)	442	3210	151	1267	187	793	179	1187
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	0.81	0.35	0.09	0.81	0.14	0.58	0.31	0.41

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
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: 4: Coleraine Drive & Mayfield Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	338	1051	14	13	892	79	26	413	21	52	201	260
Future Volume (vph)	338	1051	14	13	892	79	26	413	21	52	201	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	0.91		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.98		1.00	0.99		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1504	4972		1560	3312		1685	3544		1348	3045	
Flt Permitted	0.11	1.00		0.24	1.00		0.47	1.00		0.23	1.00	
Satd. Flow (perm)	183	4972		397	3312		842	3544		340	3045	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	356	1106	15	14	939	83	27	435	22	55	212	274
RTOR Reduction (vph)	0	1	0	0	5	0	0	3	0	0	202	0
Lane Group Flow (vph)	356	1120	0	14	1017	0	27	454	0	55	284	0
Heavy Vehicles (%)	12%	3%	0%	8%	5%	23%	0%	0%	0%	25%	0%	13%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	5	2			6			4		3	8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	83.3	83.3		48.9	48.9		21.9	21.9		32.7	32.7	
Effective Green, g (s)	83.3	83.3		48.9	48.9		21.9	21.9		32.7	32.7	
Actuated g/C Ratio	0.64	0.64		0.38	0.38		0.17	0.17		0.25	0.25	
Clearance Time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	436	3185		149	1245		141	597		146	765	
v/s Ratio Prot	c0.20	0.23			0.31			c0.13		0.02	c0.09	
v/s Ratio Perm	c0.33			0.04			0.03			0.07		
v/c Ratio	0.81	0.35		0.09	0.81		0.19	0.75		0.37	0.37	
Uniform Delay, d1	31.8	10.8		26.2	36.5		46.4	51.5		38.6	40.1	
Progression Factor	1.47	0.92		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.0	0.2		1.2	6.0		0.6	5.5		1.6	0.3	
Delay (s)	57.8	10.2		27.4	42.5		47.1	57.0		40.2	40.4	
Level of Service	E	B		C	D		D	E		D	D	
Approach Delay (s/veh)		21.7			42.3			56.5			40.4	
Approach LOS		C			D			E			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	35.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	90.7%	ICU Level of Service	E
Analysis Period (min)	15		

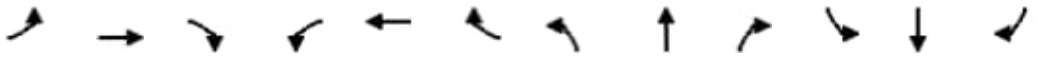
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	7	26	61	9	6	497	145	499	1
Future Volume (vph)	7	26	61	9	6	497	145	499	1
Lane Group Flow (vph)	8	58	73	198	7	683	175	601	1
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		8		4		6		2	
Permitted Phases	8		4		6		2		2
Detector Phase	8	8	4	4	6	6	2	2	2
Switch Phase									
Minimum Initial (s)	8.0	8.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.5	32.5	32.5	32.5	34.2	34.2	33.7	33.7	33.7
Total Split (s)	45.0	45.0	45.0	45.0	55.0	55.0	55.0	55.0	55.0
Total Split (%)	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.2	4.2	4.2	4.2	4.2
All-Red Time (s)	3.5	3.5	3.5	3.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	7.5	7.5	6.7	6.7	6.7	6.7	6.7
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.06	0.23	0.47	0.54	0.01	0.30	0.36	0.26	0.00
Control Delay (s/veh)	37.4	25.7	50.0	12.7	4.8	5.4	8.3	5.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.4	25.7	50.0	12.7	4.8	5.4	8.3	5.3	0.0
Queue Length 50th (m)	1.5	5.8	14.2	2.0	0.3	19.9	10.7	17.5	0.0
Queue Length 95th (m)	5.3	14.8	24.9	16.8	1.7	30.8	23.9	27.3	0.0
Internal Link Dist (m)		152.4		468.8		784.9		1711.9	
Turn Bay Length (m)	70.0		105.0		75.0		100.0		100.0
Base Capacity (vph)	322	619	423	675	362	2225	476	2280	1101
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.09	0.17	0.29	0.02	0.31	0.37	0.26	0.00

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 5: Coleraine Drive & Private Access/George Bolton Parkway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	26	22	61	9	155	6	497	70	145	499	1
Future Volume (vph)	7	26	22	61	9	155	6	497	70	145	499	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.93		1.00	0.85		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1685	1608		1491	1491		1123	3074		1604	3159	1507
Flt Permitted	0.48	1.00		0.71	1.00		0.42	1.00		0.39	1.00	1.00
Satd. Flow (perm)	861	1608		1129	1491		502	3074		660	3159	1507
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	8	31	27	73	11	187	7	599	84	175	601	1
RTOR Reduction (vph)	0	23	0	0	162	0	0	6	0	0	0	0
Lane Group Flow (vph)	8	35	0	73	36	0	7	677	0	175	601	1
Heavy Vehicles (%)	0%	4%	14%	13%	11%	8%	50%	14%	14%	5%	13%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	13.6	13.6		13.6	13.6		72.2	72.2		72.2	72.2	72.2
Effective Green, g (s)	13.6	13.6		13.6	13.6		72.2	72.2		72.2	72.2	72.2
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.72	0.72		0.72	0.72	0.72
Clearance Time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	117	218		153	202		362	2219		476	2280	1088
v/s Ratio Prot		0.02			0.02			0.22			0.19	
v/s Ratio Perm	0.01			c0.06			0.01			c0.27		0.00
v/c Ratio	0.06	0.15		0.47	0.18		0.01	0.30		0.36	0.26	0.00
Uniform Delay, d1	37.6	38.1		39.9	38.2		3.9	4.9		5.2	4.7	3.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	0.3		2.3	0.4		0.0	0.3		2.1	0.2	0.0
Delay (s)	37.9	38.4		42.2	38.6		4.0	5.3		7.4	5.0	3.8
Level of Service	D	D		D	D		A	A		A	A	A
Approach Delay (s/veh)		38.4			39.6			5.2			5.5	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	53.4%	ICU Level of Service	A
Analysis Period (min)	15		

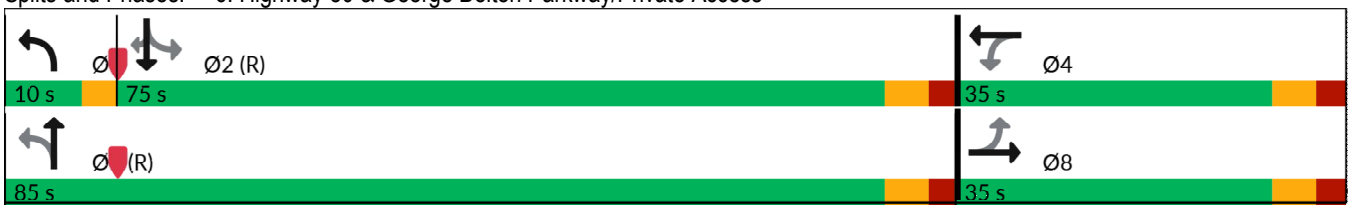
c Critical Lane Group

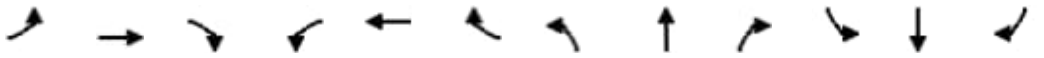
Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	209	0	0	157	1534	1	983	169
Future Volume (vph)	209	0	0	157	1534	1	983	169
Lane Group Flow (vph)	218	201	7	164	1598	1	1024	176
Turn Type	Perm	NA	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases		8	4	1	6		2	
Permitted Phases	8			6		2		2
Detector Phase	8	8	4	1	6	2	2	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	5.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.6	32.6	32.6	8.0	27.3	27.3	27.3	27.3
Total Split (s)	35.0	35.0	35.0	10.0	85.0	75.0	75.0	75.0
Total Split (%)	29.2%	29.2%	29.2%	8.3%	70.8%	62.5%	62.5%	62.5%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.6	2.6	0.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	3.0	6.3	6.3	6.3	6.3
Lead/Lag				Lead		Lag	Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.82	0.46	0.01	0.52	0.67	0.00	0.48	0.18
Control Delay (s/veh)	70.6	9.7	0.1	12.4	12.9	11.0	14.9	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	70.6	9.7	0.1	12.4	12.9	11.0	14.9	2.1
Queue Length 50th (m)	51.6	1.6	0.0	11.7	111.3	0.1	76.0	0.0
Queue Length 95th (m)	#78.9	21.6	0.0	21.7	149.7	1.0	94.9	9.7
Internal Link Dist (m)		846.5	43.0		1045.6		1307.8	
Turn Bay Length (m)	85.0			40.0		135.0		60.0
Base Capacity (vph)	315	479	428	310	2385	134	2095	942
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	0.69	0.42	0.02	0.53	0.67	0.01	0.49	0.19

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Highway 50 & George Bolton Parkway/Private Access





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	209	0	193	0	0	7	157	1534	0	1	983	169
Future Volume (vph)	209	0	193	0	0	7	157	1534	0	1	983	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.6	6.6			6.6		3.0	6.3		6.3	6.3	6.3
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.98			1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00			1.00		0.99	1.00		1.00	1.00	1.00
Frt	1.00	0.85			0.86		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1685	1405			1625		1440	3433		1685	3466	1444
Flt Permitted	0.75	1.00			1.00		0.21	1.00		0.12	1.00	1.00
Satd. Flow (perm)	1336	1405			1625		329	3433		221	3466	1444
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	218	0	201	0	0	7	164	1598	0	1	1024	176
RTOR Reduction (vph)	0	155	0	0	6	0	0	0	0	0	0	70
Lane Group Flow (vph)	218	46	0	0	1	0	164	1598	0	1	1024	106
Confl. Peds. (#/hr)			2	2			1					1
Heavy Vehicles (%)	0%	0%	12%	0%	0%	0%	17%	4%	0%	0%	3%	2%
Turn Type	Perm	NA			NA		pm+pt	NA		Perm	NA	Perm
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	23.7	23.7			23.7		83.4	83.4		72.6	72.6	72.6
Effective Green, g (s)	23.7	23.7			23.7		83.4	83.4		72.6	72.6	72.6
Actuated g/C Ratio	0.20	0.20			0.20		0.70	0.70		0.61	0.61	0.61
Clearance Time (s)	6.6	6.6			6.6		3.0	6.3		6.3	6.3	6.3
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	263	277			320		300	2385		133	2096	873
v/s Ratio Prot		0.03			0.00		0.04	c0.47			0.30	
v/s Ratio Perm	c0.16						0.34			0.00		0.07
v/c Ratio	0.82	0.16			0.00		0.54	0.67		0.00	0.48	0.12
Uniform Delay, d1	46.2	39.9			38.6		8.2	10.4		9.4	13.2	10.1
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	18.9	0.2			0.0		2.0	1.5		0.1	0.8	0.2
Delay (s)	65.1	40.2			38.6		10.2	11.9		9.5	14.1	10.3
Level of Service	E	D			D		B	B		A	B	B
Approach Delay (s/veh)		53.1			38.6			11.8			13.5	
Approach LOS		D			D			B			B	

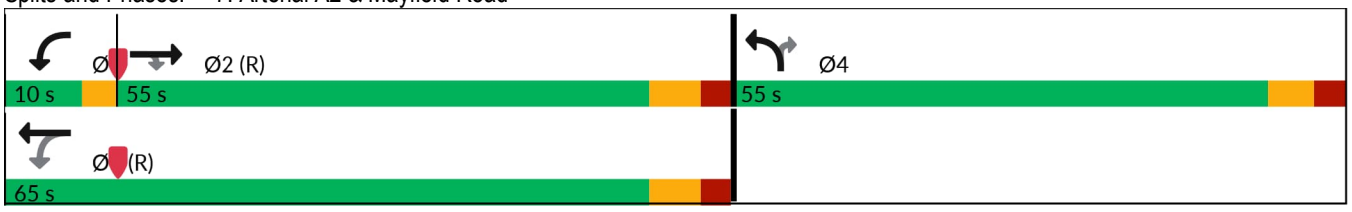
Intersection Summary			
HCM 2000 Control Delay (s/veh)	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.9
Intersection Capacity Utilization	86.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1129	215	215	1163	426	238
Future Volume (vph)	1129	215	215	1163	426	238
Lane Group Flow (vph)	1164	222	222	1199	471	213
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2	6			4
Detector Phase	2	2	1	6	4	4
Switch Phase						
Minimum Initial (s)	12.0	12.0	5.0	12.0	8.0	8.0
Minimum Split (s)	30.3	30.3	9.5	30.3	30.0	30.0
Total Split (s)	55.0	55.0	10.0	65.0	55.0	55.0
Total Split (%)	45.8%	45.8%	8.3%	54.2%	45.8%	45.8%
Yellow Time (s)	4.6	4.6	3.0	4.6	4.2	4.2
All-Red Time (s)	2.7	2.7	0.0	2.7	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	7.3	3.0	7.3	7.0	7.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	C-Max	C-Max	None	C-Max	None	None
v/c Ratio	0.46	0.24	0.52	0.36	0.74	0.55
Control Delay (s/veh)	4.4	0.7	10.9	8.6	52.3	17.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	4.4	0.7	10.9	8.6	52.3	17.8
Queue Length 50th (m)	10.4	0.0	15.4	40.9	56.4	12.9
Queue Length 95th (m)	12.3	m0.1	29.6	58.9	70.2	37.9
Internal Link Dist (m)	117.8			619.0	876.4	
Turn Bay Length (m)		60.0	100.0			
Base Capacity (vph)	2484	893	419	3241	1304	637
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	0.47	0.25	0.53	0.37	0.36	0.33

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 96 (80%), Referenced to phase 2:EBT 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: 7: Arterial A2 & Mayfield Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1129	215	215	1163	426	238
Future Volume (vph)	1129	215	215	1163	426	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.0	3.0	3.5	3.0	3.0
Total Lost time (s)	7.3	7.3	3.0	7.3	7.0	7.0
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Frt	1.00	0.85	1.00	1.00	0.98	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	4749	1507	1652	4706	3251	1358
Flt Permitted	1.00	1.00	0.18	1.00	0.95	1.00
Satd. Flow (perm)	4749	1507	320	4706	3251	1358
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1164	222	222	1199	439	245
RTOR Reduction (vph)	0	105	0	0	6	127
Lane Group Flow (vph)	1164	117	222	1199	465	86
Heavy Vehicles (%)	8%	0%	2%	9%	0%	1%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2	6			4
Actuated Green, G (s)	62.8	62.8	82.7	82.7	23.0	23.0
Effective Green, g (s)	62.8	62.8	82.7	82.7	23.0	23.0
Actuated g/C Ratio	0.52	0.52	0.69	0.69	0.19	0.19
Clearance Time (s)	7.3	7.3	3.0	7.3	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2485	788	408	3243	623	260
v/s Ratio Prot	0.25		c0.08	0.25	c0.14	
v/s Ratio Perm		0.08	c0.30			0.06
v/c Ratio	0.46	0.14	0.54	0.36	0.74	0.33
Uniform Delay, d1	18.0	14.7	8.3	7.7	45.7	41.8
Progression Factor	0.20	0.05	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.3	1.4	0.3	4.8	0.7
Delay (s)	4.3	1.2	9.8	8.1	50.5	42.6
Level of Service	A	A	A	A	D	D
Approach Delay (s/veh)	3.8			8.3	48.1	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.3
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

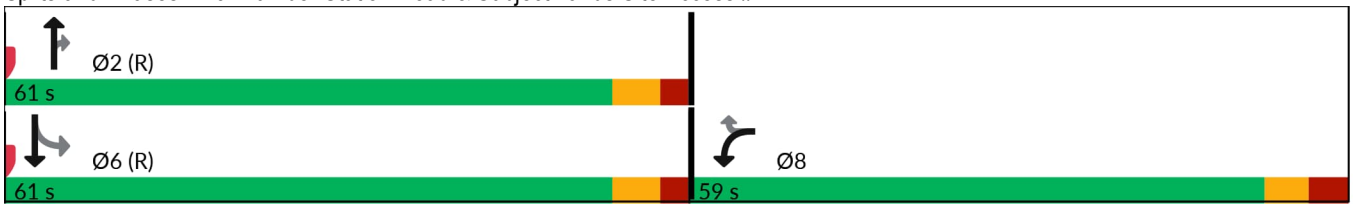
c Critical Lane Group

Lane Group	NBT	SBT	Ø8
Lane Configurations			
Traffic Volume (vph)	417	98	
Future Volume (vph)	417	98	
Lane Group Flow (vph)	417	98	
Turn Type	NA	NA	
Protected Phases	2	6	8
Permitted Phases			
Detector Phase	2	6	
Switch Phase			
Minimum Initial (s)	12.0	12.0	12.0
Minimum Split (s)	24.7	24.7	25.5
Total Split (s)	61.0	61.0	59.0
Total Split (%)	50.8%	50.8%	49%
Yellow Time (s)	4.2	4.2	4.0
All-Red Time (s)	2.5	2.5	3.5
Lost Time Adjust (s)	0.0	0.0	
Total Lost Time (s)	6.7	6.7	
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	C-Max	C-Max	None
v/c Ratio	0.12	0.02	
Control Delay (s/veh)	0.0	0.0	
Queue Delay	0.0	0.0	
Total Delay (s/veh)	0.0	0.0	
Queue Length 50th (m)	0.0	0.0	
Queue Length 95th (m)	m0.0	0.0	
Internal Link Dist (m)	1542.4	469.4	
Turn Bay Length (m)			
Base Capacity (vph)	3466	3500	
Starvation Cap Reductn	0	0	
Spillback Cap Reductn	0	0	
Storage Cap Reductn	0	0	
Reduced v/c Ratio	0.12	0.03	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 21 (18%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: Humber Station Road & Subject Lands Site Access #1



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	417	0	0	98
Future Volume (vph)	0	0	417	0	0	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.0	3.5	3.0	3.0	3.5
Total Lost time (s)			6.7			6.7
Lane Util. Factor			0.95			0.95
Frt			1.00			1.00
Flt Protected			1.00			1.00
Satd. Flow (prot)			3466			3500
Flt Permitted			1.00			1.00
Satd. Flow (perm)			3466			3500
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	417	0	0	98
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	417	0	0	98
Heavy Vehicles (%)	0%	0%	3%	0%	0%	2%
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Actuated Green, G (s)			120.0			120.0
Effective Green, g (s)			120.0			120.0
Actuated g/C Ratio			1.00			1.00
Clearance Time (s)			6.7			6.7
Vehicle Extension (s)			3.0			3.0
Lane Grp Cap (vph)			3466			3500
v/s Ratio Prot			c0.12			0.03
v/s Ratio Perm						
v/c Ratio			0.12			0.02
Uniform Delay, d1			0.0			0.0
Progression Factor			1.00			1.00
Incremental Delay, d2			0.0			0.0
Delay (s)			0.0			0.0
Level of Service			A			A
Approach Delay (s/veh)	0.0		0.0			0.0
Approach LOS	A		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	0.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.14		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	17.1%	ICU Level of Service	A
Analysis Period (min)	15		

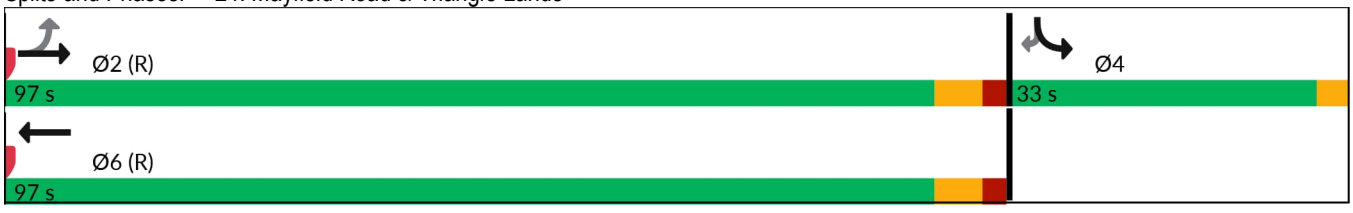
c Critical Lane Group

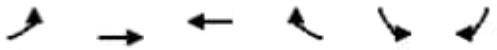
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	85	1282	1185	75	167
Future Volume (vph)	85	1282	1185	75	167
Lane Group Flow (vph)	85	1282	1242	75	167
Turn Type	Perm	NA	NA	Prot	Perm
Protected Phases		2	6	4	
Permitted Phases	2				4
Detector Phase	2	2	6	4	4
Switch Phase					
Minimum Initial (s)	12.0	12.0	12.0	5.0	5.0
Minimum Split (s)	37.0	37.0	37.0	33.0	33.0
Total Split (s)	97.0	97.0	97.0	33.0	33.0
Total Split (%)	74.6%	74.6%	74.6%	25.4%	25.4%
Yellow Time (s)	4.6	4.6	4.6	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	3.0	3.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max	C-Max	None	None
v/c Ratio	0.31	0.30	0.30	0.52	0.71
Control Delay (s/veh)	6.9	3.1	0.6	66.9	37.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	6.9	3.1	0.6	66.9	37.0
Queue Length 50th (m)	4.1	22.2	3.2	19.7	14.0
Queue Length 95th (m)	14.8	39.4	5.5	34.3	37.4
Internal Link Dist (m)		619.0	290.4	250.9	
Turn Bay Length (m)	30.0			30.0	
Base Capacity (vph)	272	4227	4134	338	392
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	0.31	0.30	0.30	0.22	0.43

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 24: Mayfield Road & Triangle Lands





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	85	1282	1185	57	75	167
Future Volume (vph)	85	1282	1185	57	75	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.0	3.0
Total Lost time (s)	7.0	7.0	7.0		3.0	3.0
Lane Util. Factor	1.00	0.91	0.91		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1478	5129	5014		1465	1322
Flt Permitted	0.21	1.00	1.00		0.95	1.00
Satd. Flow (perm)	329	5129	5014		1465	1322
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	85	1282	1185	57	75	167
RTOR Reduction (vph)	0	0	2	0	0	102
Lane Group Flow (vph)	85	1282	1240	0	75	65
Heavy Vehicles (%)	14%	0%	1%	14%	15%	14%
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Actuated Green, G (s)	107.2	107.2	107.2		12.8	12.8
Effective Green, g (s)	107.2	107.2	107.2		12.8	12.8
Actuated g/C Ratio	0.82	0.82	0.82		0.10	0.10
Clearance Time (s)	7.0	7.0	7.0		3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	271	4229	4134		144	130
v/s Ratio Prot		0.25	0.25		c0.05	
v/s Ratio Perm	c0.26					0.05
v/c Ratio	0.31	0.30	0.29		0.52	0.50
Uniform Delay, d1	2.6	2.6	2.6		55.6	55.5
Progression Factor	1.00	1.00	0.16		1.00	1.00
Incremental Delay, d2	3.0	0.1	0.1		3.3	3.0
Delay (s)	5.7	2.8	0.5		59.0	58.5
Level of Service	A	A	A		E	E
Approach Delay (s/veh)		3.0	0.5		58.7	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	6.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	53.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	417	0	0	98
Future Volume (Veh/h)	0	0	417	0	0	98
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)	0	0	417	0	0	98
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	466	209			417	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	466	209			417	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	530	804			1153	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	0	209	209	0	0	49	49
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.12	0.12	0.00	0.00	0.03	0.03
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	A						
Approach Delay (s/veh)	0.0		0.0			0.0		
Approach LOS	A							

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	14.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	591	0	0	1164	0	0
Future Volume (Veh/h)	591	0	0	1164	0	0
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)	591	0	0	1164	0	0
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			591		1173	296
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			591		1173	296
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			995		188	707

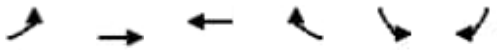
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	394	197	388	776	0	0
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	1700	1700	995	1700	1700	1700
Volume to Capacity	0.23	0.12	0.00	0.46	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS					A	A
Approach Delay (s/veh)	0.0		0.0		0.0	
Approach LOS					A	

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	35.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	417	0	0	98
Future Volume (Veh/h)	0	0	417	0	0	98
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)	0	0	417	0	0	98
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	466	209			417	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	466	209			417	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	530	804			1153	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	0	209	209	0	0	49	49
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.12	0.12	0.00	0.00	0.03	0.03
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	A						
Approach Delay (s/veh)	0.0		0.0			0.0		
Approach LOS	A							

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	14.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1344	1589	0	0	0
Future Volume (Veh/h)	0	1344	1589	0	0	0
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)	0	1344	1589	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (m)		270	142			
pX, platoon unblocked	0.90				0.87	0.90
vC, conflicting volume	1589				2037	530
vC1, stage 1 conf vol					1589	
vC2, stage 2 conf vol					448	
vCu, unblocked vol	1272				910	97
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	499				203	853

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	0	448	448	448	636	636	318	0	0
Volume Left	0	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.26	0.26	0.26	0.37	0.37	0.19	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS								A	A
Approach Delay (s/veh)	0.0				0.0			0.0	
Approach LOS								A	

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	34.0%	ICU Level of Service		A
Analysis Period (min)	15			

APPENDIX K

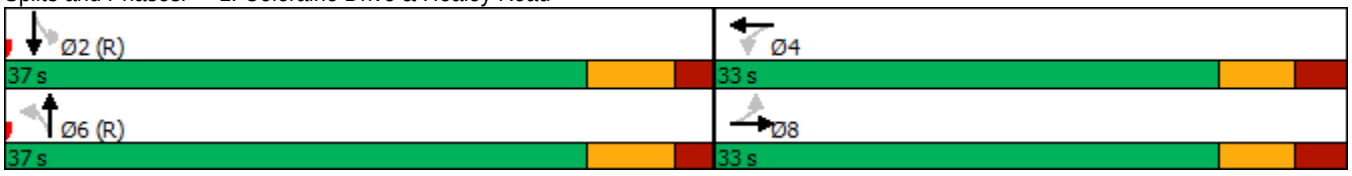
Future Total (2028, 2033, 2043) Intersection Capacity Analysis

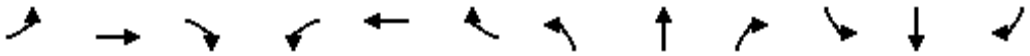
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	155	347	49	146	35	130	64	324
Future Volume (vph)	155	347	49	146	35	130	64	324
Lane Group Flow (vph)	167	644	53	181	38	169	69	579
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	32.8	32.8	32.8	32.8	36.7	36.7	36.7	36.7
Total Split (s)	33.0	33.0	33.0	33.0	37.0	37.0	37.0	37.0
Total Split (%)	47.1%	47.1%	47.1%	47.1%	52.9%	52.9%	52.9%	52.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	2.8	2.8	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.7	6.7	6.7	6.7
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.42	0.96	0.63	0.29	0.12	0.15	0.18	0.40
Control Delay	20.3	47.5	56.1	15.9	13.3	10.3	13.8	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.3	47.5	56.1	15.9	13.3	10.3	13.8	8.7
Queue Length 50th (m)	16.6	77.1	5.8	15.7	3.0	5.8	5.6	15.5
Queue Length 95th (m)	32.8	#144.5	#24.1	30.1	8.7	11.4	13.5	26.8
Internal Link Dist (m)		1349.5		424.0		1711.9		1121.0
Turn Bay Length (m)	55.0		50.0		80.0		155.0	
Base Capacity (vph)	406	683	85	625	313	1155	391	1457
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	0.41	0.94	0.62	0.29	0.12	0.15	0.18	0.40

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 6 (9%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Coleraine Drive & Healey Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	347	252	49	146	22	35	130	27	64	324	215
Future Volume (vph)	155	347	252	49	146	22	35	130	27	64	324	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.8	6.8		6.8	6.8		6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.94		1.00	0.98		1.00	0.97		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1604	1726		1404	1650		1636	2597		1316	3029	
Flt Permitted	0.64	1.00		0.16	1.00		0.42	1.00		0.65	1.00	
Satd. Flow (perm)	1086	1726		229	1650		715	2597		894	3029	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	167	373	271	53	157	24	38	140	29	69	348	231
RTOR Reduction (vph)	0	38	0	0	8	0	0	16	0	0	130	0
Lane Group Flow (vph)	167	606	0	53	173	0	38	153	0	69	449	0
Heavy Vehicles (%)	5%	2%	2%	20%	3%	68%	3%	37%	19%	28%	16%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	25.8	25.8		25.8	25.8		30.7	30.7		30.7	30.7	
Effective Green, g (s)	25.8	25.8		25.8	25.8		30.7	30.7		30.7	30.7	
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.44	0.44		0.44	0.44	
Clearance Time (s)	6.8	6.8		6.8	6.8		6.7	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	400	636		84	608		313	1138		392	1328	
v/s Ratio Prot		c0.35			0.10			0.06			c0.15	
v/s Ratio Perm	0.15			0.23			0.05			0.08		
v/c Ratio	0.42	0.95		0.63	0.28		0.12	0.13		0.18	0.34	
Uniform Delay, d1	16.5	21.5		18.2	15.6		11.7	11.7		12.0	13.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	24.5		14.4	0.3		0.8	0.2		1.0	0.7	
Delay (s)	17.2	46.0		32.6	15.8		12.4	12.0		12.9	13.6	
Level of Service	B	D		C	B		B	B		B	B	
Approach Delay (s)		40.1			19.6			12.1			13.6	
Approach LOS		D			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	25.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		

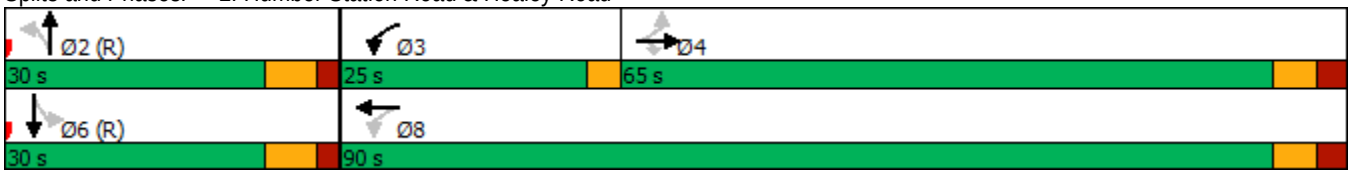
c Critical Lane Group

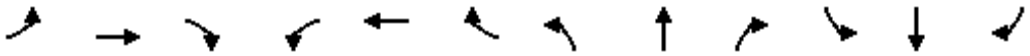
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	4	618	83	149	265	44	18	79	187
Future Volume (vph)	4	618	83	149	265	44	18	79	187
Lane Group Flow (vph)	4	665	89	160	289	47	87	85	205
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		4		3	8		2		6
Permitted Phases	4		4	8		2		6	
Detector Phase	4	4	4	3	8	2	2	6	6
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)	24.8	24.8	24.8	9.5	24.8	24.7	24.7	24.8	24.8
Total Split (s)	65.0	65.0	65.0	25.0	90.0	30.0	30.0	30.0	30.0
Total Split (%)	54.2%	54.2%	54.2%	20.8%	75.0%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	2.8	0.0	2.8	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.8	3.0	6.8	6.7	6.7	6.7	6.7
Lead/Lag	Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.01	0.86	0.14	0.63	0.29	0.15	0.15	0.20	0.32
Control Delay	17.0	43.5	7.5	24.4	14.8	31.0	10.0	32.5	32.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.0	43.5	7.5	24.4	14.8	31.0	10.0	32.5	32.9
Queue Length 50th (m)	0.6	144.6	4.0	17.2	36.0	7.8	1.8	15.1	37.8
Queue Length 95th (m)	2.5	176.4	12.6	29.4	44.5	m20.1	16.6	31.3	65.2
Internal Link Dist (m)		465.5			1349.5		1464.0		452.2
Turn Bay Length (m)	30.0		30.0	60.0		30.0		30.0	
Base Capacity (vph)	402	895	728	376	1271	312	575	431	644
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.74	0.12	0.43	0.23	0.15	0.15	0.20	0.32

Intersection Summary

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

Splits and Phases: 2: Humber Station Road & Healey Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	618	83	149	265	4	44	18	63	79	187	4
Future Volume (vph)	4	618	83	149	265	4	44	18	63	79	187	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.8	6.8	6.8	3.0	6.8		6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	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	0.88		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1348	1842	1436	1604	1833		1478	1527		1685	1855	
Flt Permitted	0.58	1.00	1.00	0.12	1.00		0.58	1.00		0.70	1.00	
Satd. Flow (perm)	827	1842	1436	211	1833		900	1527		1242	1855	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	4	665	89	160	285	4	47	19	68	85	201	4
RTOR Reduction (vph)	0	0	35	0	0	0	0	44	0	0	1	0
Lane Group Flow (vph)	4	665	54	160	289	0	47	43	0	85	204	0
Heavy Vehicles (%)	25%	2%	5%	5%	2%	25%	14%	0%	11%	0%	1%	0%
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	50.2	50.2	50.2	64.8	64.8		41.7	41.7		41.7	41.7	
Effective Green, g (s)	50.2	50.2	50.2	64.8	64.8		41.7	41.7		41.7	41.7	
Actuated g/C Ratio	0.42	0.42	0.42	0.54	0.54		0.35	0.35		0.35	0.35	
Clearance Time (s)	6.8	6.8	6.8	3.0	6.8		6.7	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	345	770	600	248	989		312	530		431	644	
v/s Ratio Prot		c0.36		c0.06	0.16			0.03			c0.11	
v/s Ratio Perm	0.00		0.04	0.29			0.05			0.07		
v/c Ratio	0.01	0.86	0.09	0.65	0.29		0.15	0.08		0.20	0.32	
Uniform Delay, d1	20.4	31.8	21.1	21.5	15.1		27.0	26.3		27.4	28.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.94	0.85		1.00	1.00	
Incremental Delay, d2	0.0	9.9	0.1	5.7	0.2		1.0	0.3		1.0	1.3	
Delay (s)	20.4	41.7	21.2	27.2	15.2		26.3	22.7		28.4	30.0	
Level of Service	C	D	C	C	B		C	C		C	C	
Approach Delay (s)		39.2			19.5			24.0			29.5	
Approach LOS		D			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	30.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	77.7%	ICU Level of Service	D
Analysis Period (min)	15		

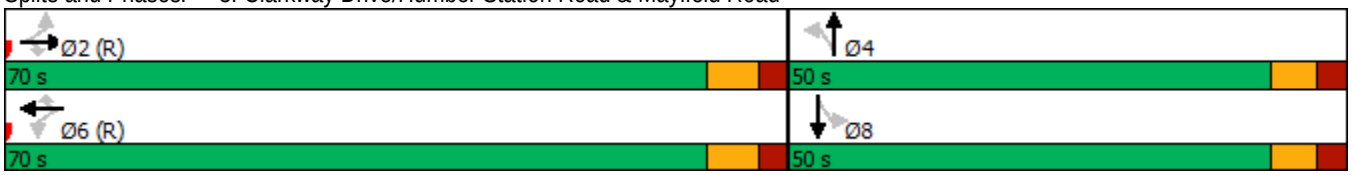
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	141	754	28	102	567	63	11	120	34	288
Future Volume (vph)	141	754	28	102	567	63	11	120	34	288
Lane Group Flow (vph)	147	785	29	106	591	66	11	331	35	351
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		2			6			4		8
Permitted Phases	2		2	6		6	4		8	
Detector Phase	2	2	2	6	6	6	4	4	8	8
Switch Phase										
Minimum Initial (s)	12.0	12.0	12.0	12.0	12.0	12.0	8.0	8.0	8.0	8.0
Minimum Split (s)	27.3	27.3	27.3	27.5	27.5	27.5	26.0	26.0	27.5	27.5
Total Split (s)	70.0	70.0	70.0	70.0	70.0	70.0	50.0	50.0	50.0	50.0
Total Split (%)	58.3%	58.3%	58.3%	58.3%	58.3%	58.3%	41.7%	41.7%	41.7%	41.7%
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.2	4.2	4.2	4.2
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.0	7.0	7.0	7.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None
v/c Ratio	0.34	0.28	0.04	0.30	0.31	0.07	0.11	0.72	0.29	0.81
Control Delay	14.6	10.8	3.0	14.5	11.4	2.9	34.0	39.7	46.1	62.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.6	10.8	3.0	14.5	11.4	2.9	34.0	39.7	46.1	62.6
Queue Length 50th (m)	15.9	29.5	0.0	11.1	32.7	0.0	2.1	58.3	8.0	86.9
Queue Length 95th (m)	36.0	44.9	3.6	27.4	52.5	6.4	6.8	83.8	18.3	115.3
Internal Link Dist (m)		1635.6			198.0			1951.8		1542.4
Turn Bay Length (m)	150.0		105.0	150.0		115.0	75.0		105.0	
Base Capacity (vph)	434	2826	777	354	1917	908	147	634	175	627
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.28	0.04	0.30	0.31	0.07	0.07	0.52	0.20	0.56

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 3: Clarkway Drive/Humber Station Road & Mayfield Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	754	28	102	567	63	11	120	198	34	288	49
Future Volume (vph)	141	754	28	102	567	63	11	120	198	34	288	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1560	4460	1206	1574	3025	1396	1428	1632		1504	1752	
Flt Permitted	0.42	1.00	1.00	0.34	1.00	1.00	0.27	1.00		0.31	1.00	
Satd. Flow (perm)	687	4460	1206	560	3025	1396	413	1632		489	1752	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	147	785	29	106	591	66	11	125	206	35	300	51
RTOR Reduction (vph)	0	0	11	0	0	24	0	58	0	0	0	0
Lane Group Flow (vph)	147	785	18	106	591	42	11	273	0	35	351	0
Heavy Vehicles (%)	8%	15%	25%	7%	18%	8%	18%	5%	4%	12%	3%	16%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	76.0	76.0	76.0	76.0	76.0	76.0	29.7	29.7		29.7	29.7	
Effective Green, g (s)	76.0	76.0	76.0	76.0	76.0	76.0	29.7	29.7		29.7	29.7	
Actuated g/C Ratio	0.63	0.63	0.63	0.63	0.63	0.63	0.25	0.25		0.25	0.25	
Clearance Time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	435	2824	763	354	1915	884	102	403		121	433	
v/s Ratio Prot		0.18			0.20			0.17			c0.20	
v/s Ratio Perm	c0.21		0.02	0.19		0.03	0.03			0.07		
v/c Ratio	0.34	0.28	0.02	0.30	0.31	0.05	0.11	0.68		0.29	0.81	
Uniform Delay, d1	10.3	9.8	8.2	10.0	10.0	8.3	34.9	40.8		36.6	42.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.16	1.14	
Incremental Delay, d2	2.1	0.2	0.1	2.2	0.4	0.1	0.5	4.5		1.3	10.8	
Delay (s)	12.4	10.0	8.2	12.1	10.4	8.4	35.4	45.3		43.7	59.3	
Level of Service	B	B	A	B	B	A	D	D		D	E	
Approach Delay (s)		10.3			10.5			45.0			57.9	
Approach LOS		B			B			D			E	

Intersection Summary			
HCM 2000 Control Delay	22.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.3
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		

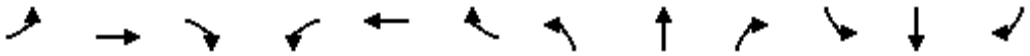
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	286	502	44	545	20	133	67	339
Future Volume (vph)	286	502	44	545	20	133	67	339
Lane Group Flow (vph)	325	627	50	662	23	161	76	626
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases	5	2		6		4	3	8
Permitted Phases	2		6		4		8	
Detector Phase	5	2	6	6	4	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	12.0	12.0	12.0	12.0	12.0	5.0	12.0
Minimum Split (s)	8.0	37.0	37.0	37.0	37.0	37.0	8.0	37.0
Total Split (s)	15.0	80.0	65.0	65.0	32.0	32.0	18.0	50.0
Total Split (%)	11.5%	61.5%	50.0%	50.0%	24.6%	24.6%	13.8%	38.5%
Yellow Time (s)	3.0	4.6	4.6	4.6	4.2	4.2	3.0	4.2
All-Red Time (s)	0.0	2.4	2.4	2.4	2.8	2.8	0.0	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0
Lead/Lag	Lead		Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None	None
v/c Ratio	0.62	0.30	0.13	0.38	0.37	0.38	0.30	0.82
Control Delay	13.2	9.1	19.5	19.8	71.1	54.4	40.9	49.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.2	9.1	19.5	19.8	71.1	54.4	40.9	49.3
Queue Length 50th (m)	28.4	31.6	6.5	52.4	5.9	21.1	16.6	71.3
Queue Length 95th (m)	50.6	48.5	16.6	78.4	15.2	31.2	27.6	84.2
Internal Link Dist (m)		290.4		1003.7		192.7		576.8
Turn Bay Length (m)	100.0		85.0		105.0		145.0	
Base Capacity (vph)	524	2094	391	1732	101	679	272	1127
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	0.62	0.30	0.13	0.38	0.23	0.24	0.28	0.56

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 92 (71%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 4: Coleraine Drive & Mayfield Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	286	502	50	44	545	38	20	133	9	67	339	212
Future Volume (vph)	286	502	50	44	545	38	20	133	9	67	339	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.99		1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1560	3069		1685	3238		1532	3513		1452	3180	
Flt Permitted	0.34	1.00		0.41	1.00		0.33	1.00		0.54	1.00	
Satd. Flow (perm)	559	3069		734	3238		527	3513		832	3180	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	325	570	57	50	619	43	23	151	10	76	385	241
RTOR Reduction (vph)	0	4	0	0	3	0	0	4	0	0	89	0
Lane Group Flow (vph)	325	623	0	50	659	0	23	157	0	76	537	0
Heavy Vehicles (%)	8%	16%	2%	0%	8%	26%	10%	0%	11%	16%	0%	15%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	5	2			6			4		3	8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	88.0	88.0		68.8	68.8		15.4	15.4		28.0	28.0	
Effective Green, g (s)	88.0	88.0		68.8	68.8		15.4	15.4		28.0	28.0	
Actuated g/C Ratio	0.68	0.68		0.53	0.53		0.12	0.12		0.22	0.22	
Clearance Time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	503	2077		388	1713		62	416		224	684	
v/s Ratio Prot	c0.08	0.20			0.20			0.04		0.02	c0.17	
v/s Ratio Perm	c0.36			0.07			0.04			0.05		
v/c Ratio	0.65	0.30		0.13	0.38		0.37	0.38		0.34	0.79	
Uniform Delay, d1	9.4	8.5		15.5	18.1		52.8	52.9		42.3	48.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.9	0.4		0.7	0.7		3.7	0.6		0.9	5.9	
Delay (s)	12.3	8.9		16.1	18.7		56.6	53.4		43.2	54.1	
Level of Service	B	A		B	B		E	D		D	D	
Approach Delay (s)		10.0			18.6			53.8			52.9	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	27.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	79.1%	ICU Level of Service	D
Analysis Period (min)	15		

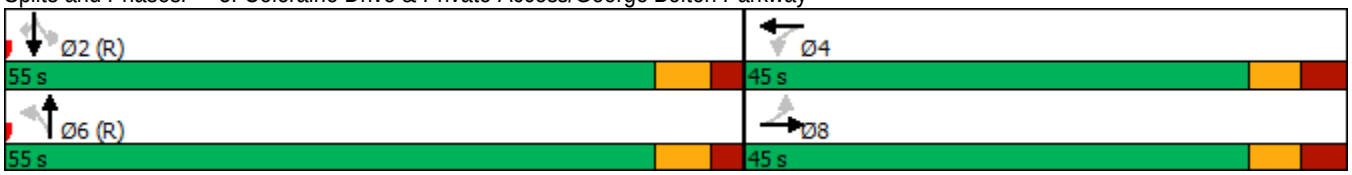
c Critical Lane Group

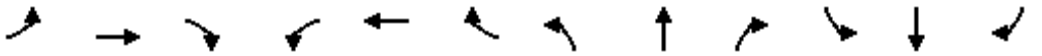
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	4	12	63	23	30	339	94	476	11
Future Volume (vph)	4	12	63	23	30	339	94	476	11
Lane Group Flow (vph)	5	29	73	191	35	506	109	553	13
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		8		4		6		2	
Permitted Phases	8		4		6		2		2
Detector Phase	8	8	4	4	6	6	2	2	2
Switch Phase									
Minimum Initial (s)	8.0	8.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.5	32.5	32.5	32.5	34.2	34.2	33.7	33.7	33.7
Total Split (s)	45.0	45.0	45.0	45.0	55.0	55.0	55.0	55.0	55.0
Total Split (%)	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.2	4.2	4.2	4.2	4.2
All-Red Time (s)	3.5	3.5	3.5	3.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	7.5	7.5	6.7	6.7	6.7	6.7	6.7
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.04	0.15	0.52	0.56	0.08	0.24	0.20	0.25	0.01
Control Delay	35.2	24.0	52.1	15.3	5.6	5.0	6.4	5.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.2	24.0	52.1	15.3	5.6	5.0	6.4	5.6	0.0
Queue Length 50th (m)	0.9	2.6	14.2	5.0	1.7	13.1	5.9	16.4	0.0
Queue Length 95th (m)	3.9	9.7	25.9	21.4	5.7	23.3	14.8	28.2	0.0
Internal Link Dist (m)		152.4		468.8		784.9		1711.9	
Turn Bay Length (m)	70.0		105.0		75.0		100.0		100.0
Base Capacity (vph)	345	486	369	633	458	2127	551	2216	1001
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.06	0.20	0.30	0.08	0.24	0.20	0.25	0.01

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 5: Coleraine Drive & Private Access/George Bolton Parkway





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	12	13	63	23	141	30	339	96	94	476	11
Future Volume (vph)	4	12	13	63	23	141	30	339	96	94	476	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.92		1.00	0.87		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1685	1271		1267	1417		1370	2958		1574	3104	1383
Flt Permitted	0.52	1.00		0.74	1.00		0.45	1.00		0.47	1.00	1.00
Satd. Flow (perm)	921	1271		984	1417		642	2958		772	3104	1383
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	5	14	15	73	27	164	35	394	112	109	553	13
RTOR Reduction (vph)	0	13	0	0	140	0	0	15	0	0	0	4
Lane Group Flow (vph)	5	16	0	73	51	0	35	491	0	109	553	9
Heavy Vehicles (%)	0%	42%	31%	33%	43%	11%	23%	16%	19%	7%	15%	9%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	14.4	14.4		14.4	14.4		71.4	71.4		71.4	71.4	71.4
Effective Green, g (s)	14.4	14.4		14.4	14.4		71.4	71.4		71.4	71.4	71.4
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.71	0.71		0.71	0.71	0.71
Clearance Time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	132	183		141	204		458	2112		551	2216	987
v/s Ratio Prot		0.01			0.04			0.17			c0.18	
v/s Ratio Perm	0.01			c0.07			0.05			0.14		0.01
v/c Ratio	0.04	0.09		0.52	0.25		0.08	0.23		0.20	0.25	0.01
Uniform Delay, d1	36.8	37.1		39.6	38.0		4.3	4.9		4.8	5.0	4.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.1	0.2		3.2	0.6		0.3	0.3		0.8	0.3	0.0
Delay (s)	37.0	37.3		42.8	38.6		4.7	5.2		5.6	5.2	4.1
Level of Service	D	D		D	D		A	A		A	A	A
Approach Delay (s)		37.3			39.8			5.1			5.3	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		

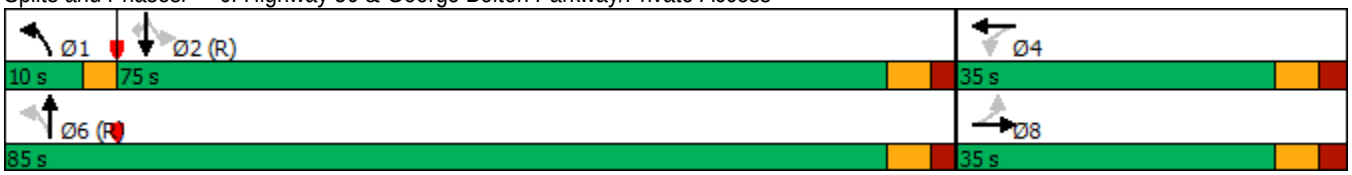
c Critical Lane Group

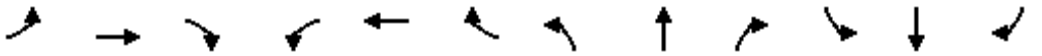
Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	81	0	0	153	886	3	1144	138
Future Volume (vph)	81	0	0	153	886	3	1144	138
Lane Group Flow (vph)	84	114	1	159	923	3	1192	144
Turn Type	Perm	NA	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases		8	4	1	6		2	
Permitted Phases	8			6		2		2
Detector Phase	8	8	4	1	6	2	2	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	5.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.6	32.6	32.6	8.0	27.3	27.3	27.3	27.3
Total Split (s)	35.0	35.0	35.0	10.0	85.0	75.0	75.0	75.0
Total Split (%)	29.2%	29.2%	29.2%	8.3%	70.8%	62.5%	62.5%	62.5%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.6	2.6	0.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	3.0	6.3	6.3	6.3	6.3
Lead/Lag				Lead		Lag	Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.61	0.41	0.00	0.52	0.35	0.01	0.54	0.14
Control Delay	67.7	6.5	0.0	9.4	4.9	9.0	12.2	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.7	6.5	0.0	9.4	4.9	9.0	12.2	2.2
Queue Length 50th (m)	20.1	0.0	0.0	6.9	30.6	0.2	71.5	0.5
Queue Length 95th (m)	35.8	5.8	0.0	15.7	49.4	1.7	116.1	9.2
Internal Link Dist (m)		846.5	43.0		1045.6		1307.8	
Turn Bay Length (m)	85.0			40.0		135.0		60.0
Base Capacity (vph)	286	401	515	304	2644	368	2222	1019
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	0.29	0.28	0.00	0.52	0.35	0.01	0.54	0.14

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 113 (94%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 6: Highway 50 & George Bolton Parkway/Private Access





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	0	109	0	0	1	153	886	0	3	1144	138
Future Volume (vph)	81	0	109	0	0	1	153	886	0	3	1144	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.6	6.6			6.6		3.0	6.3		6.3	6.3	6.3
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.85			0.86		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1518	1174			1625		1370	3400		1685	3305	1449
Flt Permitted	0.76	1.00			1.00		0.19	1.00		0.31	1.00	1.00
Satd. Flow (perm)	1210	1174			1625		269	3400		549	3305	1449
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	84	0	114	0	0	1	159	923	0	3	1192	144
RTOR Reduction (vph)	0	101	0	0	1	0	0	0	0	0	0	45
Lane Group Flow (vph)	84	13	0	0	0	0	159	923	0	3	1192	99
Heavy Vehicles (%)	11%	0%	36%	0%	0%	0%	23%	5%	0%	0%	8%	4%
Turn Type	Perm	NA			NA		pm+pt	NA		Perm	NA	Perm
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	13.8	13.8			13.8		93.3	93.3		80.7	80.7	80.7
Effective Green, g (s)	13.8	13.8			13.8		93.3	93.3		80.7	80.7	80.7
Actuated g/C Ratio	0.12	0.12			0.12		0.78	0.78		0.67	0.67	0.67
Clearance Time (s)	6.6	6.6			6.6		3.0	6.3		6.3	6.3	6.3
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	139	135			186		297	2643		369	2222	974
v/s Ratio Prot		0.01			0.00		c0.04	0.27			0.36	
v/s Ratio Perm	c0.07						c0.37			0.01		0.07
v/c Ratio	0.60	0.10			0.00		0.54	0.35		0.01	0.54	0.10
Uniform Delay, d1	50.5	47.5			47.0		5.8	4.1		6.5	10.1	6.9
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.2	0.3			0.0		1.9	0.4		0.0	0.9	0.2
Delay (s)	57.7	47.8			47.0		7.7	4.4		6.5	11.0	7.1
Level of Service	E	D			D		A	A		A	B	A
Approach Delay (s)		52.0			47.0			4.9			10.6	
Approach LOS		D			D			A			B	

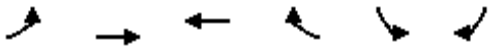
Intersection Summary			
HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.9
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	81	50	81	243	136	290
Future Volume (Veh/h)	81	50	81	243	136	290
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)	81	50	81	243	136	290
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	643	81			324	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	643	81			324	
tC, single (s)	6.6	6.4			4.2	
tC, 2 stage (s)						
tF (s)	3.7	3.5			2.3	
p0 queue free %	78	95			89	
cM capacity (veh/h)	364	931			1208	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	81	50	81	243	136	290
Volume Left	81	0	0	0	136	0
Volume Right	0	50	0	243	0	0
cSH	364	931	1700	1700	1208	1700
Volume to Capacity	0.22	0.05	0.05	0.14	0.11	0.17
Queue Length 95th (m)	6.7	1.4	0.0	0.0	3.0	0.0
Control Delay (s)	17.7	9.1	0.0	0.0	8.4	0.0
Lane LOS	C	A			A	
Approach Delay (s)	14.4		0.0		2.7	
Approach LOS	B					

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	29.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	160	826	660	108	33	72
Future Volume (Veh/h)	160	826	660	108	33	72
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)	160	826	660	108	33	72
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			314			
pX, platoon unblocked	0.91				0.91	0.91
vC, conflicting volume	768				1447	384
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	557				1301	137
tC, single (s)	4.2				7.0	7.2
tC, 2 stage (s)						
tF (s)	2.3				3.6	3.4
p0 queue free %	82				69	91
cM capacity (veh/h)	891				105	779

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	160	413	413	440	328	33	72
Volume Left	160	0	0	0	0	33	0
Volume Right	0	0	0	0	108	0	72
cSH	891	1700	1700	1700	1700	105	779
Volume to Capacity	0.18	0.24	0.24	0.26	0.19	0.31	0.09
Queue Length 95th (m)	5.2	0.0	0.0	0.0	0.0	9.7	2.4
Control Delay (s)	9.9	0.0	0.0	0.0	0.0	54.2	10.1
Lane LOS	A					F	B
Approach Delay (s)	1.6			0.0		24.0	
Approach LOS						C	

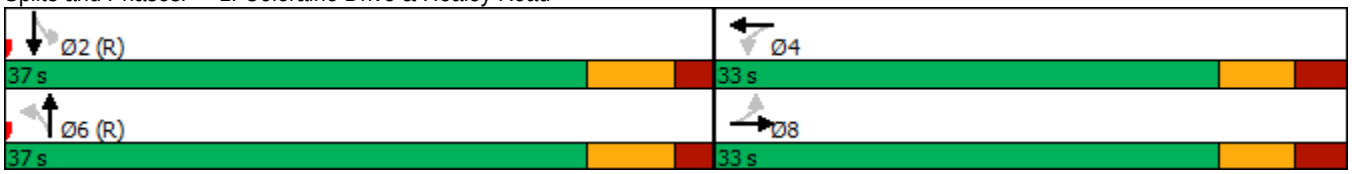
Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	43.9%	ICU Level of Service	A
Analysis Period (min)	15		

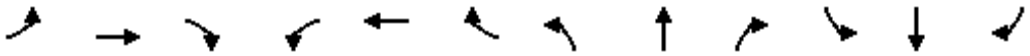
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	159	183	56	323	301	350	47	188
Future Volume (vph)	159	183	56	323	301	350	47	188
Lane Group Flow (vph)	175	399	62	448	331	442	52	309
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	32.8	32.8	32.8	32.8	36.7	36.7	36.7	36.7
Total Split (s)	33.0	33.0	33.0	33.0	37.0	37.0	37.0	37.0
Total Split (%)	47.1%	47.1%	47.1%	47.1%	52.9%	52.9%	52.9%	52.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	2.8	2.8	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.7	6.7	6.7	6.7
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.99	0.65	0.31	0.76	0.70	0.31	0.15	0.22
Control Delay	93.7	20.4	20.5	28.2	26.7	12.1	13.4	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	93.7	20.4	20.5	28.2	26.7	12.1	13.4	8.3
Queue Length 50th (m)	21.9	33.6	5.8	47.7	37.3	18.8	4.2	8.7
Queue Length 95th (m)	#58.2	60.6	15.2	79.0	#81.2	29.2	11.1	16.3
Internal Link Dist (m)		1349.5		424.0		1711.9		1121.0
Turn Bay Length (m)	55.0		50.0		80.0		155.0	
Base Capacity (vph)	199	686	229	668	472	1431	352	1407
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	0.88	0.58	0.27	0.67	0.70	0.31	0.15	0.22

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 12 (17%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Coleraine Drive & Healey Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	159	183	180	56	323	85	301	350	52	47	188	93
Future Volume (vph)	159	183	180	56	323	85	301	350	52	47	188	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.8	6.8		6.8	6.8		6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.93		1.00	0.97		1.00	0.98		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1620	1697		1546	1748		1668	2970		1416	2842	
Flt Permitted	0.31	1.00		0.38	1.00		0.56	1.00		0.50	1.00	
Satd. Flow (perm)	534	1697		614	1748		990	2970		739	2842	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	175	201	198	62	355	93	331	385	57	52	207	102
RTOR Reduction (vph)	0	54	0	0	15	0	0	15	0	0	53	0
Lane Group Flow (vph)	175	345	0	62	433	0	331	427	0	52	256	0
Heavy Vehicles (%)	4%	1%	4%	9%	1%	16%	1%	18%	17%	19%	26%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	23.1	23.1		23.1	23.1		33.4	33.4		33.4	33.4	
Effective Green, g (s)	23.1	23.1		23.1	23.1		33.4	33.4		33.4	33.4	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.48	0.48		0.48	0.48	
Clearance Time (s)	6.8	6.8		6.8	6.8		6.7	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	176	560		202	576		472	1417		352	1356	
v/s Ratio Prot		0.20			0.25			0.14			0.09	
v/s Ratio Perm	c0.33			0.10			c0.33			0.07		
v/c Ratio	0.99	0.62		0.31	0.75		0.70	0.30		0.15	0.19	
Uniform Delay, d1	23.4	19.7		17.5	20.9		14.4	11.2		10.3	10.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	65.8	2.0		0.9	5.5		8.4	0.5		0.9	0.3	
Delay (s)	89.2	21.7		18.3	26.4		22.8	11.7		11.2	10.8	
Level of Service	F	C		B	C		C	B		B	B	
Approach Delay (s)		42.3			25.4			16.5			10.9	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	24.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		

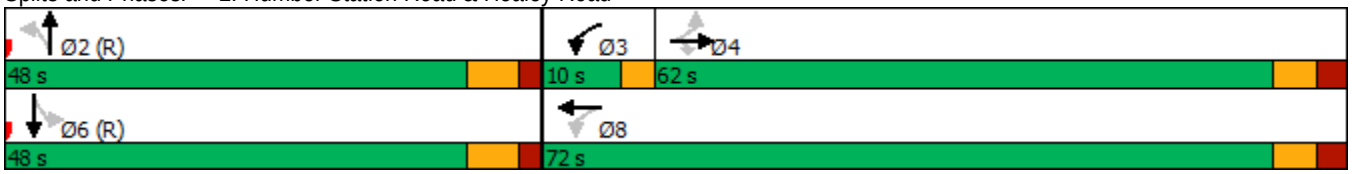
c Critical Lane Group

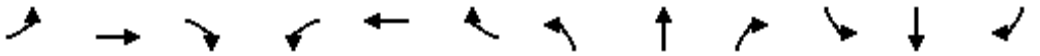
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	21	308	37	69	627	116	206	25	53
Future Volume (vph)	21	308	37	69	627	116	206	25	53
Lane Group Flow (vph)	22	318	38	71	669	120	374	26	61
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		4		3	8		2		6
Permitted Phases	4		4	8		2		6	
Detector Phase	4	4	4	3	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	5.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	24.8	24.8	24.8	9.5	24.8	24.7	24.7	24.7	24.7
Total Split (s)	62.0	62.0	62.0	10.0	72.0	48.0	48.0	48.0	48.0
Total Split (%)	51.7%	51.7%	51.7%	8.3%	60.0%	40.0%	40.0%	40.0%	40.0%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	2.8	0.0	2.8	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.8	3.0	6.8	6.7	6.7	6.7	6.7
Lead/Lag	Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.18	0.46	0.07	0.20	0.82	0.23	0.48	0.08	0.08
Control Delay	26.7	30.2	2.2	16.7	38.0	17.5	17.0	23.9	21.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.7	30.2	2.2	16.7	38.0	17.5	17.0	23.9	21.0
Queue Length 50th (m)	3.7	60.5	0.0	9.4	141.0	11.4	32.1	3.7	7.8
Queue Length 95th (m)	9.4	75.3	3.3	14.9	161.2	m24.0	74.0	11.3	19.2
Internal Link Dist (m)		465.5			1349.5		1464.0		452.2
Turn Bay Length (m)	30.0		30.0	60.0		30.0		30.0	
Base Capacity (vph)	155	847	630	359	1004	522	779	342	790
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.38	0.06	0.20	0.67	0.23	0.48	0.08	0.08

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Humber Station Road & Healey Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	308	37	69	627	22	116	206	157	25	53	6
Future Volume (vph)	21	308	37	69	627	22	116	206	157	25	53	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.8	6.8	6.8	3.0	6.8		6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	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	0.99		1.00	0.94		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1685	1842	1299	1491	1848		1546	1696		1685	1756	
Flt Permitted	0.19	1.00	1.00	0.42	1.00		0.72	1.00		0.43	1.00	
Satd. Flow (perm)	336	1842	1299	660	1848		1167	1696		762	1756	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	22	318	38	71	646	23	120	212	162	26	55	6
RTOR Reduction (vph)	0	0	24	0	1	0	0	19	0	0	3	0
Lane Group Flow (vph)	22	318	14	71	668	0	120	355	0	26	58	0
Heavy Vehicles (%)	0%	2%	16%	13%	1%	5%	9%	1%	7%	0%	6%	0%
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	44.7	44.7	44.7	53.3	53.3		53.2	53.2		53.2	53.2	
Effective Green, g (s)	44.7	44.7	44.7	53.3	53.3		53.2	53.2		53.2	53.2	
Actuated g/C Ratio	0.37	0.37	0.37	0.44	0.44		0.44	0.44		0.44	0.44	
Clearance Time (s)	6.8	6.8	6.8	3.0	6.8		6.7	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	125	686	483	331	820		517	751		337	778	
v/s Ratio Prot		0.17		0.01	c0.36			c0.21			0.03	
v/s Ratio Perm	0.07		0.01	0.09			0.10			0.03		
v/c Ratio	0.18	0.46	0.03	0.21	0.81		0.23	0.47		0.08	0.07	
Uniform Delay, d1	25.3	28.6	23.9	20.2	29.0		20.7	23.5		19.3	19.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.70	0.64		1.00	1.00	
Incremental Delay, d2	0.7	0.5	0.0	0.3	6.2		1.0	2.0		0.4	0.2	
Delay (s)	26.0	29.1	23.9	20.5	35.3		15.5	17.1		19.7	19.4	
Level of Service	C	C	C	C	D		B	B		B	B	
Approach Delay (s)		28.4			33.9			16.7			19.5	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	26.9	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)	16.5
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		

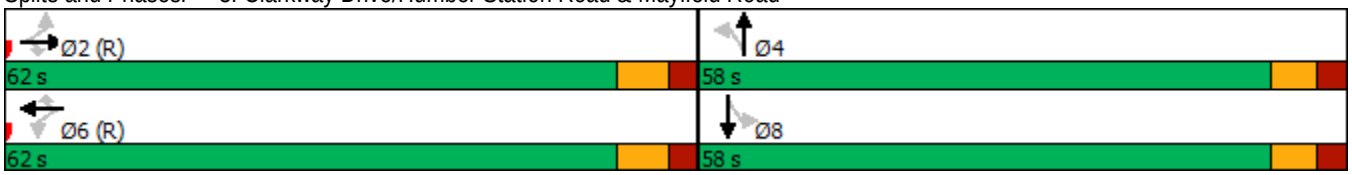
c Critical Lane Group

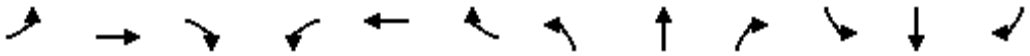
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	71	688	19	135	828	62	59	302	46	149
Future Volume (vph)	71	688	19	135	828	62	59	302	46	149
Lane Group Flow (vph)	73	709	20	139	854	64	61	477	47	290
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		2			6			4		8
Permitted Phases	2		2	6		6	4		8	
Detector Phase	2	2	2	6	6	6	4	4	8	8
Switch Phase										
Minimum Initial (s)	12.0	12.0	12.0	12.0	12.0	12.0	8.0	8.0	8.0	8.0
Minimum Split (s)	27.3	27.3	27.3	27.3	27.3	27.3	26.0	26.0	26.0	26.0
Total Split (s)	62.0	62.0	62.0	62.0	62.0	62.0	58.0	58.0	58.0	58.0
Total Split (%)	51.7%	51.7%	51.7%	51.7%	51.7%	51.7%	48.3%	48.3%	48.3%	48.3%
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.2	4.2	4.2	4.2
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.0	7.0	7.0	7.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None
v/c Ratio	0.32	0.28	0.03	0.42	0.47	0.08	0.27	0.84	0.46	0.56
Control Delay	22.1	15.1	2.3	22.7	18.1	4.3	31.0	49.3	46.5	39.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.1	15.1	2.3	22.7	18.1	4.3	31.0	49.3	46.5	39.1
Queue Length 50th (m)	9.3	31.9	0.0	19.0	63.6	0.0	11.2	104.0	9.7	61.9
Queue Length 95th (m)	25.8	48.9	2.3	45.0	97.8	7.7	20.5	129.2	19.6	75.2
Internal Link Dist (m)		1635.6			198.0			1951.8		1542.4
Turn Bay Length (m)	150.0		105.0	150.0		115.0	75.0		105.0	
Base Capacity (vph)	227	2573	778	330	1807	757	302	744	137	691
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.28	0.03	0.42	0.47	0.08	0.20	0.64	0.34	0.42

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Splits and Phases: 3: Clarkway Drive/Humber Station Road & Mayfield Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	688	19	135	828	62	59	302	161	46	149	132
Future Volume (vph)	71	688	19	135	828	62	59	302	161	46	149	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1370	4580	1358	1546	3216	1299	1504	1712		1518	1626	
Flt Permitted	0.28	1.00	1.00	0.36	1.00	1.00	0.45	1.00		0.20	1.00	
Satd. Flow (perm)	405	4580	1358	589	3216	1299	713	1712		324	1626	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	73	709	20	139	854	64	61	311	166	47	154	136
RTOR Reduction (vph)	0	0	9	0	0	28	0	19	0	0	0	0
Lane Group Flow (vph)	73	709	11	139	854	36	61	458	0	47	290	0
Heavy Vehicles (%)	23%	12%	11%	9%	11%	16%	12%	4%	4%	11%	6%	9%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	67.4	67.4	67.4	67.4	67.4	67.4	38.3	38.3		38.3	38.3	
Effective Green, g (s)	67.4	67.4	67.4	67.4	67.4	67.4	38.3	38.3		38.3	38.3	
Actuated g/C Ratio	0.56	0.56	0.56	0.56	0.56	0.56	0.32	0.32		0.32	0.32	
Clearance Time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	227	2572	762	330	1806	729	227	546		103	518	
v/s Ratio Prot		0.15			c0.27			c0.27			0.18	
v/s Ratio Perm	0.18		0.01	0.24		0.03	0.09			0.15		
v/c Ratio	0.32	0.28	0.01	0.42	0.47	0.05	0.27	0.84		0.46	0.56	
Uniform Delay, d1	14.1	13.6	11.6	15.1	15.7	11.9	30.4	38.0		32.6	33.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.04	1.06	
Incremental Delay, d2	3.7	0.3	0.0	3.9	0.9	0.1	0.6	10.9		3.2	1.3	
Delay (s)	17.8	13.9	11.7	19.0	16.6	12.0	31.1	48.8		37.2	37.3	
Level of Service	B	B	B	B	B	B	C	D		D	D	
Approach Delay (s)		14.2			16.6			46.8			37.3	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	24.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.3
Intersection Capacity Utilization	89.1%	ICU Level of Service	E
Analysis Period (min)	15		

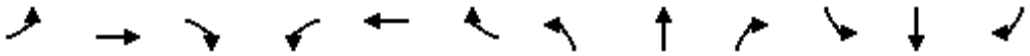
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	229	651	13	612	52	305	52	201
Future Volume (vph)	229	651	13	612	52	305	52	201
Lane Group Flow (vph)	241	716	14	727	55	343	55	486
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases	5	2		6		4	3	8
Permitted Phases	2		6		4		8	
Detector Phase	5	2	6	6	4	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	12.0	12.0	12.0	12.0	12.0	5.0	12.0
Minimum Split (s)	8.0	37.0	37.0	37.0	37.0	37.0	8.0	37.0
Total Split (s)	12.0	80.0	68.0	68.0	36.0	36.0	14.0	50.0
Total Split (%)	9.2%	61.5%	52.3%	52.3%	27.7%	27.7%	10.8%	38.5%
Yellow Time (s)	3.0	4.6	4.6	4.6	4.2	4.2	3.0	4.2
All-Red Time (s)	0.0	2.4	2.4	2.4	2.8	2.8	0.0	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0
Lead/Lag	Lead		Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None	None
v/c Ratio	0.55	0.32	0.04	0.41	0.48	0.71	0.32	0.56
Control Delay	13.0	10.0	18.2	19.3	65.3	60.8	40.1	20.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.0	10.0	18.2	19.3	65.3	60.8	40.1	20.9
Queue Length 50th (m)	22.1	40.4	1.8	59.6	13.9	46.5	11.5	25.9
Queue Length 95th (m)	39.6	58.8	6.1	86.0	27.7	61.0	21.6	41.1
Internal Link Dist (m)		290.4		1003.7		192.7		576.8
Turn Bay Length (m)	100.0		85.0		105.0		145.0	
Base Capacity (vph)	436	2271	342	1755	187	792	187	1187
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	0.55	0.32	0.04	0.41	0.29	0.43	0.29	0.41

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 116 (89%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 4: Coleraine Drive & Mayfield Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	229	651	29	13	612	79	52	305	21	52	201	260
Future Volume (vph)	229	651	29	13	612	79	52	305	21	52	201	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.98		1.00	0.99		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1440	3354		1560	3173		1685	3536		1348	3045	
Flt Permitted	0.32	1.00		0.38	1.00		0.48	1.00		0.32	1.00	
Satd. Flow (perm)	478	3354		623	3173		842	3536		456	3045	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	241	685	31	14	644	83	55	321	22	55	212	274
RTOR Reduction (vph)	0	2	0	0	6	0	0	4	0	0	211	0
Lane Group Flow (vph)	241	714	0	14	721	0	55	339	0	55	275	0
Heavy Vehicles (%)	17%	6%	0%	8%	9%	23%	0%	0%	0%	25%	0%	13%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	5	2			6			4		3	8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	87.4	87.4		71.1	71.1		17.7	17.7		28.6	28.6	
Effective Green, g (s)	87.4	87.4		71.1	71.1		17.7	17.7		28.6	28.6	
Actuated g/C Ratio	0.67	0.67		0.55	0.55		0.14	0.14		0.22	0.22	
Clearance Time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	419	2254		340	1735		114	481		154	669	
v/s Ratio Prot	c0.06	0.21			0.23			c0.10		0.02	c0.09	
v/s Ratio Perm	c0.33			0.02			0.07			0.06		
v/c Ratio	0.58	0.32		0.04	0.42		0.48	0.70		0.36	0.41	
Uniform Delay, d1	9.3	8.9		13.7	17.3		51.9	53.6		41.5	43.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.9	0.4		0.2	0.7		3.2	4.6		1.4	0.4	
Delay (s)	11.2	9.2		13.9	18.0		55.1	58.3		43.0	43.9	
Level of Service	B	A		B	B		E	E		D	D	
Approach Delay (s)		9.7			17.9			57.9			43.8	
Approach LOS		A			B			E			D	

Intersection Summary			
HCM 2000 Control Delay	26.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		

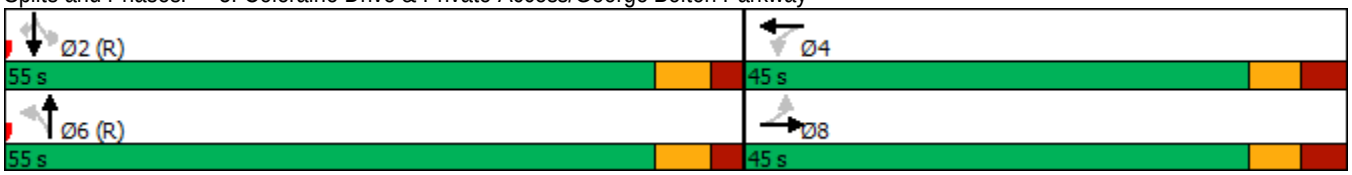
c Critical Lane Group

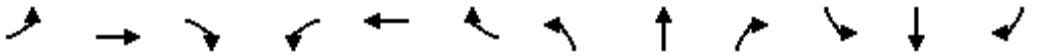
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	7	26	61	9	6	539	177	499	1
Future Volume (vph)	7	26	61	9	6	539	177	499	1
Lane Group Flow (vph)	8	58	73	198	7	733	213	601	1
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		8		4		6		2	
Permitted Phases	8		4		6		2		2
Detector Phase	8	8	4	4	6	6	2	2	2
Switch Phase									
Minimum Initial (s)	8.0	8.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.5	32.5	32.5	32.5	34.2	34.2	33.7	33.7	33.7
Total Split (s)	45.0	45.0	45.0	45.0	55.0	55.0	55.0	55.0	55.0
Total Split (%)	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.2	4.2	4.2	4.2	4.2
All-Red Time (s)	3.5	3.5	3.5	3.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	7.5	7.5	6.7	6.7	6.7	6.7	6.7
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.07	0.24	0.48	0.54	0.02	0.33	0.48	0.26	0.00
Control Delay	37.4	25.7	50.0	12.8	4.8	5.6	10.8	5.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	25.7	50.0	12.8	4.8	5.6	10.8	5.3	0.0
Queue Length 50th (m)	1.5	5.8	14.2	2.0	0.3	21.9	14.7	17.5	0.0
Queue Length 95th (m)	5.3	14.8	24.9	16.8	1.7	33.5	33.0	27.3	0.0
Internal Link Dist (m)		152.4		468.8		784.9		1711.9	
Turn Bay Length (m)	70.0		105.0		75.0		100.0		100.0
Base Capacity (vph)	322	619	423	675	362	2244	445	2280	1101
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.09	0.17	0.29	0.02	0.33	0.48	0.26	0.00

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 5: Coleraine Drive & Private Access/George Bolton Parkway





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	26	22	61	9	155	6	539	70	177	499	1
Future Volume (vph)	7	26	22	61	9	155	6	539	70	177	499	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.93		1.00	0.86		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1685	1608		1491	1491		1123	3102		1589	3159	1507
Flt Permitted	0.49	1.00		0.72	1.00		0.42	1.00		0.37	1.00	1.00
Satd. Flow (perm)	861	1608		1129	1491		502	3102		617	3159	1507
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	8	31	27	73	11	187	7	649	84	213	601	1
RTOR Reduction (vph)	0	23	0	0	162	0	0	5	0	0	0	0
Lane Group Flow (vph)	8	35	0	73	36	0	7	728	0	213	601	1
Heavy Vehicles (%)	0%	4%	14%	13%	11%	8%	50%	13%	14%	6%	13%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	13.6	13.6		13.6	13.6		72.2	72.2		72.2	72.2	72.2
Effective Green, g (s)	13.6	13.6		13.6	13.6		72.2	72.2		72.2	72.2	72.2
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.72	0.72		0.72	0.72	0.72
Clearance Time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	117	218		153	202		362	2239		445	2280	1088
v/s Ratio Prot		0.02			0.02			0.23			0.19	
v/s Ratio Perm	0.01			c0.06			0.01			c0.35		0.00
v/c Ratio	0.07	0.16		0.48	0.18		0.02	0.33		0.48	0.26	0.00
Uniform Delay, d1	37.7	38.1		39.9	38.3		3.9	5.0		5.9	4.8	3.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	0.3		2.3	0.4		0.1	0.4		3.7	0.3	0.0
Delay (s)	37.9	38.5		42.3	38.7		4.0	5.4		9.6	5.1	3.9
Level of Service	D	D		D	D		A	A		A	A	A
Approach Delay (s)		38.4			39.7			5.4			6.2	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	54.6%	ICU Level of Service	A
Analysis Period (min)	15		

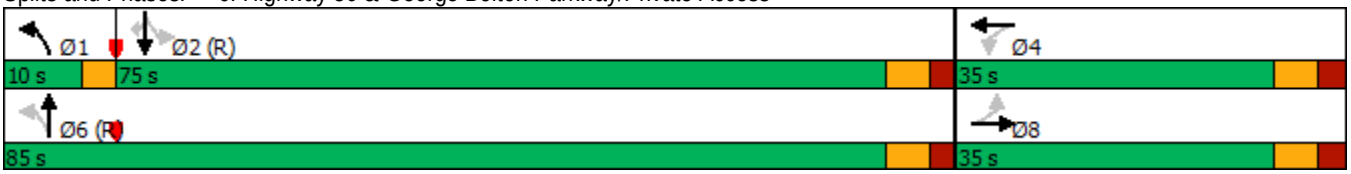
c Critical Lane Group

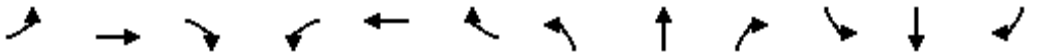
Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	225	0	0	135	1320	1	983	169
Future Volume (vph)	225	0	0	135	1320	1	983	169
Lane Group Flow (vph)	234	218	7	141	1375	1	1024	176
Turn Type	Perm	NA	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases		8	4	1	6		2	
Permitted Phases	8			6		2		2
Detector Phase	8	8	4	1	6	2	2	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	5.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.6	32.6	32.6	8.0	27.3	27.3	27.3	27.3
Total Split (s)	35.0	35.0	35.0	10.0	85.0	75.0	75.0	75.0
Total Split (%)	29.2%	29.2%	29.2%	8.3%	70.8%	62.5%	62.5%	62.5%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.6	2.6	0.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	3.0	6.3	6.3	6.3	6.3
Lead/Lag				Lead		Lag	Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.86	0.49	0.02	0.48	0.59	0.01	0.49	0.19
Control Delay	73.2	11.6	0.1	11.8	11.8	11.0	15.3	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.2	11.6	0.1	11.8	11.8	11.0	15.3	2.2
Queue Length 50th (m)	55.1	4.9	0.0	10.6	91.2	0.1	77.0	0.0
Queue Length 95th (m)	#92.1	26.9	0.0	18.9	116.1	0.9	94.9	9.7
Internal Link Dist (m)		846.5	43.0		1045.6		1307.8	
Turn Bay Length (m)	85.0			40.0		135.0		60.0
Base Capacity (vph)	312	479	434	294	2330	183	2073	934
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	0.75	0.46	0.02	0.48	0.59	0.01	0.49	0.19

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 116 (97%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Highway 50 & George Bolton Parkway/Private Access





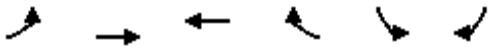
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	0	209	0	0	7	135	1320	0	1	983	169
Future Volume (vph)	225	0	209	0	0	7	135	1320	0	1	983	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.6	6.6			6.6		3.0	6.3		6.3	6.3	6.3
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99			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	1.00
Frt	1.00	0.85			0.86		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1668	1405			1625		1404	3400		1685	3466	1444
Flt Permitted	0.75	1.00			1.00		0.22	1.00		0.17	1.00	1.00
Satd. Flow (perm)	1322	1405			1625		318	3400		307	3466	1444
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	234	0	218	0	0	7	141	1375	0	1	1024	176
RTOR Reduction (vph)	0	153	0	0	6	0	0	0	0	0	0	71
Lane Group Flow (vph)	234	65	0	0	1	0	141	1375	0	1	1024	105
Confl. Peds. (#/hr)			2	2			1					1
Heavy Vehicles (%)	1%	0%	12%	0%	0%	0%	20%	5%	0%	0%	3%	2%
Turn Type	Perm	NA			NA		pm+pt	NA		Perm	NA	Perm
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	24.9	24.9			24.9		82.2	82.2		71.8	71.8	71.8
Effective Green, g (s)	24.9	24.9			24.9		82.2	82.2		71.8	71.8	71.8
Actuated g/C Ratio	0.21	0.21			0.21		0.69	0.69		0.60	0.60	0.60
Clearance Time (s)	6.6	6.6			6.6		3.0	6.3		6.3	6.3	6.3
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	274	291			337		284	2329		183	2073	863
v/s Ratio Prot		0.05			0.00		0.03	c0.40			0.30	
v/s Ratio Perm	c0.18						0.31			0.00		0.07
v/c Ratio	0.85	0.22			0.00		0.50	0.59		0.01	0.49	0.12
Uniform Delay, d1	45.8	39.5			37.7		8.5	10.0		9.7	13.7	10.4
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	21.9	0.4			0.0		1.4	1.1		0.1	0.8	0.3
Delay (s)	67.7	39.9			37.7		9.9	11.1		9.8	14.6	10.7
Level of Service	E	D			D		A	B		A	B	B
Approach Delay (s)		54.3			37.7			11.0			14.0	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.9
Intersection Capacity Utilization	81.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	239	147	322	113	64	88
Future Volume (Veh/h)	239	147	322	113	64	88
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)	239	147	322	113	64	88
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	538	322			435	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	538	322			435	
tC, single (s)	6.5	6.3			4.3	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.4	
p0 queue free %	48	79			94	
cM capacity (veh/h)	460	701			1021	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	239	147	322	113	64	88
Volume Left	239	0	0	0	64	0
Volume Right	0	147	0	113	0	0
cSH	460	701	1700	1700	1021	1700
Volume to Capacity	0.52	0.21	0.19	0.07	0.06	0.05
Queue Length 95th (m)	23.5	6.3	0.0	0.0	1.6	0.0
Control Delay (s)	21.0	11.5	0.0	0.0	8.8	0.0
Lane LOS	C	B			A	
Approach Delay (s)	17.4		0.0		3.7	
Approach LOS	C					

Intersection Summary			
Average Delay	7.5		
Intersection Capacity Utilization	43.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	85	810	858	57	75	167
Future Volume (Veh/h)	85	810	858	57	75	167
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)	85	810	858	57	75	167
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			314			
pX, platoon unblocked	0.90				0.90	0.90
vC, conflicting volume	915				1462	458
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	680				1288	171
tC, single (s)	4.4				7.1	7.2
tC, 2 stage (s)						
tF (s)	2.3				3.6	3.4
p0 queue free %	89				32	77
cM capacity (veh/h)	748				111	725

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	85	405	405	572	343	75	167
Volume Left	85	0	0	0	0	75	0
Volume Right	0	0	0	0	57	0	167
cSH	748	1700	1700	1700	1700	111	725
Volume to Capacity	0.11	0.24	0.24	0.34	0.20	0.68	0.23
Queue Length 95th (m)	3.1	0.0	0.0	0.0	0.0	28.1	7.1
Control Delay (s)	10.4	0.0	0.0	0.0	0.0	87.8	11.4
Lane LOS	B					F	B
Approach Delay (s)	1.0			0.0		35.1	
Approach LOS						E	

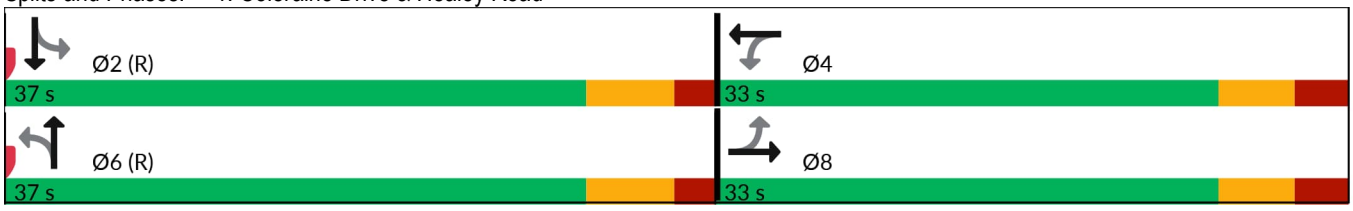
Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	44.4%	ICU Level of Service	A
Analysis Period (min)	15		

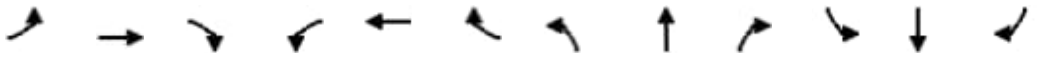
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	189	401	51	215	77	162	64	385
Future Volume (vph)	189	401	51	215	77	162	64	385
Lane Group Flow (vph)	203	718	55	255	83	212	69	695
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	32.8	32.8	32.8	32.8	36.7	36.7	36.7	36.7
Total Split (s)	33.0	33.0	33.0	33.0	37.0	37.0	37.0	37.0
Total Split (%)	47.1%	47.1%	47.1%	47.1%	52.9%	52.9%	52.9%	52.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	2.8	2.8	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.7	6.7	6.7	6.7
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.77	0.65	0.53	0.53	0.25	0.14	0.15	0.40
Control Delay (s/veh)	41.7	15.9	39.0	23.5	14.2	8.6	12.0	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	41.7	15.9	39.0	23.5	14.2	8.6	12.0	7.3
Queue Length 50th (m)	25.2	27.7	6.3	28.0	5.9	6.0	4.6	15.5
Queue Length 95th (m)	43.5	38.9	16.5	42.7	17.7	13.6	13.6	32.3
Internal Link Dist (m)		823.7		424.0		1711.9		1121.0
Turn Bay Length (m)	55.0		50.0		80.0		155.0	
Base Capacity (vph)	353	1395	138	641	329	1446	453	1735
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	0.58	0.51	0.40	0.40	0.25	0.15	0.15	0.40

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 6 (9%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 1: Coleraine Drive & Healey Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	189	401	267	51	215	22	77	162	35	64	385	261
Future Volume (vph)	189	401	267	51	215	22	77	162	35	64	385	261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.8	6.8		6.8	6.8		6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.94		1.00	0.98		1.00	0.97		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1620	3297		1404	1698		1604	2704		1316	3033	
Flt Permitted	0.55	1.00		0.25	1.00		0.36	1.00		0.61	1.00	
Satd. Flow (perm)	945	3297		370	1698		624	2704		858	3033	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	203	431	287	55	231	24	83	174	38	69	414	281
RTOR Reduction (vph)	0	187	0	0	6	0	0	18	0	0	132	0
Lane Group Flow (vph)	203	531	0	55	249	0	83	194	0	69	563	0
Heavy Vehicles (%)	4%	1%	3%	20%	3%	68%	5%	31%	17%	28%	15%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	19.5	19.5		19.5	19.5		37.0	37.0		37.0	37.0	
Effective Green, g (s)	19.5	19.5		19.5	19.5		37.0	37.0		37.0	37.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.53	0.53		0.53	0.53	
Clearance Time (s)	6.8	6.8		6.8	6.8		6.7	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	263	918		103	473		329	1429		453	1603	
v/s Ratio Prot		0.16			0.15			0.07			c0.19	
v/s Ratio Perm	c0.21			0.15			0.13			0.08		
v/c Ratio	0.77	0.57		0.53	0.52		0.25	0.13		0.15	0.35	
Uniform Delay, d1	23.2	21.7		21.3	21.3		8.9	8.3		8.4	9.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	13.1	0.8		5.2	1.0		1.8	0.1		0.7	0.6	
Delay (s)	36.3	22.6		26.6	22.3		10.8	8.5		9.1	10.1	
Level of Service	D	C		C	C		B	A		A	B	
Approach Delay (s/veh)		25.6			23.1			9.2			10.0	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		

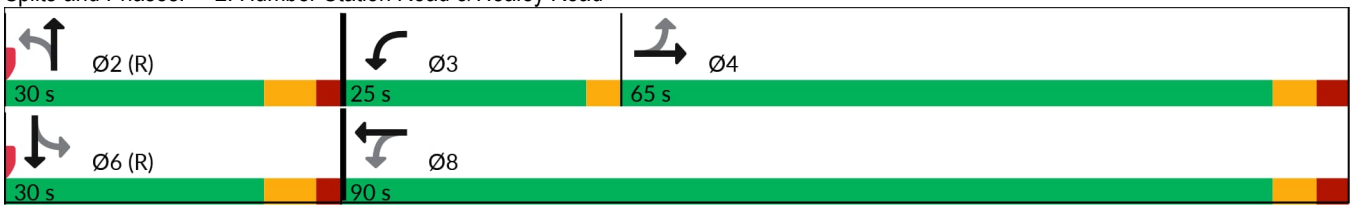
c Critical Lane Group

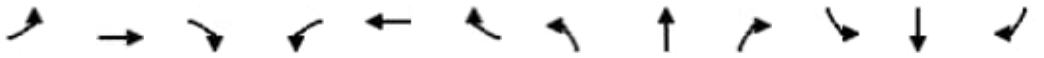
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	4	729	231	329	83	20	83	213
Future Volume (vph)	4	729	231	329	83	20	83	213
Lane Group Flow (vph)	4	962	248	358	89	152	89	233
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		4	3	8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	8.0	8.0	5.0	8.0	8.0	8.0	5.0	5.0
Minimum Split (s)	24.8	24.8	9.5	24.8	24.7	24.7	24.8	24.8
Total Split (s)	65.0	65.0	25.0	90.0	30.0	30.0	30.0	30.0
Total Split (%)	54.2%	54.2%	20.8%	75.0%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	0.0	2.8	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	3.0	6.8	6.7	6.7	6.7	6.7
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.01	0.80	0.77	0.19	0.25	0.13	0.21	0.18
Control Delay (s/veh)	22.0	39.1	38.9	14.3	35.9	13.2	31.9	28.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.0	39.1	38.9	14.3	35.9	13.2	31.9	28.8
Queue Length 50th (m)	0.6	108.7	36.4	23.3	17.1	4.4	15.2	20.6
Queue Length 95th (m)	2.9	120.1	59.1	24.5	37.6	11.9	33.6	35.7
Internal Link Dist (m)		465.5		505.1		463.9		452.2
Turn Bay Length (m)	30.0		60.0		30.0		30.0	
Base Capacity (vph)	370	1651	366	2416	345	1148	421	1279
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	0.01	0.58	0.68	0.15	0.26	0.13	0.21	0.18

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 2: Humber Station Road & Healey Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	729	166	231	329	4	83	20	121	83	213	4
Future Volume (vph)	4	729	166	231	329	4	83	20	121	83	213	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.8	6.8		3.0	6.8		6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.99		1.00	0.87		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1348	3372		1589	3485		1491	2936		1685	3526	
Flt Permitted	0.53	1.00		0.12	1.00		0.60	1.00		0.65	1.00	
Satd. Flow (perm)	763	3372		202	3485		952	2936		1163	3526	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	4	784	178	248	354	4	89	22	130	89	229	4
RTOR Reduction (vph)	0	21	0	0	1	0	0	83	0	0	1	0
Lane Group Flow (vph)	4	941	0	248	357	0	89	69	0	89	232	0
Heavy Vehicles (%)	25%	2%	7%	6%	2%	25%	13%	0%	7%	0%	1%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	42.0	42.0		63.0	63.0		43.5	43.5		43.5	43.5	
Effective Green, g (s)	42.0	42.0		63.0	63.0		43.5	43.5		43.5	43.5	
Actuated g/C Ratio	0.35	0.35		0.53	0.53		0.36	0.36		0.36	0.36	
Clearance Time (s)	6.8	6.8		3.0	6.8		6.7	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	267	1180		314	1829		345	1064		421	1278	
v/s Ratio Prot		0.28		c0.12	0.10			0.02			0.07	
v/s Ratio Perm	0.01			c0.30			c0.09			0.08		
v/c Ratio	0.01	0.79		0.78	0.19		0.25	0.06		0.21	0.18	
Uniform Delay, d1	25.4	35.1		26.4	15.0		26.8	24.9		26.4	26.1	
Progression Factor	1.00	1.00		1.00	1.00		1.08	1.66		1.00	1.00	
Incremental Delay, d2	0.0	3.8		12.4	0.0		1.8	0.1		1.1	0.3	
Delay (s)	25.5	39.0		38.8	15.1		30.8	41.6		27.5	26.4	
Level of Service	C	D		D	B		C	D		C	C	
Approach Delay (s/veh)		38.9			24.8			37.6			26.7	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	33.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		

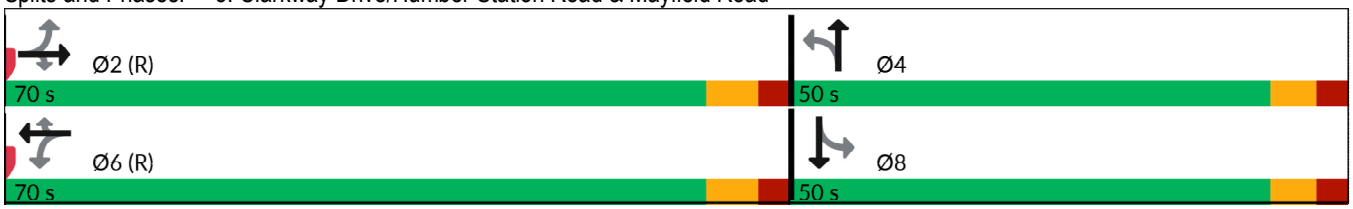
c Critical Lane Group

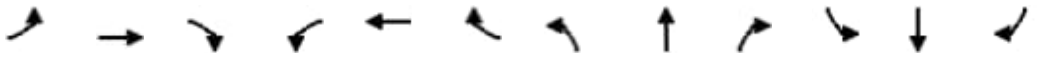
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	300	958	28	125	664	41	11	257	34	343
Future Volume (vph)	300	958	28	125	664	41	11	257	34	343
Lane Group Flow (vph)	313	998	29	130	692	43	11	496	35	462
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		2			6			4		8
Permitted Phases	2		2	6		6	4		8	
Detector Phase	2	2	2	6	6	6	4	4	8	8
Switch Phase										
Minimum Initial (s)	12.0	12.0	12.0	12.0	12.0	12.0	8.0	8.0	8.0	8.0
Minimum Split (s)	27.3	27.3	27.3	27.5	27.5	27.5	26.0	26.0	27.5	27.5
Total Split (s)	70.0	70.0	70.0	70.0	70.0	70.0	50.0	50.0	50.0	50.0
Total Split (%)	58.3%	58.3%	58.3%	58.3%	58.3%	58.3%	41.7%	41.7%	41.7%	41.7%
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.2	4.2	4.2	4.2
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.0	7.0	7.0	7.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None
v/c Ratio	0.95	0.38	0.04	0.55	0.39	0.05	0.05	0.90	0.39	0.44
Control Delay (s/veh)	66.7	15.7	3.6	28.5	15.7	4.0	26.8	55.9	48.2	32.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	66.7	15.7	3.6	28.5	15.7	4.0	26.8	55.9	48.2	32.7
Queue Length 50th (m)	71.8	49.7	0.0	19.0	50.0	0.0	1.9	106.9	7.2	46.9
Queue Length 95th (m)	#140.7	64.7	4.0	49.2	61.5	5.6	6.2	#149.9	18.7	63.3
Internal Link Dist (m)		1635.6			190.4			1951.8		1542.4
Turn Bay Length (m)	150.0		105.0	150.0		115.0	75.0		105.0	
Base Capacity (vph)	329	2568	698	233	1741	815	221	622	100	1185
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.39	0.04	0.56	0.40	0.05	0.05	0.80	0.35	0.39

Intersection Summary

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

Splits and Phases: 3: Clarkway Drive/Humber Station Road & Mayfield Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	300	958	28	125	664	41	11	257	219	34	343	101
Future Volume (vph)	300	958	28	125	664	41	11	257	219	34	343	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1560	4539	1206	1560	3077	1409	1428	1665		1546	3245	
Flt Permitted	0.35	1.00	1.00	0.25	1.00	1.00	0.41	1.00		0.17	1.00	
Satd. Flow (perm)	582	4539	1206	412	3077	1409	618	1665		281	3245	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	312	998	29	130	692	43	11	268	228	35	357	105
RTOR Reduction (vph)	0	0	13	0	0	19	0	27	0	0	25	0
Lane Group Flow (vph)	313	998	16	130	692	24	11	469	0	35	437	0
Heavy Vehicles (%)	8%	13%	25%	8%	16%	7%	18%	6%	4%	9%	4%	14%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	67.9	67.9	67.9	67.9	67.9	67.9	37.8	37.8		37.8	37.8	
Effective Green, g (s)	67.9	67.9	67.9	67.9	67.9	67.9	37.8	37.8		37.8	37.8	
Actuated g/C Ratio	0.57	0.57	0.57	0.57	0.57	0.57	0.32	0.32		0.32	0.32	
Clearance Time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	329	2568	682	233	1741	797	194	524		88	1022	
v/s Ratio Prot		0.22			0.22			c0.28			0.13	
v/s Ratio Perm	c0.54		0.01	0.32		0.02	0.02			0.12		
v/c Ratio	0.95	0.38	0.02	0.55	0.39	0.03	0.05	0.89		0.39	0.42	
Uniform Delay, d1	24.4	14.4	11.4	16.5	14.5	11.5	28.6	39.1		32.1	32.5	
Progression Factor	1.00	1.00	1.00	0.92	0.96	0.94	1.00	1.00		1.10	1.07	
Incremental Delay, d2	38.6	0.4	0.0	9.1	0.6	0.0	0.1	17.5		2.9	0.2	
Delay (s)	63.1	14.9	11.5	24.4	14.7	10.8	28.7	56.6		38.3	35.1	
Level of Service	E	B	B	C	B	B	C	E		D	D	
Approach Delay (s/veh)		26.1			16.0			56.0			35.3	
Approach LOS		C			B			E			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	29.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.3
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		

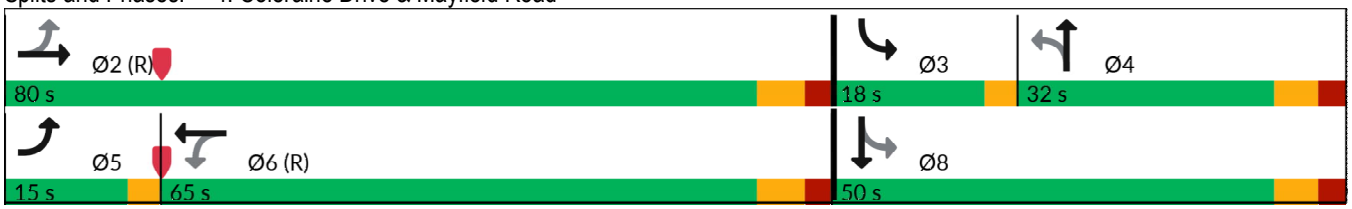
c Critical Lane Group

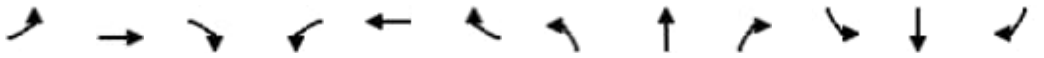
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	428	560	44	574	20	148	99	339
Future Volume (vph)	428	560	44	574	20	148	99	339
Lane Group Flow (vph)	486	693	50	808	23	178	113	699
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases	5	2		6		4	3	8
Permitted Phases	2		6		4		8	
Detector Phase	5	2	6	6	4	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	12.0	12.0	12.0	12.0	12.0	5.0	12.0
Minimum Split (s)	8.0	37.0	37.0	37.0	37.0	37.0	8.0	37.0
Total Split (s)	15.0	80.0	65.0	65.0	32.0	32.0	18.0	50.0
Total Split (%)	11.5%	61.5%	50.0%	50.0%	24.6%	24.6%	13.8%	38.5%
Yellow Time (s)	3.0	4.6	4.6	4.6	4.2	4.2	3.0	4.2
All-Red Time (s)	0.0	2.4	2.4	2.4	2.8	2.8	0.0	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0
Lead/Lag	Lead		Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None	None
v/c Ratio	0.96	0.33	0.16	0.55	0.43	0.46	0.41	0.82
Control Delay (s/veh)	49.6	10.4	23.4	27.3	78.3	56.7	42.1	44.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	49.6	10.4	23.4	27.3	78.3	56.7	42.1	44.4
Queue Length 50th (m)	68.5	37.6	7.9	80.1	6.0	24.0	24.9	74.5
Queue Length 95th (m)	#161.4	57.0	16.8	97.3	15.0	33.5	37.8	87.4
Internal Link Dist (m)		290.4		1003.7		791.2		576.8
Turn Bay Length (m)	100.0		85.0		105.0		145.0	
Base Capacity (vph)	506	2073	306	1448	94	680	284	1145
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	0.96	0.33	0.16	0.56	0.24	0.26	0.40	0.61

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 92 (71%), 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: 4: Coleraine Drive & Mayfield Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	428	560	50	44	574	137	20	148	9	99	339	276
Future Volume (vph)	428	560	50	44	574	137	20	148	9	99	339	276
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.97		1.00	0.99		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1574	3120		1685	3211		1532	3518		1452	3119	
Flt Permitted	0.24	1.00		0.38	1.00		0.30	1.00		0.52	1.00	
Satd. Flow (perm)	402	3120		688	3211		491	3518		805	3119	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	486	636	57	50	652	156	23	168	10	112	385	314
RTOR Reduction (vph)	0	4	0	0	16	0	0	4	0	0	130	0
Lane Group Flow (vph)	486	689	0	50	792	0	23	174	0	113	569	0
Heavy Vehicles (%)	7%	14%	2%	0%	7%	12%	10%	0%	11%	16%	0%	15%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	5	2			6			4		3	8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	86.2	86.2		58.0	58.0		14.0	14.0		29.8	29.8	
Effective Green, g (s)	86.2	86.2		58.0	58.0		14.0	14.0		29.8	29.8	
Actuated g/C Ratio	0.66	0.66		0.45	0.45		0.11	0.11		0.23	0.23	
Clearance Time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	493	2068		306	1432		52	378		248	714	
v/s Ratio Prot	c0.19	0.22			0.25			0.05		0.04	c0.18	
v/s Ratio Perm	c0.46			0.07			0.05			0.06		
v/c Ratio	0.98	0.33		0.16	0.55		0.44	0.46		0.45	0.79	
Uniform Delay, d1	21.9	9.4		21.5	26.4		54.3	54.4		41.9	47.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	36.5	0.4		1.1	1.5		5.9	0.8		1.3	6.1	
Delay (s)	58.5	9.9		22.6	28.0		60.2	55.3		43.2	53.4	
Level of Service	E	A		C	C		E	E		D	D	
Approach Delay (s/veh)		29.9			27.7			55.9			51.9	
Approach LOS		C			C			E			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	36.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	93.0%	ICU Level of Service	F
Analysis Period (min)	15		

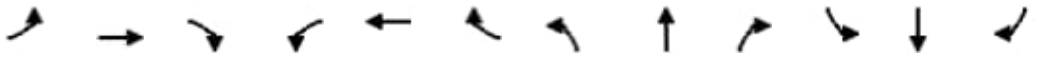
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	30	35	63	23	188	412	94	499	66
Future Volume (vph)	30	35	63	23	188	412	94	499	66
Lane Group Flow (vph)	35	141	73	196	219	591	109	580	77
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		8		4		6		2	
Permitted Phases	8		4		6		2		2
Detector Phase	8	8	4	4	6	6	2	2	2
Switch Phase									
Minimum Initial (s)	8.0	8.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.5	32.5	32.5	32.5	34.2	34.2	33.7	33.7	33.7
Total Split (s)	45.0	45.0	45.0	45.0	55.0	55.0	55.0	55.0	55.0
Total Split (%)	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.2	4.2	4.2	4.2	4.2
All-Red Time (s)	3.5	3.5	3.5	3.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	7.5	7.5	6.7	6.7	6.7	6.7	6.7
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.28	0.47	0.54	0.54	0.44	0.27	0.21	0.26	0.07
Control Delay (s/veh)	42.5	18.5	53.8	14.3	10.5	5.6	7.1	6.0	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	42.5	18.5	53.8	14.3	10.5	5.6	7.1	6.0	1.6
Queue Length 50th (m)	6.6	7.6	14.2	4.9	15.4	17.1	6.2	18.1	0.0
Queue Length 95th (m)	14.4	21.9	25.8	21.1	37.2	30.1	16.0	31.2	4.4
Internal Link Dist (m)		152.4		468.8		784.9		1711.9	
Turn Bay Length (m)	70.0		105.0		75.0		100.0		100.0
Base Capacity (vph)	302	583	333	641	495	2146	502	2214	1009
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.24	0.22	0.31	0.44	0.28	0.22	0.26	0.08

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 5: Coleraine Drive & Private Access/George Bolton Parkway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	35	86	63	23	145	188	412	96	94	499	66
Future Volume (vph)	30	35	86	63	23	145	188	412	96	94	499	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.89		1.00	0.87		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1491	1387		1267	1428		1532	3017		1574	3131	1396
Flt Permitted	0.51	1.00		0.66	1.00		0.43	1.00		0.42	1.00	1.00
Satd. Flow (perm)	806	1387		889	1428		699	3017		711	3131	1396
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	35	41	100	73	27	169	219	479	112	109	580	77
RTOR Reduction (vph)	0	85	0	0	143	0	0	11	0	0	0	23
Lane Group Flow (vph)	35	56	0	73	53	0	219	580	0	109	580	54
Heavy Vehicles (%)	13%	26%	19%	33%	43%	10%	10%	14%	19%	7%	14%	8%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	15.1	15.1		15.1	15.1		70.7	70.7		70.7	70.7	70.7
Effective Green, g (s)	15.1	15.1		15.1	15.1		70.7	70.7		70.7	70.7	70.7
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.71	0.71		0.71	0.71	0.71
Clearance Time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	121	209		134	215		494	2133		502	2213	986
v/s Ratio Prot		0.04			0.04			0.19			0.19	
v/s Ratio Perm	0.04			c0.08			c0.31			0.15		0.04
v/c Ratio	0.28	0.26		0.54	0.24		0.44	0.27		0.21	0.26	0.05
Uniform Delay, d1	37.6	37.5		39.2	37.4		6.2	5.3		5.0	5.2	4.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.3	0.6		4.4	0.5		2.8	0.3		0.9	0.2	0.1
Delay (s)	39.0	38.2		43.7	38.0		9.1	5.6		6.0	5.5	4.5
Level of Service	D	D		D	D		A	A		A	A	A
Approach Delay (s/veh)		38.4			39.5			6.5			5.5	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

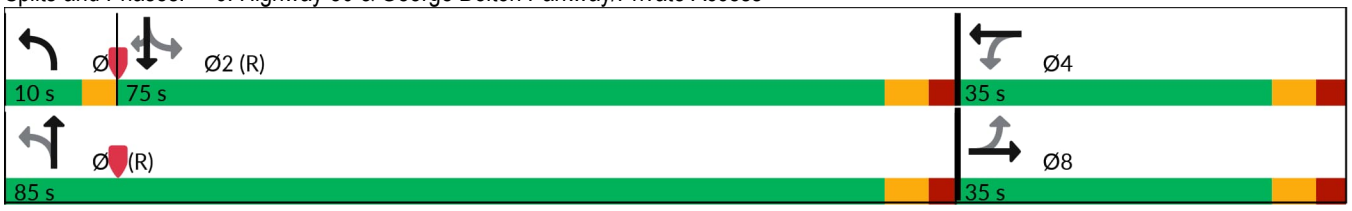
c Critical Lane Group

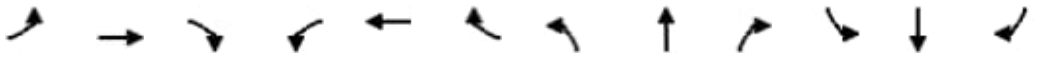
Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	93	0	0	165	933	3	1144	138
Future Volume (vph)	93	0	0	165	933	3	1144	138
Lane Group Flow (vph)	97	125	1	172	972	3	1192	144
Turn Type	Perm	NA	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases		8	4	1	6		2	
Permitted Phases	8			6		2		2
Detector Phase	8	8	4	1	6	2	2	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	5.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.6	32.6	32.6	8.0	27.3	27.3	27.3	27.3
Total Split (s)	35.0	35.0	35.0	10.0	85.0	75.0	75.0	75.0
Total Split (%)	29.2%	29.2%	29.2%	8.3%	70.8%	62.5%	62.5%	62.5%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.6	2.6	0.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	3.0	6.3	6.3	6.3	6.3
Lead/Lag				Lead		Lag	Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.65	0.43	0.00	0.55	0.37	0.00	0.54	0.14
Control Delay (s/veh)	68.8	7.4	0.0	10.6	5.4	10.0	13.3	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	68.8	7.4	0.0	10.6	5.4	10.0	13.3	2.3
Queue Length 50th (m)	23.2	0.0	0.0	8.1	34.8	0.2	76.0	0.6
Queue Length 95th (m)	39.7	8.7	0.0	18.1	56.7	1.8	121.4	9.7
Internal Link Dist (m)		846.5	43.0		1045.6		1307.8	
Turn Bay Length (m)	85.0			40.0		135.0		60.0
Base Capacity (vph)	283	405	502	308	2609	343	2173	999
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	0.34	0.31	0.00	0.56	0.37	0.01	0.55	0.14

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 113 (94%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 6: Highway 50 & George Bolton Parkway/Private Access





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	0	120	0	0	1	165	933	0	3	1144	138
Future Volume (vph)	93	0	120	0	0	1	165	933	0	3	1144	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.6	6.6			6.6		3.0	6.3		6.3	6.3	6.3
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.85			0.86		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1504	1192			1625		1392	3400		1685	3305	1449
Flt Permitted	0.75	1.00			1.00		0.18	1.00		0.29	1.00	1.00
Satd. Flow (perm)	1199	1192			1625		268	3400		523	3305	1449
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	97	0	125	0	0	1	172	972	0	3	1192	144
RTOR Reduction (vph)	0	109	0	0	1	0	0	0	0	0	0	47
Lane Group Flow (vph)	97	16	0	0	0	0	172	972	0	3	1192	97
Heavy Vehicles (%)	12%	0%	34%	0%	0%	0%	21%	5%	0%	0%	8%	4%
Turn Type	Perm	NA			NA		pm+pt	NA		Perm	NA	Perm
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	15.0	15.0			15.0		92.1	92.1		78.9	78.9	78.9
Effective Green, g (s)	15.0	15.0			15.0		92.1	92.1		78.9	78.9	78.9
Actuated g/C Ratio	0.13	0.13			0.13		0.77	0.77		0.66	0.66	0.66
Clearance Time (s)	6.6	6.6			6.6		3.0	6.3		6.3	6.3	6.3
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	149	149			203		301	2609		343	2173	952
v/s Ratio Prot		0.01			0.00		c0.05	0.29			0.36	
v/s Ratio Perm	c0.08						c0.39			0.01		0.07
v/c Ratio	0.65	0.10			0.00		0.57	0.37		0.00	0.54	0.10
Uniform Delay, d1	50.0	46.5			45.9		6.5	4.5		7.0	11.0	7.5
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	9.7	0.3			0.0		2.6	0.4		0.0	1.0	0.2
Delay (s)	59.7	46.8			45.9		9.2	4.9		7.1	12.0	7.7
Level of Service	E	D			D		A	A		A	B	A
Approach Delay (s/veh)		52.4			45.9			5.5			11.5	
Approach LOS		D			D			A			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.9
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

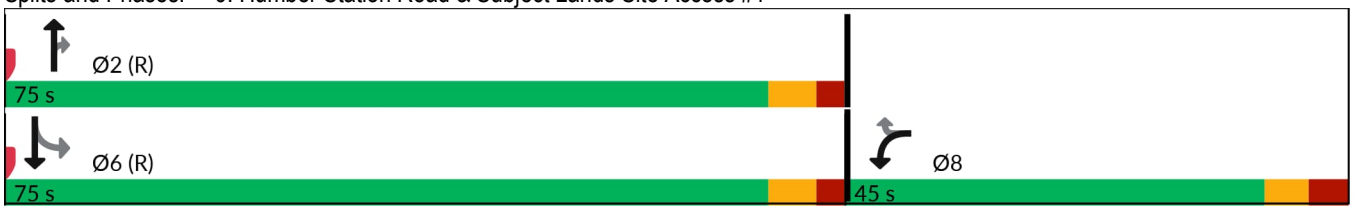
c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	106	61	251	347	230	372
Future Volume (vph)	106	61	251	347	230	372
Lane Group Flow (vph)	106	61	251	347	230	372
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	29.5	29.5	32.7	32.7	32.7	32.7
Total Split (s)	45.0	45.0	75.0	75.0	75.0	75.0
Total Split (%)	37.5%	37.5%	62.5%	62.5%	62.5%	62.5%
Yellow Time (s)	4.0	4.0	4.2	4.2	4.2	4.2
All-Red Time (s)	3.5	3.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	6.7	6.7	6.7	6.7
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.58	0.28	0.09	0.30	0.30	0.14
Control Delay (s/veh)	62.3	14.3	4.3	1.1	3.8	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	62.3	14.3	4.3	1.1	3.8	1.8
Queue Length 50th (m)	25.4	0.0	7.1	0.1	4.6	3.8
Queue Length 95th (m)	42.6	12.4	m10.7	m5.8	23.6	7.5
Internal Link Dist (m)	321.1		1542.4			467.1
Turn Bay Length (m)	100.0			30.0	100.0	
Base Capacity (vph)	453	447	2549	1151	747	2623
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	0.23	0.14	0.10	0.30	0.31	0.14

Intersection Summary

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

Splits and Phases: 9: Humber Station Road & Subject Lands Site Access #1



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	106	61	251	347	230	372
Future Volume (vph)	106	61	251	347	230	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.0	3.5	3.0	3.0	3.5
Total Lost time (s)	7.5	7.5	6.7	6.7	6.7	6.7
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1452	1299	3368	1409	1574	3466
Flt Permitted	0.95	1.00	1.00	1.00	0.59	1.00
Satd. Flow (perm)	1452	1299	3368	1409	988	3466
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	106	61	251	347	230	372
RTOR Reduction (vph)	0	53	0	84	0	0
Lane Group Flow (vph)	106	8	251	263	230	372
Heavy Vehicles (%)	16%	16%	6%	7%	7%	3%
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Actuated Green, G (s)	15.0	15.0	90.8	90.8	90.8	90.8
Effective Green, g (s)	15.0	15.0	90.8	90.8	90.8	90.8
Actuated g/C Ratio	0.13	0.13	0.76	0.76	0.76	0.76
Clearance Time (s)	7.5	7.5	6.7	6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	181	162	2548	1066	747	2622
v/s Ratio Prot	c0.07		0.07			0.11
v/s Ratio Perm		0.01		0.19	c0.23	
v/c Ratio	0.58	0.04	0.09	0.24	0.30	0.14
Uniform Delay, d1	49.5	46.2	3.8	4.3	4.6	3.9
Progression Factor	1.00	1.00	1.04	1.50	0.54	0.40
Incremental Delay, d2	4.7	0.1	0.0	0.2	0.9	0.1
Delay (s)	54.3	46.3	4.0	6.8	3.5	1.7
Level of Service	D	D	A	A	A	A
Approach Delay (s/veh)	51.4		5.6			2.4
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		

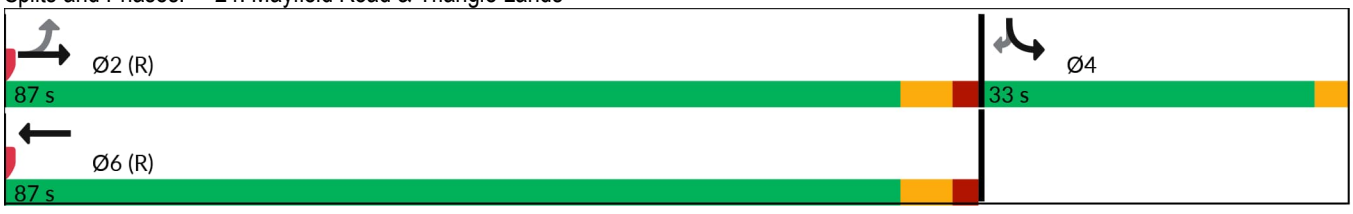
c Critical Lane Group

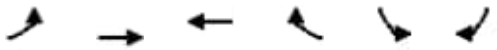
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	160	1031	760	33	72
Future Volume (vph)	160	1031	760	33	72
Lane Group Flow (vph)	160	1031	868	33	72
Turn Type	Perm	NA	NA	Prot	Perm
Protected Phases		2	6	4	
Permitted Phases	2				4
Detector Phase	2	2	6	4	4
Switch Phase					
Minimum Initial (s)	12.0	12.0	12.0	5.0	5.0
Minimum Split (s)	37.0	37.0	37.0	33.0	33.0
Total Split (s)	87.0	87.0	87.0	33.0	33.0
Total Split (%)	72.5%	72.5%	72.5%	27.5%	27.5%
Yellow Time (s)	4.6	4.6	4.6	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	3.0	3.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max	C-Max	None	None
v/c Ratio	0.33	0.33	0.29	0.32	0.45
Control Delay (s/veh)	4.3	1.8	1.9	60.9	21.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	4.3	1.8	1.9	60.9	21.4
Queue Length 50th (m)	4.6	15.3	15.6	8.0	0.0
Queue Length 95th (m)	m10.1	23.3	24.8	18.5	14.6
Internal Link Dist (m)		768.9	290.4	250.9	
Turn Bay Length (m)	30.0			30.0	
Base Capacity (vph)	474	3091	2988	376	387
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	0.34	0.33	0.29	0.09	0.19

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL 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: 24: Mayfield Road & Triangle Lands





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	160	1031	760	108	33	72
Future Volume (vph)	160	1031	760	108	33	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.0	3.0
Total Lost time (s)	7.0	7.0	7.0		3.0	3.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1574	3535	3414		1504	1334
Flt Permitted	0.32	1.00	1.00		0.95	1.00
Satd. Flow (perm)	541	3535	3414		1504	1334
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	160	1031	760	108	33	72
RTOR Reduction (vph)	0	0	4	0	0	68
Lane Group Flow (vph)	160	1031	864	0	33	4
Heavy Vehicles (%)	7%	1%	2%	7%	12%	13%
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Actuated Green, G (s)	102.9	102.9	102.9		7.1	7.1
Effective Green, g (s)	102.9	102.9	102.9		7.1	7.1
Actuated g/C Ratio	0.86	0.86	0.86		0.06	0.06
Clearance Time (s)	7.0	7.0	7.0		3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	463	3031	2927		88	78
v/s Ratio Prot		0.29	0.25		c0.02	
v/s Ratio Perm	c0.30					0.00
v/c Ratio	0.34	0.34	0.29		0.37	0.05
Uniform Delay, d1	1.7	1.7	1.6		54.3	53.2
Progression Factor	1.15	0.84	1.00		1.00	1.00
Incremental Delay, d2	1.8	0.2	0.2		2.6	0.2
Delay (s)	3.8	1.7	1.8		56.9	53.5
Level of Service	A	A	A		E	D
Approach Delay (s/veh)		2.0	1.8		54.6	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	4.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	53.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	38	24	205	100	57	565
Future Volume (Veh/h)	38	24	205	100	57	565
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)	38	24	205	100	57	565
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	602	103			305	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	602	103			305	
tC, single (s)	7.1	7.2			4.2	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.3	
p0 queue free %	90	97			95	
cM capacity (veh/h)	388	898			1217	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	38	24	103	103	100	57	283	283
Volume Left	38	0	0	0	0	57	0	0
Volume Right	0	24	0	0	100	0	0	0
cSH	388	898	1700	1700	1700	1217	1700	1700
Volume to Capacity	0.10	0.03	0.06	0.06	0.06	0.05	0.17	0.17
Queue Length 95th (m)	2.6	0.7	0.0	0.0	0.0	1.2	0.0	0.0
Control Delay (s/veh)	15.3	9.1	0.0	0.0	0.0	8.1	0.0	0.0
Lane LOS	C	A				A		
Approach Delay (s/veh)	12.9		0.0			0.7		
Approach LOS	B							

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	25.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	854	79	72	532	32	27
Future Volume (Veh/h)	854	79	72	532	32	27
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)	854	79	72	532	32	27
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			933		1304	467
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			933		1304	467
tC, single (s)			4.2		7.1	7.1
tC, 2 stage (s)						
tF (s)			2.3		3.6	3.4
p0 queue free %			90		74	95
cM capacity (veh/h)			699		124	519

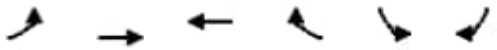
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	569	364	249	355	32	27
Volume Left	0	0	72	0	32	0
Volume Right	0	79	0	0	0	27
cSH	1700	1700	699	1700	124	519
Volume to Capacity	0.33	0.21	0.10	0.21	0.26	0.05
Queue Length 95th (m)	0.0	0.0	2.7	0.0	7.7	1.3
Control Delay (s/veh)	0.0	0.0	4.0	0.0	43.8	12.3
Lane LOS			A		E	B
Approach Delay (s/veh)	0.0		1.6		29.4	
Approach LOS					D	

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	56.3%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	3	2	303	9	4	599
Future Volume (Veh/h)	3	2	303	9	4	599
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)	3	2	303	9	4	599
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	611	152			312	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	611	152			312	
tC, single (s)	7.5	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.8	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	360	874			1260	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	3	2	152	152	9	4	300	300
Volume Left	3	0	0	0	0	4	0	0
Volume Right	0	2	0	0	9	0	0	0
cSH	360	874	1700	1700	1700	1260	1700	1700
Volume to Capacity	0.01	0.00	0.09	0.09	0.01	0.00	0.18	0.18
Queue Length 95th (m)	0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.0
Control Delay (s/veh)	15.1	9.1	0.0	0.0	0.0	7.9	0.0	0.0
Lane LOS	C	A				A		
Approach Delay (s/veh)	12.7		0.0			0.1		
Approach LOS	B							

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	26.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	1186	820	12	5	10
Future Volume (Veh/h)	25	1186	820	12	5	10
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)	25	1186	820	12	5	10
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		262				
pX, platoon unblocked					0.86	
vC, conflicting volume	832				1469	416
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	832				1226	416
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				97	98
cM capacity (veh/h)	809				145	591

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	25	593	593	547	285	5	10
Volume Left	25	0	0	0	0	5	0
Volume Right	0	0	0	0	12	0	10
cSH	809	1700	1700	1700	1700	145	591
Volume to Capacity	0.03	0.35	0.35	0.32	0.17	0.03	0.02
Queue Length 95th (m)	0.8	0.0	0.0	0.0	0.0	0.9	0.4
Control Delay (s/veh)	9.6	0.0	0.0	0.0	0.0	30.7	11.2
Lane LOS	A					D	B
Approach Delay (s/veh)	0.2			0.0		17.7	
Approach LOS						C	

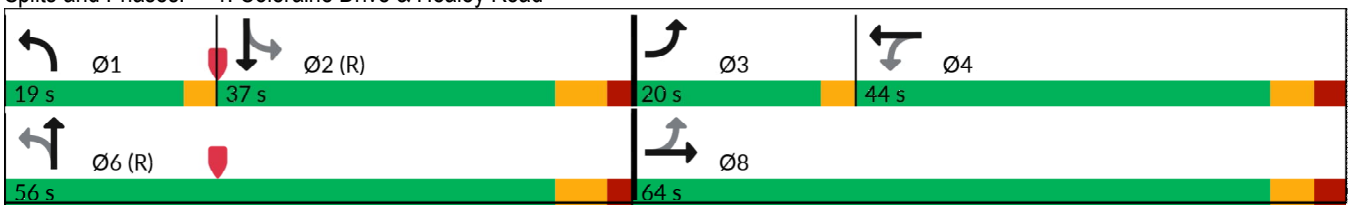
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	42.8%	ICU Level of Service	A
Analysis Period (min)	15		

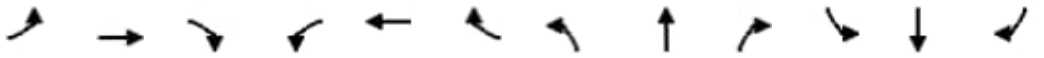
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	204	205	57	412	355	468	47	218
Future Volume (vph)	204	205	57	412	355	468	47	218
Lane Group Flow (vph)	224	451	63	546	390	598	52	371
Turn Type	pm+pt	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases	3	8		4	1	6		2
Permitted Phases	8		4		6		2	
Detector Phase	3	8	4	4	1	6	2	2
Switch Phase								
Minimum Initial (s)	5.0	8.0	8.0	8.0	5.0	8.0	8.0	8.0
Minimum Split (s)	9.5	32.8	32.8	32.8	9.5	36.7	36.7	36.7
Total Split (s)	20.0	64.0	44.0	44.0	19.0	56.0	37.0	37.0
Total Split (%)	16.7%	53.3%	36.7%	36.7%	15.8%	46.7%	30.8%	30.8%
Yellow Time (s)	3.0	4.0	4.0	4.0	3.0	4.6	4.6	4.6
All-Red Time (s)	0.0	2.8	2.8	2.8	0.0	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	6.8	6.8	6.8	3.0	6.7	6.7	6.7
Lead/Lag	Lead		Lag	Lag	Lead		Lag	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max
v/c Ratio	0.82	0.27	0.24	0.96	0.86	0.47	0.32	0.47
Control Delay (s/veh)	43.1	5.7	34.0	69.7	47.2	26.2	43.4	31.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	43.1	5.7	34.0	69.7	47.2	26.2	43.4	31.6
Queue Length 50th (m)	38.3	26.3	11.7	133.0	69.3	54.4	10.6	31.8
Queue Length 95th (m)	#73.6	33.3	24.6	#209.0	#124.3	71.4	23.4	47.7
Internal Link Dist (m)		823.7		424.0		1711.9		1121.0
Turn Bay Length (m)	55.0		50.0		80.0		155.0	
Base Capacity (vph)	293	1646	255	567	449	1270	160	778
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	0.76	0.27	0.25	0.96	0.87	0.47	0.33	0.48

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, 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: 1: Coleraine Drive & Healey Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	204	205	206	57	412	85	355	468	76	47	218	119
Future Volume (vph)	204	205	206	57	412	85	355	468	76	47	218	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	3.0	6.8		6.8	6.8		3.0	6.7		6.7	6.7	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.92		1.00	0.97		1.00	0.97		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1604	3205		1546	1754		1652	3035		1416	2841	
Flt Permitted	0.10	1.00		0.49	1.00		0.41	1.00		0.42	1.00	
Satd. Flow (perm)	184	3205		800	1754		722	3035		635	2841	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	224	225	226	63	453	93	390	514	84	52	240	131
RTOR Reduction (vph)	0	119	0	0	6	0	0	11	0	0	61	0
Lane Group Flow (vph)	224	332	0	63	540	0	390	587	0	52	310	0
Heavy Vehicles (%)	5%	0%	6%	9%	2%	16%	2%	15%	16%	19%	25%	8%
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	3	8			4		1	6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	56.8	56.8		38.5	38.5		49.7	49.7		30.2	30.2	
Effective Green, g (s)	56.8	56.8		38.5	38.5		49.7	49.7		30.2	30.2	
Actuated g/C Ratio	0.47	0.47		0.32	0.32		0.41	0.41		0.25	0.25	
Clearance Time (s)	3.0	6.8		6.8	6.8		3.0	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	268	1517		256	562		426	1256		159	714	
v/s Ratio Prot	c0.11	0.10			c0.31		c0.13	0.19			0.11	
v/s Ratio Perm	0.29			0.08			c0.25			0.08		
v/c Ratio	0.83	0.21		0.24	0.96		0.91	0.46		0.32	0.43	
Uniform Delay, d1	29.7	18.5		30.0	40.0		29.6	25.5		36.6	37.7	
Progression Factor	0.75	0.59		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	19.4	0.0		0.5	28.2		24.0	1.2		5.4	1.9	
Delay (s)	41.9	11.0		30.5	68.2		53.6	26.7		42.0	39.6	
Level of Service	D	B		C	E		D	C		D	D	
Approach Delay (s/veh)		21.3			64.3			37.3			39.9	
Approach LOS		C			E			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	39.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		

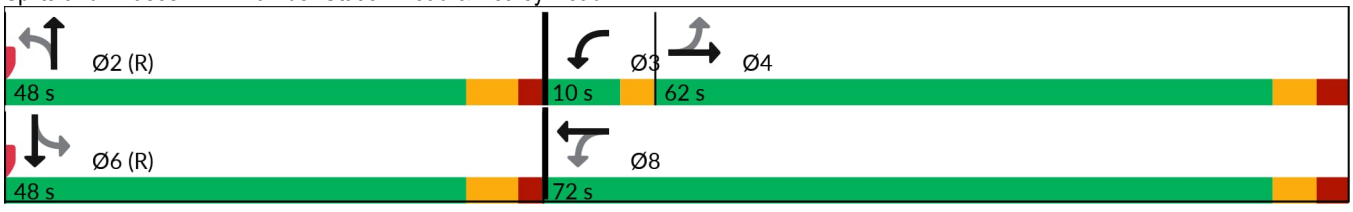
c Critical Lane Group

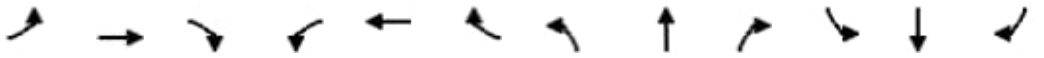
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	21	363	153	778	209	228	27	63
Future Volume (vph)	21	363	153	778	209	228	27	63
Lane Group Flow (vph)	22	456	158	825	215	420	28	71
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		4	3	8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	8.0	8.0	5.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	24.8	24.8	8.0	24.8	24.7	24.7	24.7	24.7
Total Split (s)	62.0	62.0	10.0	72.0	48.0	48.0	48.0	48.0
Total Split (%)	51.7%	51.7%	8.3%	60.0%	40.0%	40.0%	40.0%	40.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	0.0	2.8	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	3.0	6.8	6.7	6.7	6.7	6.7
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.27	0.61	0.72	0.77	0.32	0.21	0.05	0.03
Control Delay (s/veh)	45.1	42.4	34.8	33.9	23.5	13.5	13.1	11.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	45.1	42.4	34.8	33.9	23.5	13.5	13.1	11.2
Queue Length 50th (m)	4.6	50.7	25.0	85.1	40.2	28.3	2.8	3.3
Queue Length 95th (m)	12.1	61.7	m27.0	m85.5	68.9	38.6	8.6	8.0
Internal Link Dist (m)		465.5		505.1		463.9		452.2
Turn Bay Length (m)	30.0		60.0		30.0		30.0	
Base Capacity (vph)	172	1544	219	1912	658	1955	526	1980
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	0.13	0.30	0.72	0.43	0.33	0.21	0.05	0.04

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Humber Station Road & Healey Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	363	80	153	778	22	209	228	179	27	63	6
Future Volume (vph)	21	363	80	153	778	22	209	228	179	27	63	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.8	6.8		3.0	6.8		6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.99		1.00	0.93		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1685	3323		1491	3516		1504	3203		1685	3370	
Flt Permitted	0.21	1.00		0.30	1.00		0.70	1.00		0.50	1.00	
Satd. Flow (perm)	374	3323		485	3516		1122	3203		895	3370	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	22	374	82	158	802	23	215	235	185	28	65	6
RTOR Reduction (vph)	0	23	0	0	3	0	0	74	0	0	2	0
Lane Group Flow (vph)	22	433	0	158	822	0	215	346	0	28	69	0
Heavy Vehicles (%)	0%	2%	16%	13%	1%	5%	12%	1%	8%	0%	5%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	26.0	26.0		36.0	36.0		70.5	70.5		70.5	70.5	
Effective Green, g (s)	26.0	26.0		36.0	36.0		70.5	70.5		70.5	70.5	
Actuated g/C Ratio	0.22	0.22		0.30	0.30		0.59	0.59		0.59	0.59	
Clearance Time (s)	6.8	6.8		3.0	6.8		6.7	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	81	719		204	1054		659	1881		525	1979	
v/s Ratio Prot		0.13		0.05	c0.23			0.11			0.02	
v/s Ratio Perm	0.06			0.19			c0.19			0.03		
v/c Ratio	0.27	0.60		0.77	0.78		0.32	0.18		0.05	0.03	
Uniform Delay, d1	39.1	42.3		36.6	38.3		12.6	11.4		10.5	10.4	
Progression Factor	1.00	1.00		0.74	0.80		1.53	1.83		1.00	1.00	
Incremental Delay, d2	1.8	1.4		10.7	2.3		1.3	0.2		0.1	0.0	
Delay (s)	40.9	43.7		38.0	33.3		20.6	21.2		10.7	10.4	
Level of Service	D	D		D	C		C	C		B	B	
Approach Delay (s/veh)		43.6			34.1			21.0			10.5	
Approach LOS		D			C			C			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	31.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		

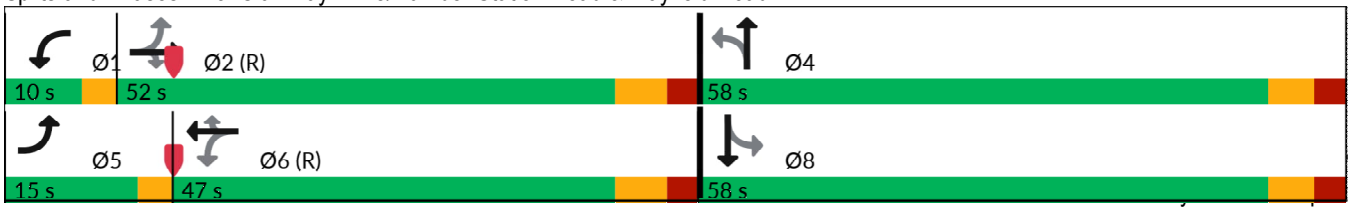
c Critical Lane Group

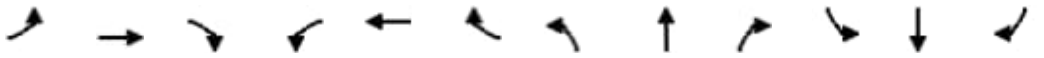
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	158	839	19	195	1005	58	59	402	28	246
Future Volume (vph)	158	839	19	195	1005	58	59	402	28	246
Lane Group Flow (vph)	163	865	20	201	1036	60	61	598	29	512
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			4		8
Permitted Phases	2		2	6		6	4		8	
Detector Phase	5	2	2	1	6	6	4	4	8	8
Switch Phase										
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	12.0	8.0	8.0	8.0	8.0
Minimum Split (s)	9.5	27.3	27.3	9.5	27.3	27.3	26.0	26.0	26.0	26.0
Total Split (s)	15.0	52.0	52.0	10.0	47.0	47.0	58.0	58.0	58.0	58.0
Total Split (%)	12.5%	43.3%	43.3%	8.3%	39.2%	39.2%	48.3%	48.3%	48.3%	48.3%
Yellow Time (s)	3.0	4.6	4.6	3.0	4.6	4.6	4.2	4.2	4.2	4.2
All-Red Time (s)	0.0	2.7	2.7	0.0	2.7	2.7	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.3	7.3	3.0	7.3	7.3	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
v/c Ratio	0.75	0.47	0.03	0.65	0.85	0.10	0.25	0.90	0.31	0.40
Control Delay (s/veh)	42.7	28.5	0.1	32.2	44.3	2.4	26.6	51.4	30.7	11.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	42.7	28.5	0.1	32.2	44.3	2.4	26.6	51.4	30.7	11.3
Queue Length 50th (m)	21.1	60.0	0.0	26.4	132.2	0.0	10.0	130.6	5.6	33.7
Queue Length 95th (m)	#58.0	73.5	0.0	#56.5	#178.1	4.4	20.3	175.5	m13.8	44.1
Internal Link Dist (m)		1635.6			190.4			1951.8		1542.4
Turn Bay Length (m)	150.0		105.0	150.0		115.0	75.0		105.0	
Base Capacity (vph)	223	1836	578	305	1209	567	270	736	102	1391
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.47	0.03	0.66	0.86	0.11	0.23	0.81	0.28	0.37

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 105 (88%), 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: 3: Clarkway Drive/Humber Station Road & Mayfield Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	839	19	195	1005	58	59	402	178	28	246	250
Future Volume (vph)	158	839	19	195	1005	58	59	402	178	28	246	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	3.0	7.3	7.3	3.0	7.3	7.3	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1428	4621	1358	1546	3245	1370	1504	1701		1518	2986	
Flt Permitted	0.11	1.00	1.00	0.27	1.00	1.00	0.40	1.00		0.15	1.00	
Satd. Flow (perm)	168	4621	1358	454	3245	1370	636	1701		241	2986	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	163	865	20	201	1036	60	61	414	184	29	254	258
RTOR Reduction (vph)	0	0	12	0	0	38	0	14	0	0	133	0
Lane Group Flow (vph)	163	865	8	201	1036	22	61	584	0	29	379	0
Heavy Vehicles (%)	18%	11%	11%	9%	10%	10%	12%	6%	4%	11%	9%	12%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	60.0	47.7	47.7	54.0	44.7	44.7	45.7	45.7		45.7	45.7	
Effective Green, g (s)	60.0	47.7	47.7	54.0	44.7	44.7	45.7	45.7		45.7	45.7	
Actuated g/C Ratio	0.50	0.40	0.40	0.45	0.37	0.37	0.38	0.38		0.38	0.38	
Clearance Time (s)	3.0	7.3	7.3	3.0	7.3	7.3	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	213	1836	539	288	1208	510	242	647		91	1137	
v/s Ratio Prot	c0.08	0.19		0.05	c0.32			c0.34			0.13	
v/s Ratio Perm	0.30		0.01	0.26		0.02	0.10			0.12		
v/c Ratio	0.76	0.47	0.01	0.69	0.85	0.04	0.25	0.90		0.31	0.33	
Uniform Delay, d1	22.4	26.7	21.9	21.3	34.7	24.0	25.4	35.0		26.1	26.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.84	0.71	
Incremental Delay, d2	15.0	0.8	0.0	7.1	7.9	0.1	0.5	15.8		1.9	0.1	
Delay (s)	37.5	27.6	21.9	28.5	42.6	24.1	25.9	50.8		24.2	19.1	
Level of Service	D	C	C	C	D	C	C	D		C	B	
Approach Delay (s/veh)		29.0			39.6			48.5			19.4	
Approach LOS		C			D			D			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	35.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.3
Intersection Capacity Utilization	96.3%	ICU Level of Service	F
Analysis Period (min)	15		

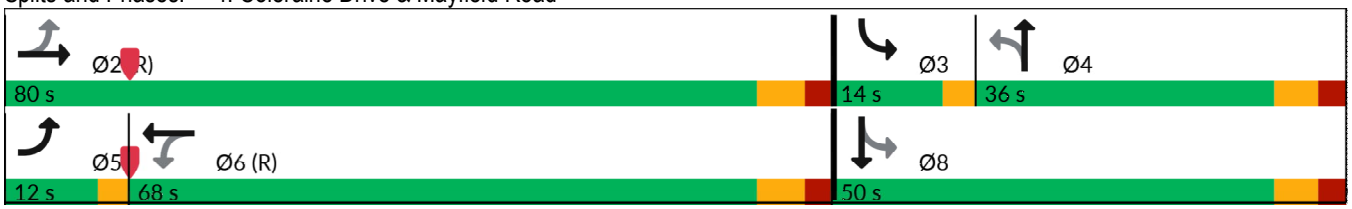
c Critical Lane Group

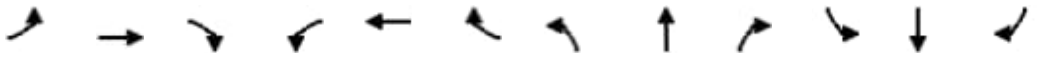
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	313	719	13	659	52	338	134	201
Future Volume (vph)	313	719	13	659	52	338	134	201
Lane Group Flow (vph)	329	788	14	830	55	378	141	640
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases	5	2		6		4	3	8
Permitted Phases	2		6		4		8	
Detector Phase	5	2	6	6	4	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	12.0	12.0	12.0	12.0	12.0	5.0	12.0
Minimum Split (s)	8.0	37.0	37.0	37.0	37.0	37.0	8.0	37.0
Total Split (s)	12.0	80.0	68.0	68.0	36.0	36.0	14.0	50.0
Total Split (%)	9.2%	61.5%	52.3%	52.3%	27.7%	27.7%	10.8%	38.5%
Yellow Time (s)	3.0	4.6	4.6	4.6	4.2	4.2	3.0	4.2
All-Red Time (s)	0.0	2.4	2.4	2.4	2.8	2.8	0.0	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0
Lead/Lag	Lead		Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None	None
v/c Ratio	0.80	0.36	0.05	0.55	0.56	0.72	0.67	0.66
Control Delay (s/veh)	35.3	10.7	19.6	25.6	73.0	60.4	53.4	27.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	35.3	10.7	19.6	25.6	73.0	60.4	53.4	27.3
Queue Length 50th (m)	38.2	44.7	2.0	80.1	14.0	51.4	30.2	46.9
Queue Length 95th (m)	#76.6	57.8	6.2	100.2	28.3	66.1	47.3	64.8
Internal Link Dist (m)		290.4		1003.7		791.2		576.8
Turn Bay Length (m)	100.0		85.0		105.0		145.0	
Base Capacity (vph)	411	2167	272	1507	148	792	210	1168
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	0.36	0.05	0.55	0.37	0.48	0.67	0.55

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 116 (89%), 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: 4: Coleraine Drive & Mayfield Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	313	719	29	13	659	129	52	338	21	134	201	407
Future Volume (vph)	313	719	29	13	659	129	52	338	21	134	201	407
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.97		1.00	0.99		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1465	3386		1560	3186		1685	3539		1440	2973	
Flt Permitted	0.24	1.00		0.35	1.00		0.37	1.00		0.29	1.00	
Satd. Flow (perm)	375	3386		580	3186		666	3539		446	2973	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	329	757	31	14	694	136	55	356	22	141	212	428
RTOR Reduction (vph)	0	2	0	0	13	0	0	3	0	0	206	0
Lane Group Flow (vph)	329	786	0	14	817	0	55	375	0	141	434	0
Heavy Vehicles (%)	15%	5%	0%	8%	7%	21%	0%	0%	0%	17%	0%	12%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	5	2			6			4		3	8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	83.1	83.1		61.0	61.0		19.1	19.1		32.9	32.9	
Effective Green, g (s)	83.1	83.1		61.0	61.0		19.1	19.1		32.9	32.9	
Actuated g/C Ratio	0.64	0.64		0.47	0.47		0.15	0.15		0.25	0.25	
Clearance Time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	399	2164		272	1494		97	519		195	752	
v/s Ratio Prot	c0.12	0.23			0.26			0.11		c0.06	0.15	
v/s Ratio Perm	c0.41			0.02			0.08			c0.12		
v/c Ratio	0.82	0.36		0.05	0.54		0.56	0.72		0.72	0.57	
Uniform Delay, d1	14.3	11.0		18.7	24.6		51.6	52.9		40.6	42.4	
Progression Factor	1.86	0.90		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	12.6	0.4		0.3	1.4		7.3	4.9		12.4	1.0	
Delay (s)	39.2	10.3		19.1	26.0		58.9	57.8		53.0	43.5	
Level of Service	D	B		B	C		E	E		D	D	
Approach Delay (s/veh)		18.8			25.9			57.9			45.2	
Approach LOS		B			C			E			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	32.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		

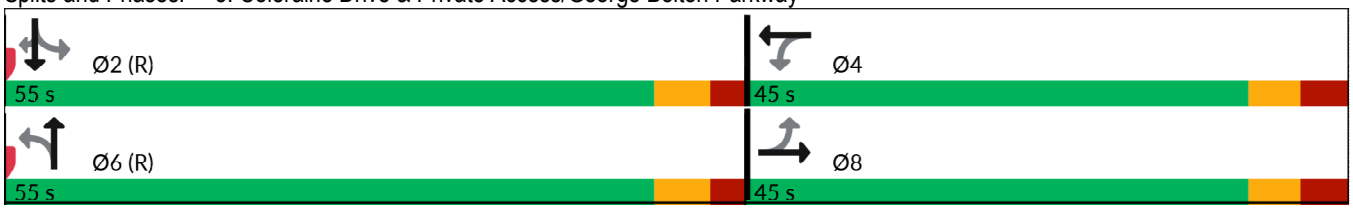
c Critical Lane Group

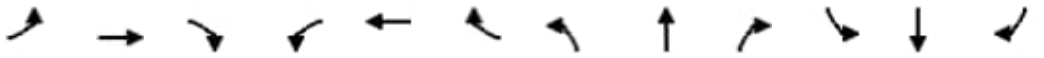
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	76	87	61	9	84	616	169	537	28
Future Volume (vph)	76	87	61	9	84	616	169	537	28
Lane Group Flow (vph)	92	362	73	200	101	826	204	647	34
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		8		4		6		2	
Permitted Phases	8		4		6		2		2
Detector Phase	8	8	4	4	6	6	2	2	2
Switch Phase									
Minimum Initial (s)	8.0	8.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.5	32.5	32.5	32.5	34.2	34.2	33.7	33.7	33.7
Total Split (s)	45.0	45.0	45.0	45.0	55.0	55.0	55.0	55.0	55.0
Total Split (%)	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.2	4.2	4.2	4.2	4.2
All-Red Time (s)	3.5	3.5	3.5	3.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	7.5	7.5	6.7	6.7	6.7	6.7	6.7
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.46	0.81	0.86	0.45	0.27	0.41	0.61	0.32	0.04
Control Delay (s/veh)	39.1	36.6	104.2	12.7	12.7	10.6	24.1	9.9	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	39.1	36.6	104.2	12.7	12.7	10.6	24.1	9.9	2.1
Queue Length 50th (m)	16.4	44.2	14.5	9.4	8.1	38.2	22.3	28.4	0.0
Queue Length 95th (m)	25.4	58.9	#28.6	20.7	21.3	61.3	#63.2	46.9	2.5
Internal Link Dist (m)		152.4		468.8		784.9		1711.9	
Turn Bay Length (m)	70.0		105.0		75.0		100.0		100.0
Base Capacity (vph)	340	654	143	648	369	2005	333	2015	832
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.55	0.51	0.31	0.27	0.41	0.61	0.32	0.04

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Coleraine Drive & Private Access/George Bolton Parkway





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	87	213	61	9	157	84	616	70	169	537	28
Future Volume (vph)	76	87	213	61	9	157	84	616	70	169	537	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.89		1.00	0.85		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1518	1511		1491	1491		1392	3133		1574	3159	1277
Flt Permitted	0.56	1.00		0.24	1.00		0.39	1.00		0.31	1.00	1.00
Satd. Flow (perm)	907	1511		384	1491		579	3133		522	3159	1277
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	92	105	257	73	11	189	101	742	84	204	647	34
RTOR Reduction (vph)	0	110	0	0	112	0	0	6	0	0	0	12
Lane Group Flow (vph)	92	252	0	73	88	0	101	820	0	204	647	22
Heavy Vehicles (%)	11%	9%	12%	13%	11%	8%	21%	12%	14%	7%	13%	18%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	22.0	22.0		22.0	22.0		63.8	63.8		63.8	63.8	63.8
Effective Green, g (s)	22.0	22.0		22.0	22.0		63.8	63.8		63.8	63.8	63.8
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.64	0.64		0.64	0.64	0.64
Clearance Time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	199	332		84	328		369	1998		333	2015	814
v/s Ratio Prot		0.17			0.06			0.26			0.20	
v/s Ratio Perm	0.10			c0.19			0.17			c0.39		0.02
v/c Ratio	0.46	0.75		0.86	0.26		0.27	0.41		0.61	0.32	0.02
Uniform Delay, d1	33.8	36.5		37.6	32.3		7.9	8.8		10.7	8.2	6.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.6	9.5		56.3	0.4		1.8	0.6		8.1	0.4	0.0
Delay (s)	35.5	46.0		94.0	32.7		9.7	9.5		18.9	8.6	6.7
Level of Service	D	D		F	C		A	A		B	A	A
Approach Delay (s/veh)		43.9			49.1			9.5			10.9	
Approach LOS		D			D			A			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	80.6%	ICU Level of Service	D
Analysis Period (min)	15		

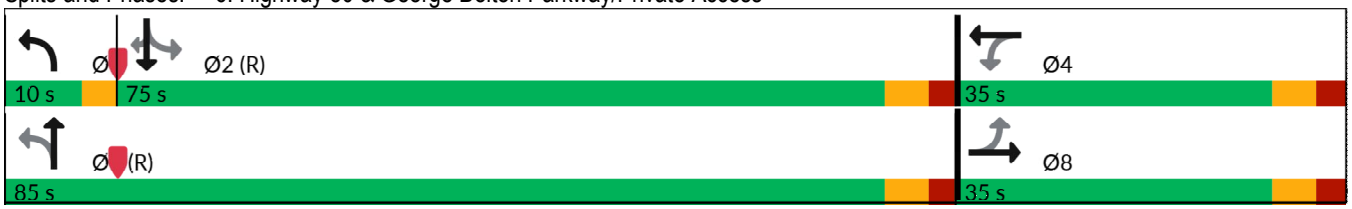
c Critical Lane Group

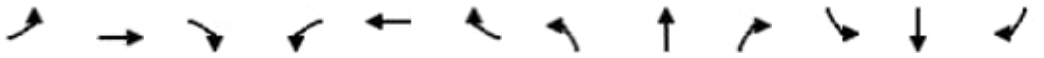
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	253	0	5	0	144	1393	1	988	169
Future Volume (vph)	253	0	5	0	144	1393	1	988	169
Lane Group Flow (vph)	264	244	0	12	150	1451	1	1029	176
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases		8		4	1	6		2	
Permitted Phases	8		4		6		2		2
Detector Phase	8	8	4	4	1	6	2	2	2
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	5.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.6	32.6	32.6	32.6	8.0	27.3	27.3	27.3	27.3
Total Split (s)	35.0	35.0	35.0	35.0	10.0	85.0	75.0	75.0	75.0
Total Split (%)	29.2%	29.2%	29.2%	29.2%	8.3%	70.8%	62.5%	62.5%	62.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.6	2.6	2.6	0.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6		6.6	3.0	6.3	6.3	6.3	6.3
Lead/Lag					Lead		Lag	Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.91	0.52		0.03	0.53	0.63	0.00	0.50	0.19
Control Delay (s/veh)	80.7	14.3		0.1	13.7	13.2	11.0	16.1	2.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	80.7	14.3		0.1	13.7	13.2	11.0	16.1	2.2
Queue Length 50th (m)	63.2	10.3		0.0	12.0	103.7	0.1	77.5	0.0
Queue Length 95th (m)	#111.5	35.8		0.0	20.0	125.8	0.9	95.5	9.7
Internal Link Dist (m)		846.5		43.0		1045.6		1307.8	
Turn Bay Length (m)	85.0				40.0		135.0		60.0
Base Capacity (vph)	305	479		403	282	2295	154	2024	916
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	0.87	0.51		0.03	0.53	0.63	0.01	0.51	0.19

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 116 (97%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Highway 50 & George Bolton Parkway/Private Access





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	253	0	234	5	0	7	144	1393	0	1	988	169
Future Volume (vph)	253	0	234	5	0	7	144	1393	0	1	988	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.6	6.6			6.6		3.0	6.3		6.3	6.3	6.3
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.98			1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00			0.99		0.99	1.00		1.00	1.00	1.00
Frt	1.00	0.85			0.92		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00			0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1636	1405			1694		1416	3433		1685	3466	1444
Flt Permitted	0.74	1.00			0.88		0.20	1.00		0.14	1.00	1.00
Satd. Flow (perm)	1291	1405			1523		312	3433		264	3466	1444
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	264	0	244	5	0	7	150	1451	0	1	1029	176
RTOR Reduction (vph)	0	149	0	0	9	0	0	0	0	0	0	73
Lane Group Flow (vph)	264	95	0	0	3	0	150	1451	0	1	1029	103
Confl. Peds. (#/hr)			2	2			1					1
Heavy Vehicles (%)	3%	0%	12%	0%	0%	0%	19%	4%	0%	0%	3%	2%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	26.9	26.9			26.9		80.2	80.2		70.1	70.1	70.1
Effective Green, g (s)	26.9	26.9			26.9		80.2	80.2		70.1	70.1	70.1
Actuated g/C Ratio	0.22	0.22			0.22		0.67	0.67		0.58	0.58	0.58
Clearance Time (s)	6.6	6.6			6.6		3.0	6.3		6.3	6.3	6.3
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	289	314			341		273	2294		154	2024	843
v/s Ratio Prot		0.07					0.03	c0.42			0.30	
v/s Ratio Perm	c0.20				0.00		0.33			0.00		0.07
v/c Ratio	0.91	0.30			0.00		0.54	0.63		0.00	0.50	0.12
Uniform Delay, d1	45.4	38.7			36.1		9.5	11.4		10.4	14.7	11.1
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	31.2	0.5			0.0		2.2	1.3		0.0	0.9	0.2
Delay (s)	76.6	39.2			36.1		11.7	12.7		10.4	15.6	11.4
Level of Service	E	D			D		B	B		B	B	B
Approach Delay (s/veh)		58.7			36.1			12.6			15.0	
Approach LOS		E			D			B			B	

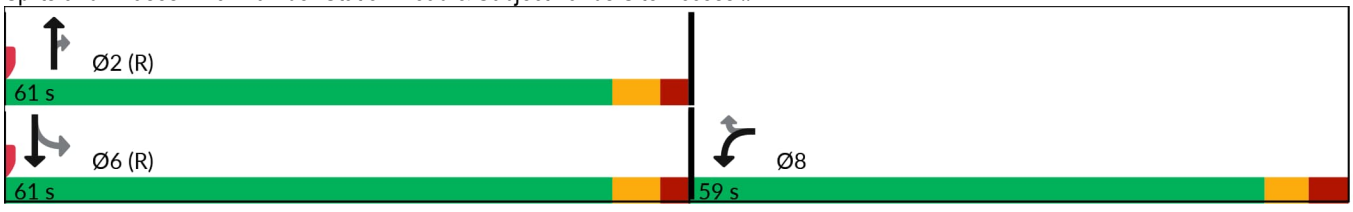
Intersection Summary			
HCM 2000 Control Delay (s/veh)	20.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.9
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	284	161	445	173	113	240
Future Volume (vph)	284	161	445	173	113	240
Lane Group Flow (vph)	284	161	445	173	113	240
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	29.5	29.5	32.7	32.7	32.7	32.7
Total Split (s)	59.0	59.0	61.0	61.0	61.0	61.0
Total Split (%)	49.2%	49.2%	50.8%	50.8%	50.8%	50.8%
Yellow Time (s)	4.0	4.0	4.2	4.2	4.2	4.2
All-Red Time (s)	3.5	3.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	6.7	6.7	6.7	6.7
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.78	0.36	0.20	0.19	0.23	0.11
Control Delay (s/veh)	57.5	7.0	3.5	0.3	5.4	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	57.5	7.0	3.5	0.3	5.4	4.0
Queue Length 50th (m)	66.3	0.0	7.6	0.0	4.3	4.7
Queue Length 95th (m)	88.7	15.6	m12.4	m0.0	m9.0	m8.4
Internal Link Dist (m)	321.1		1542.4			467.1
Turn Bay Length (m)	100.0			30.0	100.0	
Base Capacity (vph)	645	669	2181	867	472	2100
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	0.44	0.24	0.20	0.20	0.24	0.11

Intersection Summary

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

Splits and Phases: 9: Humber Station Road & Subject Lands Site Access #1



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	284	161	445	173	113	240
Future Volume (vph)	284	161	445	173	113	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.0	3.5	3.0	3.0	3.5
Total Lost time (s)	7.5	7.5	6.7	6.7	6.7	6.7
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1504	1346	3400	1256	1416	3275
Flt Permitted	0.95	1.00	1.00	1.00	0.49	1.00
Satd. Flow (perm)	1504	1346	3400	1256	737	3275
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	284	161	445	173	113	240
RTOR Reduction (vph)	0	122	0	62	0	0
Lane Group Flow (vph)	284	39	445	111	113	240
Heavy Vehicles (%)	12%	12%	5%	20%	19%	9%
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Actuated Green, G (s)	28.8	28.8	77.0	77.0	77.0	77.0
Effective Green, g (s)	28.8	28.8	77.0	77.0	77.0	77.0
Actuated g/C Ratio	0.24	0.24	0.64	0.64	0.64	0.64
Clearance Time (s)	7.5	7.5	6.7	6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	360	323	2181	805	472	2101
v/s Ratio Prot	c0.19		0.13			0.07
v/s Ratio Perm		0.03		0.09	c0.15	
v/c Ratio	0.78	0.11	0.20	0.13	0.23	0.11
Uniform Delay, d1	42.7	35.6	8.8	8.4	9.1	8.3
Progression Factor	1.00	1.00	0.34	0.02	0.38	0.41
Incremental Delay, d2	10.9	0.1	0.1	0.2	1.1	0.1
Delay (s)	53.6	35.8	3.1	0.4	4.6	3.5
Level of Service	D	D	A	A	A	A
Approach Delay (s/veh)	47.2		2.3			3.9
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		

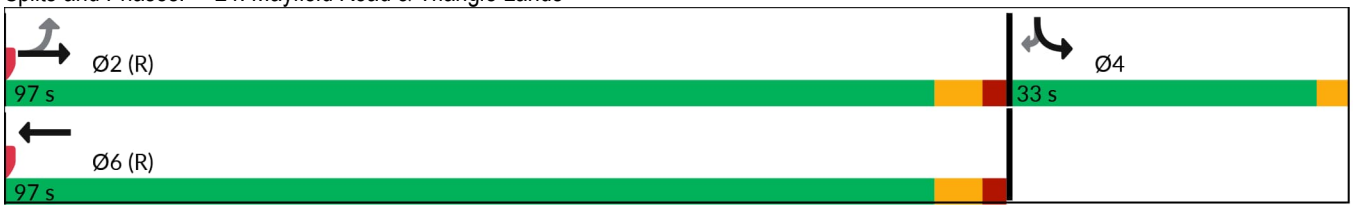
c Critical Lane Group

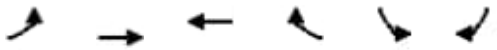
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	85	957	1074	75	167
Future Volume (vph)	85	957	1074	75	167
Lane Group Flow (vph)	85	957	1131	75	167
Turn Type	Perm	NA	NA	Prot	Perm
Protected Phases		2	6	4	
Permitted Phases	2				4
Detector Phase	2	2	6	4	4
Switch Phase					
Minimum Initial (s)	12.0	12.0	12.0	5.0	5.0
Minimum Split (s)	37.0	37.0	37.0	33.0	33.0
Total Split (s)	97.0	97.0	97.0	33.0	33.0
Total Split (%)	74.6%	74.6%	74.6%	25.4%	25.4%
Yellow Time (s)	4.6	4.6	4.6	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	3.0	3.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max	C-Max	None	None
v/c Ratio	0.27	0.32	0.39	0.55	0.66
Control Delay (s/veh)	5.4	3.1	1.4	70.4	26.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	5.4	3.1	1.4	70.4	26.1
Queue Length 50th (m)	3.9	24.6	9.1	19.7	6.6
Queue Length 95th (m)	11.9	40.9	17.6	35.1	29.8
Internal Link Dist (m)		768.9	290.4	250.9	
Turn Bay Length (m)	30.0			30.0	
Base Capacity (vph)	312	2904	2839	338	413
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	0.27	0.33	0.40	0.22	0.40

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 24: Mayfield Road & Triangle Lands





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	85	957	1074	57	75	167
Future Volume (vph)	85	957	1074	57	75	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.0	3.0
Total Lost time (s)	7.0	7.0	7.0		3.0	3.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1478	3500	3421		1465	1322
Flt Permitted	0.24	1.00	1.00		0.95	1.00
Satd. Flow (perm)	377	3500	3421		1465	1322
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	85	957	1074	57	75	167
RTOR Reduction (vph)	0	0	2	0	0	128
Lane Group Flow (vph)	85	957	1129	0	75	39
Heavy Vehicles (%)	14%	2%	3%	14%	15%	14%
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Actuated Green, G (s)	107.9	107.9	107.9		12.1	12.1
Effective Green, g (s)	107.9	107.9	107.9		12.1	12.1
Actuated g/C Ratio	0.83	0.83	0.83		0.09	0.09
Clearance Time (s)	7.0	7.0	7.0		3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	312	2905	2839		136	123
v/s Ratio Prot		0.27	c0.33		c0.05	
v/s Ratio Perm	0.23					0.03
v/c Ratio	0.27	0.32	0.39		0.55	0.31
Uniform Delay, d1	2.4	2.5	2.8		56.3	55.0
Progression Factor	1.00	1.00	0.35		1.00	1.00
Incremental Delay, d2	2.1	0.3	0.3		4.7	1.4
Delay (s)	4.5	2.8	1.3		61.1	56.5
Level of Service	A	A	A		E	E
Approach Delay (s/veh)		3.0	1.3		57.9	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	7.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	88	54	552	54	30	260
Future Volume (Veh/h)	88	54	552	54	30	260
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)	88	54	552	54	30	260
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	742	276			606	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	742	276			606	
tC, single (s)	7.1	7.2			4.4	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.3	
p0 queue free %	72	92			97	
cM capacity (veh/h)	316	684			897	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	88	54	276	276	54	30	130	130
Volume Left	88	0	0	0	0	30	0	0
Volume Right	0	54	0	0	54	0	0	0
cSH	316	684	1700	1700	1700	897	1700	1700
Volume to Capacity	0.28	0.08	0.16	0.16	0.03	0.03	0.08	0.08
Queue Length 95th (m)	8.9	2.1	0.0	0.0	0.0	0.8	0.0	0.0
Control Delay (s/veh)	20.7	10.7	0.0	0.0	0.0	9.2	0.0	0.0
Lane LOS	C	B				A		
Approach Delay (s/veh)	16.9		0.0			0.9		
Approach LOS	C							

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	33.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	527	42	38	880	73	63
Future Volume (Veh/h)	527	42	38	880	73	63
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)	527	42	38	880	73	63
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			569		1064	285
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			569		1064	285
tC, single (s)			4.4		7.1	7.2
tC, 2 stage (s)						
tF (s)			2.3		3.6	3.4
p0 queue free %			96		62	91
cM capacity (veh/h)			927		191	678

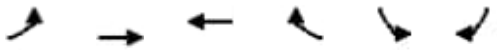
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	351	218	331	587	73	63
Volume Left	0	0	38	0	73	0
Volume Right	0	42	0	0	0	63
cSH	1700	1700	927	1700	191	678
Volume to Capacity	0.21	0.13	0.04	0.35	0.38	0.09
Queue Length 95th (m)	0.0	0.0	1.0	0.0	13.3	2.5
Control Delay (s/veh)	0.0	0.0	1.4	0.0	35.0	10.9
Lane LOS			A		E	B
Approach Delay (s/veh)	0.0		0.5		23.8	
Approach LOS					C	

Intersection Summary				
Average Delay	2.3			
Intersection Capacity Utilization	55.4%	ICU Level of Service		B
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	7	5	601	5	2	346
Future Volume (Veh/h)	7	5	601	5	2	346
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)	7	5	601	5	2	346
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	778	301			606	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	778	301			606	
tC, single (s)	7.1	7.3			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.5			2.2	
p0 queue free %	98	99			100	
cM capacity (veh/h)	309	645			982	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	7	5	301	301	5	2	173	173
Volume Left	7	0	0	0	0	2	0	0
Volume Right	0	5	0	0	5	0	0	0
cSH	309	645	1700	1700	1700	982	1700	1700
Volume to Capacity	0.02	0.01	0.18	0.18	0.00	0.00	0.10	0.10
Queue Length 95th (m)	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s/veh)	16.9	10.6	0.0	0.0	0.0	8.7	0.0	0.0
Lane LOS	C	B				A		
Approach Delay (s/veh)	14.3		0.0			0.0		
Approach LOS	B							

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	26.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	14	1031	1235	6	11	23
Future Volume (Veh/h)	14	1031	1235	6	11	23
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)	14	1031	1235	6	11	23
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		262				
pX, platoon unblocked					0.84	
vC, conflicting volume	1241				1782	621
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1241				1552	621
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				87	95
cM capacity (veh/h)	568				87	435

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	14	516	516	823	418	11	23
Volume Left	14	0	0	0	0	11	0
Volume Right	0	0	0	0	6	0	23
cSH	568	1700	1700	1700	1700	87	435
Volume to Capacity	0.02	0.30	0.30	0.48	0.25	0.13	0.05
Queue Length 95th (m)	0.6	0.0	0.0	0.0	0.0	3.3	1.3
Control Delay (s/veh)	11.5	0.0	0.0	0.0	0.0	52.2	13.7
Lane LOS	B					F	B
Approach Delay (s/veh)	0.2			0.0		26.2	
Approach LOS						D	

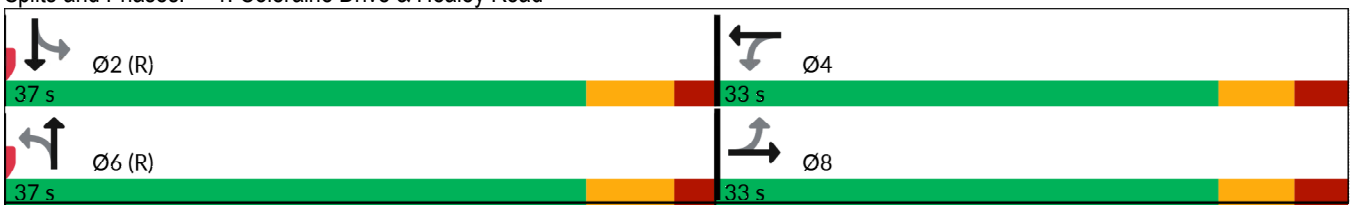
Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	44.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	247	540	98	241	72	188	64	385
Future Volume (vph)	247	540	98	241	72	188	64	385
Lane Group Flow (vph)	266	867	105	283	77	240	69	695
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	32.8	32.8	32.8	32.8	36.7	36.7	36.7	36.7
Total Split (s)	33.0	33.0	33.0	33.0	37.0	37.0	37.0	37.0
Total Split (%)	47.1%	47.1%	47.1%	47.1%	52.9%	52.9%	52.9%	52.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	2.8	2.8	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.7	6.7	6.7	6.7
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.84	0.71	0.98	0.48	0.27	0.18	0.17	0.44
Control Delay (s/veh)	46.7	20.0	110.4	20.1	16.3	10.2	13.7	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	46.7	20.0	110.4	20.1	16.3	10.2	13.7	8.6
Queue Length 50th (m)	31.3	42.2	13.2	27.5	6.6	8.5	5.6	18.8
Queue Length 95th (m)	#69.9	61.3	#42.1	47.6	16.9	15.4	13.7	32.3
Internal Link Dist (m)		823.7		424.0		1711.9		1121.0
Turn Bay Length (m)	55.0		50.0		80.0		155.0	
Base Capacity (vph)	348	1336	119	650	279	1325	392	1572
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	0.76	0.65	0.88	0.44	0.28	0.18	0.18	0.44

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 3 (4%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Coleraine Drive & Healey Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	247	540	266	98	241	22	72	188	35	64	385	261
Future Volume (vph)	247	540	266	98	241	22	72	188	35	64	385	261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.8	6.8		6.8	6.8		6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.95		1.00	0.98		1.00	0.97		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1636	3338		1491	1724		1589	2779		1316	3033	
Flt Permitted	0.53	1.00		0.20	1.00		0.35	1.00		0.60	1.00	
Satd. Flow (perm)	930	3338		318	1724		594	2779		835	3033	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	266	581	286	105	259	24	77	202	38	69	414	281
RTOR Reduction (vph)	0	91	0	0	5	0	0	20	0	0	149	0
Lane Group Flow (vph)	266	776	0	105	278	0	77	220	0	69	546	0
Heavy Vehicles (%)	3%	1%	3%	13%	2%	68%	6%	27%	17%	28%	15%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	23.6	23.6		23.6	23.6		32.9	32.9		32.9	32.9	
Effective Green, g (s)	23.6	23.6		23.6	23.6		32.9	32.9		32.9	32.9	
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.47	0.47		0.47	0.47	
Clearance Time (s)	6.8	6.8		6.8	6.8		6.7	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	313	1125		107	581		279	1306		392	1425	
v/s Ratio Prot		0.23			0.16			0.08			c0.18	
v/s Ratio Perm	0.29			c0.33			0.13			0.08		
v/c Ratio	0.84	0.68		0.98	0.47		0.27	0.16		0.17	0.38	
Uniform Delay, d1	21.5	20.0		22.9	18.3		11.2	10.6		10.7	11.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	18.9	1.7		80.6	0.6		2.4	0.2		0.9	0.7	
Delay (s)	40.4	21.8		103.6	18.9		13.7	10.9		11.6	12.7	
Level of Service	D	C		F	B		B	B		B	B	
Approach Delay (s/veh)		26.1			41.8			11.6			12.6	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		

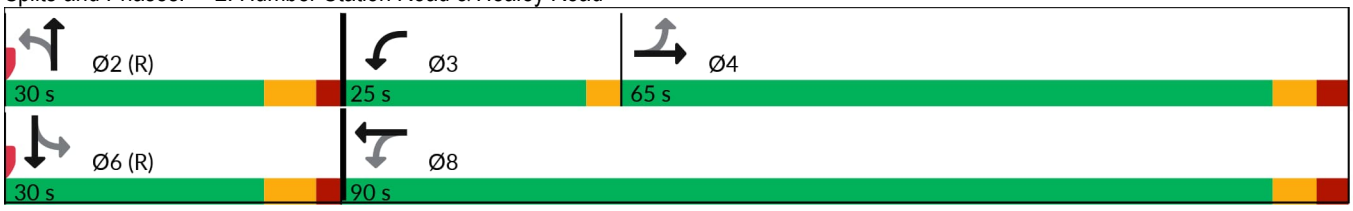
c Critical Lane Group

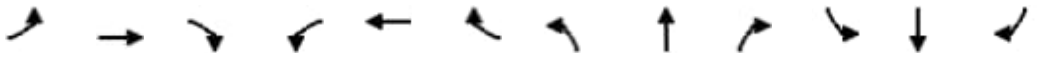
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	4	962	184	479	83	24	82	233
Future Volume (vph)	4	962	184	479	83	24	82	233
Lane Group Flow (vph)	4	1209	198	519	89	172	88	255
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		4	3	8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	8.0	8.0	5.0	8.0	8.0	8.0	5.0	5.0
Minimum Split (s)	24.8	24.8	9.5	24.8	24.7	24.7	24.8	24.8
Total Split (s)	65.0	65.0	25.0	90.0	30.0	30.0	30.0	30.0
Total Split (%)	54.2%	54.2%	20.8%	75.0%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	0.0	2.8	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	3.0	6.8	6.7	6.7	6.7	6.7
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.01	0.83	0.76	0.26	0.29	0.16	0.24	0.22
Control Delay (s/veh)	17.7	35.8	43.5	12.9	35.8	8.0	36.0	32.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	17.7	35.8	43.5	12.9	35.8	8.0	36.0	32.6
Queue Length 50th (m)	0.6	134.8	29.9	32.6	14.0	1.5	16.0	24.1
Queue Length 95th (m)	2.6	147.6	51.1	31.7	37.0	6.8	35.2	40.7
Internal Link Dist (m)		465.5		505.1		463.9		452.2
Turn Bay Length (m)	30.0		60.0		30.0		30.0	
Base Capacity (vph)	316	1675	349	2444	299	1044	366	1134
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	0.01	0.72	0.57	0.21	0.30	0.16	0.24	0.22

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 43 (36%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 2: Humber Station Road & Healey Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	962	163	184	479	4	83	24	136	82	233	4
Future Volume (vph)	4	962	163	184	479	4	83	24	136	82	233	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.8	6.8		3.0	6.8		6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.99		1.00	0.87		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1348	3433		1589	3524		1491	2941		1685	3527	
Flt Permitted	0.46	1.00		0.08	1.00		0.59	1.00		0.64	1.00	
Satd. Flow (perm)	653	3433		139	3524		932	2941		1141	3527	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	4	1034	175	198	515	4	89	26	146	88	251	4
RTOR Reduction (vph)	0	13	0	0	0	0	0	99	0	0	1	0
Lane Group Flow (vph)	4	1196	0	198	519	0	89	73	0	88	254	0
Heavy Vehicles (%)	25%	1%	6%	6%	1%	25%	13%	0%	7%	0%	1%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	50.4	50.4		68.0	68.0		38.5	38.5		38.5	38.5	
Effective Green, g (s)	50.4	50.4		68.0	68.0		38.5	38.5		38.5	38.5	
Actuated g/C Ratio	0.42	0.42		0.57	0.57		0.32	0.32		0.32	0.32	
Clearance Time (s)	6.8	6.8		3.0	6.8		6.7	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	274	1441		255	1996		299	943		366	1131	
v/s Ratio Prot		c0.35		c0.09	0.15			0.02			0.07	
v/s Ratio Perm	0.01			0.34			c0.10			0.08		
v/c Ratio	0.01	0.83		0.77	0.25		0.29	0.07		0.24	0.22	
Uniform Delay, d1	20.3	30.9		29.7	13.2		30.5	28.3		29.9	29.8	
Progression Factor	1.00	1.00		1.00	1.00		0.94	0.90		1.00	1.00	
Incremental Delay, d2	0.0	4.2		13.7	0.0		2.5	0.1		1.5	0.4	
Delay (s)	20.3	35.2		43.4	13.2		31.3	25.9		31.5	30.2	
Level of Service	C	D		D	B		C	C		C	C	
Approach Delay (s/veh)		35.1			21.6			27.8			30.6	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	30.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		

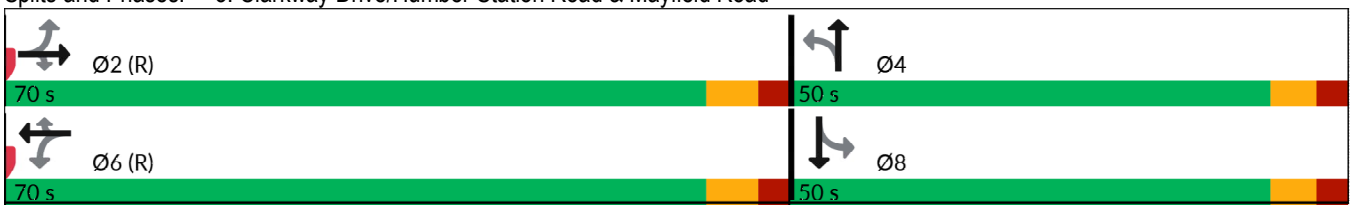
c Critical Lane Group

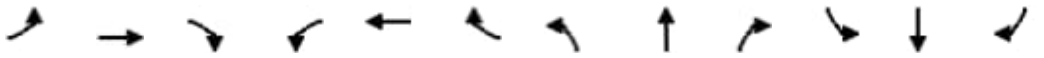
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	312	1978	28	62	789	112	11	171	66	336
Future Volume (vph)	312	1978	28	62	789	112	11	171	66	336
Lane Group Flow (vph)	325	2060	29	65	822	117	11	306	69	458
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	NA
Protected Phases		2			6			4		8
Permitted Phases	2		2	6		6	4		8	
Detector Phase	2	2	2	6	6	6	4	4	8	8
Switch Phase										
Minimum Initial (s)	12.0	12.0	12.0	12.0	12.0	12.0	8.0	8.0	8.0	8.0
Minimum Split (s)	27.3	27.3	27.3	27.5	27.5	27.5	26.0	26.0	27.5	27.5
Total Split (s)	70.0	70.0	70.0	70.0	70.0	70.0	50.0	50.0	50.0	50.0
Total Split (%)	58.3%	58.3%	58.3%	58.3%	58.3%	58.3%	41.7%	41.7%	41.7%	41.7%
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.2	4.2	4.2	4.2
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.0	7.0	7.0	7.0
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None
v/c Ratio	0.93	0.65	0.03	0.98	0.27	0.12	0.09	0.79	0.59	0.59
Control Delay (s/veh)	56.1	14.6	2.7	132.1	7.8	1.0	34.8	57.9	70.7	48.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	56.1	14.6	2.7	132.1	7.8	1.0	34.8	57.9	70.7	48.8
Queue Length 50th (m)	65.5	104.0	0.0	14.8	19.7	0.0	2.2	70.9	16.1	51.5
Queue Length 95th (m)	#145.8	148.3	3.5	#48.5	34.0	3.1	6.9	95.3	33.3	70.2
Internal Link Dist (m)		1635.6			240.8			1187.5		1542.4
Turn Bay Length (m)	150.0		105.0	150.0		115.0			105.0	
Base Capacity (vph)	349	3164	801	66	2942	962	191	604	183	1201
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.65	0.04	0.98	0.28	0.12	0.06	0.51	0.38	0.38

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 36 (30%), 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: 3: Clarkway Drive/Humber Station Road & Mayfield Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	312	1978	28	62	789	112	11	171	123	66	336	104
Future Volume (vph)	312	1978	28	62	789	112	11	171	123	66	336	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1560	4839	1206	1532	4499	1409	1428	1677		1518	3285	
Flt Permitted	0.32	1.00	1.00	0.06	1.00	1.00	0.35	1.00		0.32	1.00	
Satd. Flow (perm)	535	4839	1206	102	4499	1409	535	1677		512	3285	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	325	2060	29	65	822	117	11	178	128	69	350	108
RTOR Reduction (vph)	0	0	10	0	0	40	0	4	0	0	29	0
Lane Group Flow (vph)	325	2060	19	65	822	77	11	302	0	69	429	0
Heavy Vehicles (%)	8%	6%	25%	10%	14%	7%	18%	5%	5%	11%	2%	14%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	78.5	78.5	78.5	78.5	78.5	78.5	27.2	27.2		27.2	27.2	
Effective Green, g (s)	78.5	78.5	78.5	78.5	78.5	78.5	27.2	27.2		27.2	27.2	
Actuated g/C Ratio	0.65	0.65	0.65	0.65	0.65	0.65	0.23	0.23		0.23	0.23	
Clearance Time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	349	3165	788	66	2943	921	121	380		116	744	
v/s Ratio Prot		0.43			0.18			c0.18			0.13	
v/s Ratio Perm	0.61		0.02	c0.64		0.05	0.02			0.13		
v/c Ratio	0.93	0.65	0.02	0.98	0.27	0.08	0.09	0.79		0.59	0.57	
Uniform Delay, d1	18.3	12.4	7.2	20.1	8.7	7.5	36.6	43.7		41.4	41.2	
Progression Factor	1.00	1.00	1.00	0.79	0.79	0.43	1.00	1.00		1.24	1.23	
Incremental Delay, d2	33.5	1.0	0.0	105.6	0.2	0.1	0.3	10.9		7.9	1.0	
Delay (s)	51.8	13.5	7.3	121.6	7.2	3.4	36.9	54.7		59.4	52.0	
Level of Service	D	B	A	F	A	A	D	D		E	D	
Approach Delay (s/veh)		18.6			14.1			54.0			53.0	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	24.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.3
Intersection Capacity Utilization	95.2%	ICU Level of Service	F
Analysis Period (min)	15		

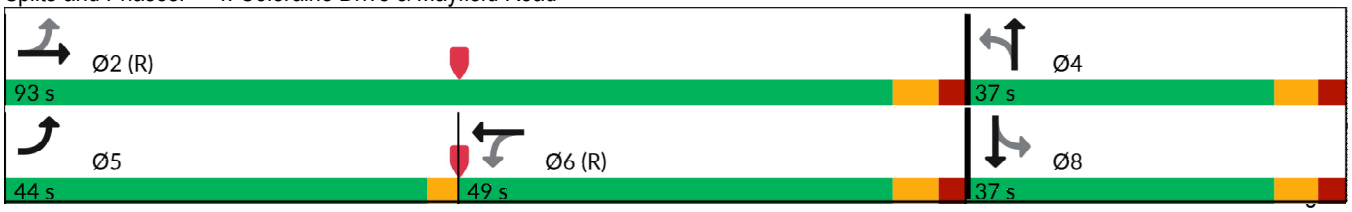
c Critical Lane Group

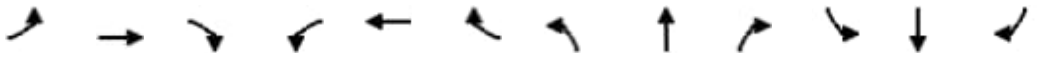
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	555	718	44	834	10	180	99	339
Future Volume (vph)	555	718	44	834	10	180	99	339
Lane Group Flow (vph)	631	844	50	1111	11	215	113	699
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	5	2		6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	5	2	6	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	5.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	8.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (s)	44.0	93.0	49.0	49.0	37.0	37.0	37.0	37.0
Total Split (%)	33.8%	71.5%	37.7%	37.7%	28.5%	28.5%	28.5%	28.5%
Yellow Time (s)	3.0	4.6	4.6	4.6	4.2	4.2	4.2	4.2
All-Red Time (s)	0.0	2.4	2.4	2.4	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
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	1.07	0.26	0.27	1.03	0.24	0.28	0.55	0.89
Control Delay (s/veh)	93.0	8.6	37.7	79.3	56.4	42.5	56.5	53.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	93.0	8.6	37.7	79.3	56.4	42.5	56.5	53.3
Queue Length 50th (m)	~180.2	31.6	10.0	~167.8	2.4	24.7	26.8	76.9
Queue Length 95th (m)	#245.7	37.3	21.6	#204.1	8.8	35.7	46.5	98.3
Internal Link Dist (m)		290.4		195.1		791.2		576.8
Turn Bay Length (m)	100.0		85.0		105.0		145.0	
Base Capacity (vph)	588	3126	184	1073	48	816	217	833
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	1.07	0.27	0.27	1.04	0.23	0.26	0.52	0.84

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 92 (71%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
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: 4: Coleraine Drive & Mayfield Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	555	718	25	44	834	143	10	180	9	99	339	276
Future Volume (vph)	555	718	25	44	834	143	10	180	9	99	339	276
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	3.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.91		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.97		1.00	0.99		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1604	4608		1685	3288		1404	3527		1452	3119	
Flt Permitted	0.08	1.00		0.32	1.00		0.14	1.00		0.61	1.00	
Satd. Flow (perm)	150	4608		572	3288		212	3527		944	3119	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	631	816	28	50	948	162	11	205	10	112	385	314
RTOR Reduction (vph)	0	3	0	0	11	0	0	2	0	0	115	0
Lane Group Flow (vph)	631	841	0	50	1100	0	11	213	0	113	584	0
Heavy Vehicles (%)	5%	11%	4%	0%	5%	13%	20%	0%	11%	16%	0%	15%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	88.1	88.1		42.0	42.0		27.9	27.9		27.9	27.9	
Effective Green, g (s)	88.1	88.1		42.0	42.0		27.9	27.9		27.9	27.9	
Actuated g/C Ratio	0.68	0.68		0.32	0.32		0.21	0.21		0.21	0.21	
Clearance Time (s)	3.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	583	3122		184	1062		45	756		202	669	
v/s Ratio Prot	c0.36	0.18			0.33			0.06			c0.19	
v/s Ratio Perm	c0.37			0.09			0.05			0.12		
v/c Ratio	1.08	0.26		0.27	1.03		0.24	0.28		0.55	0.87	
Uniform Delay, d1	37.4	8.2		32.6	44.0		42.3	42.6		45.5	49.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	61.5	0.2		3.6	37.3		2.8	0.2		3.3	12.0	
Delay (s)	98.9	8.4		36.2	81.3		45.1	42.8		48.9	61.3	
Level of Service	F	A		D	F		D	D		D	E	
Approach Delay (s/veh)		47.1			79.3			42.9			59.6	
Approach LOS		D			E			D			E	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	59.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	107.4%	ICU Level of Service	G
Analysis Period (min)	15		

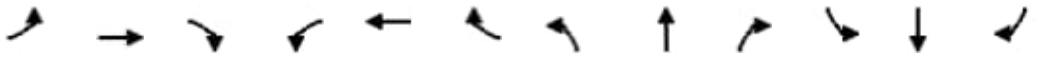
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	30	35	63	23	213	485	93	499	113
Future Volume (vph)	30	35	63	23	213	485	93	499	113
Lane Group Flow (vph)	35	141	73	191	248	676	108	580	131
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		8		4		6		2	
Permitted Phases	8		4		6		2		2
Detector Phase	8	8	4	4	6	6	2	2	2
Switch Phase									
Minimum Initial (s)	8.0	8.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.5	32.5	32.5	32.5	34.2	34.2	33.7	33.7	33.7
Total Split (s)	45.0	45.0	45.0	45.0	55.0	55.0	55.0	55.0	55.0
Total Split (%)	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.2	4.2	4.2	4.2	4.2
All-Red Time (s)	3.5	3.5	3.5	3.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	7.5	7.5	6.7	6.7	6.7	6.7	6.7
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.28	0.47	0.54	0.54	0.50	0.30	0.23	0.26	0.12
Control Delay (s/veh)	42.0	18.5	53.8	14.5	11.9	6.0	7.4	6.0	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	42.0	18.5	53.8	14.5	11.9	6.0	7.4	6.0	1.4
Queue Length 50th (m)	6.6	7.6	14.2	4.9	18.6	20.6	6.2	18.1	0.0
Queue Length 95th (m)	14.3	21.9	25.8	20.9	45.0	35.4	16.4	31.2	5.5
Internal Link Dist (m)		152.4		468.8		784.9		1711.9	
Turn Bay Length (m)	70.0		105.0		75.0		100.0		100.0
Base Capacity (vph)	311	583	333	633	495	2184	464	2214	1034
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.24	0.22	0.30	0.50	0.31	0.23	0.26	0.13

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 5: Coleraine Drive & Private Access/George Bolton Parkway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	35	86	63	23	141	213	485	96	93	499	113
Future Volume (vph)	30	35	86	63	23	141	213	485	96	93	499	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.89		1.00	0.87		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1491	1387		1267	1417		1532	3076		1589	3131	1409
Flt Permitted	0.52	1.00		0.66	1.00		0.43	1.00		0.39	1.00	1.00
Satd. Flow (perm)	829	1387		889	1417		699	3076		655	3131	1409
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	35	41	100	73	27	164	248	564	112	108	580	131
RTOR Reduction (vph)	0	85	0	0	139	0	0	9	0	0	0	38
Lane Group Flow (vph)	35	56	0	73	52	0	248	667	0	108	580	93
Heavy Vehicles (%)	13%	26%	19%	33%	43%	11%	10%	12%	19%	6%	14%	7%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	15.1	15.1		15.1	15.1		70.7	70.7		70.7	70.7	70.7
Effective Green, g (s)	15.1	15.1		15.1	15.1		70.7	70.7		70.7	70.7	70.7
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.71	0.71		0.71	0.71	0.71
Clearance Time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	125	209		134	213		494	2174		463	2213	996
v/s Ratio Prot		0.04			0.04			0.22			0.19	
v/s Ratio Perm	0.04			c0.08			c0.35			0.16		0.07
v/c Ratio	0.28	0.26		0.54	0.24		0.50	0.30		0.23	0.26	0.09
Uniform Delay, d1	37.6	37.5		39.2	37.4		6.6	5.4		5.1	5.2	4.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.2	0.6		4.4	0.5		3.6	0.3		1.1	0.2	0.1
Delay (s)	38.8	38.2		43.7	38.0		10.2	5.8		6.3	5.5	4.7
Level of Service	D	D		D	D		B	A		A	A	A
Approach Delay (s/veh)		38.3			39.5			7.0			5.5	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		

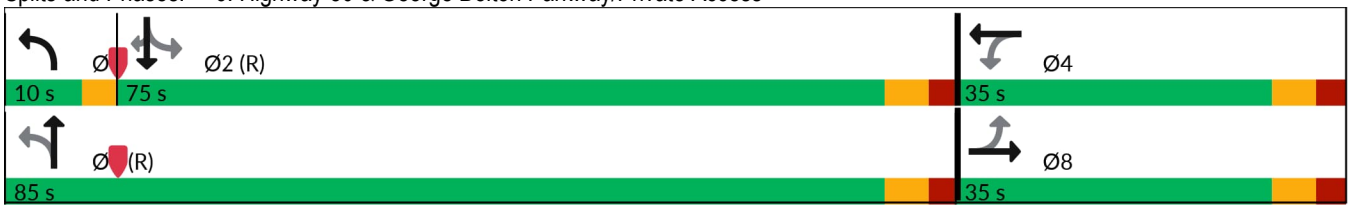
c Critical Lane Group

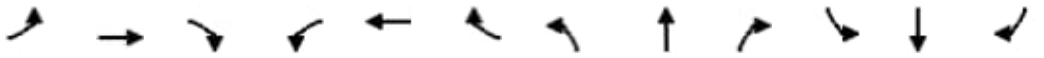
Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	93	0	0	178	1030	3	1144	138
Future Volume (vph)	93	0	0	178	1030	3	1144	138
Lane Group Flow (vph)	97	124	1	185	1073	3	1192	144
Turn Type	Perm	NA	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases		8	4	1	6		2	
Permitted Phases	8			6		2		2
Detector Phase	8	8	4	1	6	2	2	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	5.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.6	32.6	32.6	8.0	27.3	27.3	27.3	27.3
Total Split (s)	35.0	35.0	35.0	10.0	85.0	75.0	75.0	75.0
Total Split (%)	29.2%	29.2%	29.2%	8.3%	70.8%	62.5%	62.5%	62.5%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.6	2.6	0.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	3.0	6.3	6.3	6.3	6.3
Lead/Lag				Lead		Lag	Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.65	0.42	0.00	0.58	0.40	0.00	0.55	0.14
Control Delay (s/veh)	68.8	7.2	0.0	12.0	5.7	10.3	13.6	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	68.8	7.2	0.0	12.0	5.7	10.3	13.6	2.3
Queue Length 50th (m)	23.2	0.0	0.0	8.8	39.9	0.3	78.1	0.6
Queue Length 95th (m)	39.7	8.5	0.0	21.6	64.4	1.8	121.4	9.7
Internal Link Dist (m)		846.5	43.0		1045.6		1307.8	
Turn Bay Length (m)	85.0			40.0		135.0		60.0
Base Capacity (vph)	283	405	480	315	2634	308	2153	991
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	0.34	0.31	0.00	0.59	0.41	0.01	0.55	0.15

Intersection Summary

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

Splits and Phases: 6: Highway 50 & George Bolton Parkway/Private Access





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	0	119	0	0	1	178	1030	0	3	1144	138
Future Volume (vph)	93	0	119	0	0	1	178	1030	0	3	1144	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.6	6.6			6.6		3.0	6.3		6.3	6.3	6.3
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.85			0.86		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1504	1192			1625		1404	3433		1685	3305	1449
Flt Permitted	0.75	1.00			1.00		0.18	1.00		0.26	1.00	1.00
Satd. Flow (perm)	1199	1192			1625		268	3433		473	3305	1449
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	97	0	124	0	0	1	185	1073	0	3	1192	144
RTOR Reduction (vph)	0	109	0	0	1	0	0	0	0	0	0	48
Lane Group Flow (vph)	97	16	0	0	0	0	185	1073	0	3	1192	96
Heavy Vehicles (%)	12%	0%	34%	0%	0%	0%	20%	4%	0%	0%	8%	4%
Turn Type	Perm	NA			NA		pm+pt	NA		Perm	NA	Perm
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	15.0	15.0			15.0		92.1	92.1		78.2	78.2	78.2
Effective Green, g (s)	15.0	15.0			15.0		92.1	92.1		78.2	78.2	78.2
Actuated g/C Ratio	0.13	0.13			0.13		0.77	0.77		0.65	0.65	0.65
Clearance Time (s)	6.6	6.6			6.6		3.0	6.3		6.3	6.3	6.3
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	149	149			203		308	2634		308	2153	944
v/s Ratio Prot		0.01			0.00		c0.05	0.31			0.36	
v/s Ratio Perm	c0.08						c0.41			0.01		0.07
v/c Ratio	0.65	0.10			0.00		0.60	0.40		0.00	0.55	0.10
Uniform Delay, d1	50.0	46.5			45.9		6.9	4.7		7.3	11.3	7.7
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	9.7	0.3			0.0		3.2	0.4		0.0	1.0	0.2
Delay (s)	59.7	46.8			45.9		10.2	5.1		7.3	12.4	8.0
Level of Service	E	D			D		B	A		A	B	A
Approach Delay (s/veh)		52.5			45.9			5.9			11.9	
Approach LOS		D			D			A			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.9
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		

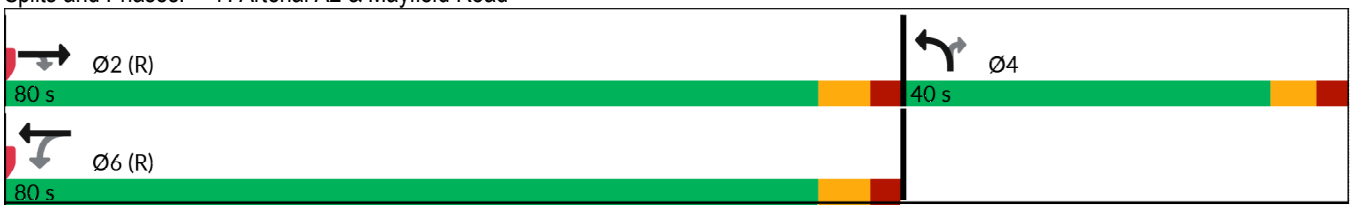
c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1310	841	226	885	84	149
Future Volume (vph)	1310	841	226	885	84	149
Lane Group Flow (vph)	1365	876	235	922	166	77
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	4	
Permitted Phases		2	6			4
Detector Phase	2	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	12.0	12.0	12.0	12.0	8.0	8.0
Minimum Split (s)	30.3	30.3	30.3	30.3	30.0	30.0
Total Split (s)	80.0	80.0	80.0	80.0	40.0	40.0
Total Split (%)	66.7%	66.7%	66.7%	66.7%	33.3%	33.3%
Yellow Time (s)	4.6	4.6	4.6	4.6	4.2	4.2
All-Red Time (s)	2.7	2.7	2.7	2.7	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	7.3	7.3	7.3	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
v/c Ratio	0.36	0.63	0.93	0.25	0.54	0.47
Control Delay (s/veh)	1.3	5.3	65.2	4.3	42.0	30.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	1.3	5.3	65.2	4.3	42.0	30.5
Queue Length 50th (m)	6.7	25.8	57.0	17.3	14.0	6.2
Queue Length 95th (m)	9.7	72.3	#57.3	35.6	24.8	22.9
Internal Link Dist (m)	123.0			619.0	876.4	
Turn Bay Length (m)		60.0	100.0			
Base Capacity (vph)	3705	1377	252	3606	857	404
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	0.37	0.64	0.93	0.26	0.19	0.19

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 61 (51%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Arterial A2 & Mayfield Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1310	841	226	885	84	149
Future Volume (vph)	1310	841	226	885	84	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.0	3.0	3.5	3.0	3.0
Total Lost time (s)	7.3	7.3	7.3	7.3	7.0	7.0
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Frt	1.00	0.85	1.00	1.00	0.92	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.97	1.00
Satd. Flow (prot)	4663	1507	1652	4539	2978	1332
Flt Permitted	1.00	1.00	0.18	1.00	0.97	1.00
Satd. Flow (perm)	4663	1507	318	4539	2978	1332
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1365	876	235	922	88	155
RTOR Reduction (vph)	0	180	0	0	48	48
Lane Group Flow (vph)	1365	696	235	922	118	29
Heavy Vehicles (%)	10%	0%	2%	13%	6%	3%
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	4	
Permitted Phases		2	6			4
Actuated Green, G (s)	95.4	95.4	95.4	95.4	10.3	10.3
Effective Green, g (s)	95.4	95.4	95.4	95.4	10.3	10.3
Actuated g/C Ratio	0.80	0.80	0.80	0.80	0.09	0.09
Clearance Time (s)	7.3	7.3	7.3	7.3	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3707	1198	252	3608	255	114
v/s Ratio Prot	0.29			0.20	c0.04	
v/s Ratio Perm		0.46	c0.74			0.02
v/c Ratio	0.36	0.58	0.93	0.25	0.46	0.25
Uniform Delay, d1	3.5	4.6	9.7	3.1	52.2	51.2
Progression Factor	0.30	12.25	1.99	1.24	1.00	1.00
Incremental Delay, d2	0.2	1.6	41.1	0.1	1.3	1.1
Delay (s)	1.3	59.1	60.6	4.1	53.5	52.4
Level of Service	A	E	E	A	D	D
Approach Delay (s/veh)	23.9			15.5	53.1	
Approach LOS	C			B	D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	23.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.3
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		

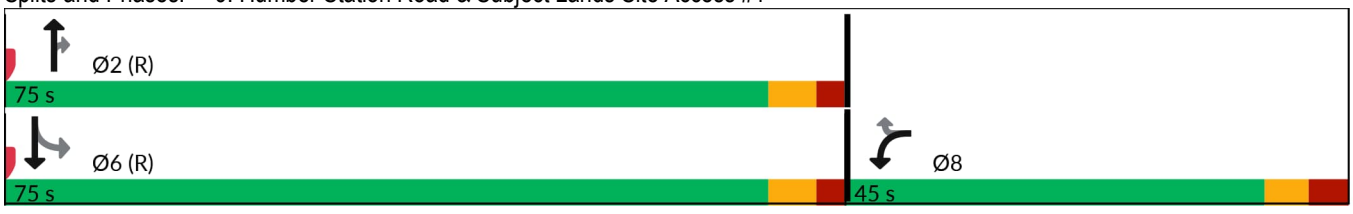
c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	106	61	271	324	181	400
Future Volume (vph)	106	61	271	324	181	400
Lane Group Flow (vph)	106	61	271	324	181	400
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	25.5	25.5	24.7	24.7	24.7	24.7
Total Split (s)	45.0	45.0	75.0	75.0	75.0	75.0
Total Split (%)	37.5%	37.5%	62.5%	62.5%	62.5%	62.5%
Yellow Time (s)	4.0	4.0	4.2	4.2	4.2	4.2
All-Red Time (s)	3.5	3.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	6.7	6.7	6.7	6.7
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.58	0.28	0.10	0.28	0.24	0.15
Control Delay (s/veh)	62.3	14.3	4.9	1.6	4.5	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	62.3	14.3	4.9	1.6	4.5	3.5
Queue Length 50th (m)	25.4	0.0	7.7	4.3	7.2	8.2
Queue Length 95th (m)	42.6	12.4	m11.2	m5.9	m14.7	14.2
Internal Link Dist (m)	321.1		1542.4			454.2
Turn Bay Length (m)	100.0			30.0	100.0	
Base Capacity (vph)	453	447	2549	1145	734	2623
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	0.23	0.14	0.11	0.28	0.25	0.15

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 116 (97%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: Humber Station Road & Subject Lands Site Access #1



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	106	61	271	324	181	400
Future Volume (vph)	106	61	271	324	181	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.0	3.5	3.0	3.0	3.5
Total Lost time (s)	7.5	7.5	6.7	6.7	6.7	6.7
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1452	1299	3368	1409	1574	3466
Flt Permitted	0.95	1.00	1.00	1.00	0.58	1.00
Satd. Flow (perm)	1452	1299	3368	1409	969	3466
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	106	61	271	324	181	400
RTOR Reduction (vph)	0	53	0	79	0	0
Lane Group Flow (vph)	106	8	271	245	181	400
Heavy Vehicles (%)	16%	16%	6%	7%	7%	3%
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Actuated Green, G (s)	15.0	15.0	90.8	90.8	90.8	90.8
Effective Green, g (s)	15.0	15.0	90.8	90.8	90.8	90.8
Actuated g/C Ratio	0.13	0.13	0.76	0.76	0.76	0.76
Clearance Time (s)	7.5	7.5	6.7	6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	181	162	2548	1066	733	2622
v/s Ratio Prot	c0.07		0.08			0.12
v/s Ratio Perm		0.01		0.17	c0.19	
v/c Ratio	0.58	0.04	0.10	0.22	0.24	0.15
Uniform Delay, d1	49.5	46.2	3.8	4.3	4.3	4.0
Progression Factor	1.00	1.00	1.17	2.11	0.77	0.79
Incremental Delay, d2	4.7	0.1	0.0	0.3	0.7	0.1
Delay (s)	54.3	46.3	4.5	9.4	4.0	3.3
Level of Service	D	D	A	A	A	A
Approach Delay (s/veh)	51.4		7.2			3.5
Approach LOS	D		A			A

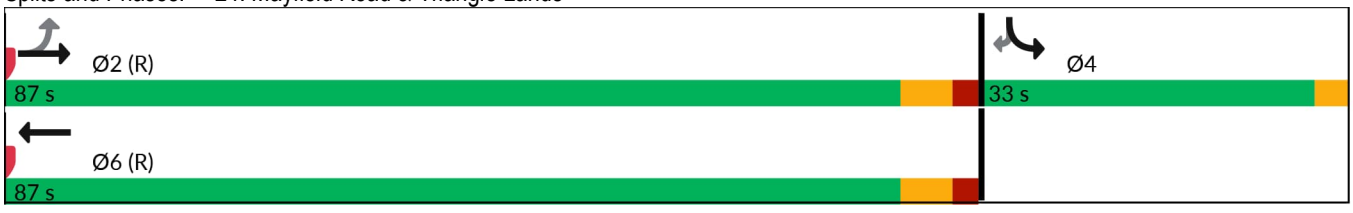
Intersection Summary			
HCM 2000 Control Delay (s/veh)	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		

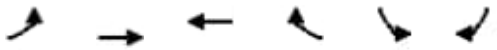
c Critical Lane Group

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	160	1299	1029	33	72
Future Volume (vph)	160	1299	1029	33	72
Lane Group Flow (vph)	160	1299	1137	33	72
Turn Type	Perm	NA	NA	Prot	Perm
Protected Phases		2	6	4	
Permitted Phases	2				4
Detector Phase	2	2	6	4	4
Switch Phase					
Minimum Initial (s)	12.0	12.0	12.0	5.0	5.0
Minimum Split (s)	37.0	37.0	37.0	33.0	33.0
Total Split (s)	87.0	87.0	87.0	33.0	33.0
Total Split (%)	72.5%	72.5%	72.5%	27.5%	27.5%
Yellow Time (s)	4.6	4.6	4.6	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	3.0	3.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max	C-Max	None	None
v/c Ratio	0.46	0.29	0.26	0.32	0.45
Control Delay (s/veh)	13.7	4.2	1.7	60.9	21.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	13.7	4.2	1.7	60.9	21.4
Queue Length 50th (m)	16.7	41.0	13.9	8.0	0.0
Queue Length 95th (m)	31.3	58.3	20.9	18.5	14.6
Internal Link Dist (m)		619.0	290.4	250.9	
Turn Bay Length (m)	30.0			30.0	
Base Capacity (vph)	344	4441	4358	376	387
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	0.47	0.29	0.26	0.09	0.19

Intersection Summary
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

Splits and Phases: 24: Mayfield Road & Triangle Lands





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	160	1299	1029	108	33	72
Future Volume (vph)	160	1299	1029	108	33	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.0	3.0
Total Lost time (s)	7.0	7.0	7.0		3.0	3.0
Lane Util. Factor	1.00	0.91	0.91		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1574	5079	4978		1504	1334
Flt Permitted	0.23	1.00	1.00		0.95	1.00
Satd. Flow (perm)	394	5079	4978		1504	1334
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	160	1299	1029	108	33	72
RTOR Reduction (vph)	0	0	5	0	0	68
Lane Group Flow (vph)	160	1299	1132	0	33	4
Heavy Vehicles (%)	7%	1%	1%	7%	12%	13%
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Actuated Green, G (s)	102.9	102.9	102.9		7.1	7.1
Effective Green, g (s)	102.9	102.9	102.9		7.1	7.1
Actuated g/C Ratio	0.86	0.86	0.86		0.06	0.06
Clearance Time (s)	7.0	7.0	7.0		3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	337	4355	4268		88	78
v/s Ratio Prot		0.26	0.23		c0.02	
v/s Ratio Perm	c0.41					0.00
v/c Ratio	0.47	0.29	0.26		0.37	0.05
Uniform Delay, d1	2.0	1.6	1.5		54.3	53.2
Progression Factor	3.08	2.33	1.00		1.00	1.00
Incremental Delay, d2	4.5	0.1	0.1		2.6	0.2
Delay (s)	10.8	3.9	1.7		56.9	53.5
Level of Service	B	A	A		E	D
Approach Delay (s/veh)		4.7	1.7		54.6	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	5.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	51.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	38	24	225	100	57	544
Future Volume (Veh/h)	38	24	225	100	57	544
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)	38	24	225	100	57	544
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	611	113			325	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	611	113			325	
tC, single (s)	7.1	7.2			4.2	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.3	
p0 queue free %	90	97			95	
cM capacity (veh/h)	382	885			1196	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	38	24	113	113	100	57	272	272
Volume Left	38	0	0	0	0	57	0	0
Volume Right	0	24	0	0	100	0	0	0
cSH	382	885	1700	1700	1700	1196	1700	1700
Volume to Capacity	0.10	0.03	0.07	0.07	0.06	0.05	0.16	0.16
Queue Length 95th (m)	2.6	0.7	0.0	0.0	0.0	1.2	0.0	0.0
Control Delay (s/veh)	15.5	9.2	0.0	0.0	0.0	8.2	0.0	0.0
Lane LOS	C	A				A		
Approach Delay (s/veh)	13.0		0.0			0.8		
Approach LOS	B							

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	25.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1096	84	67	635	32	27
Future Volume (Veh/h)	1096	84	67	635	32	27
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)	1096	84	67	635	32	27
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			1180		1590	590
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1180		1590	590
tC, single (s)			4.2		7.1	7.1
tC, 2 stage (s)						
tF (s)			2.3		3.6	3.4
p0 queue free %			88		59	94
cM capacity (veh/h)			560		78	429

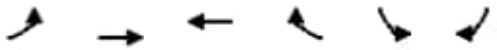
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	731	449	279	423	32	27
Volume Left	0	0	67	0	32	0
Volume Right	0	84	0	0	0	27
cSH	1700	1700	560	1700	78	429
Volume to Capacity	0.43	0.26	0.12	0.25	0.41	0.06
Queue Length 95th (m)	0.0	0.0	3.2	0.0	13.1	1.6
Control Delay (s/veh)	0.0	0.0	4.2	0.0	80.7	14.0
Lane LOS			A		F	B
Approach Delay (s/veh)	0.0		1.7		50.2	
Approach LOS					F	

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	3	2	323	9	4	578
Future Volume (Veh/h)	3	2	323	9	4	578
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)	3	2	323	9	4	578
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	620	162			332	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	620	162			332	
tC, single (s)	7.5	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.8	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	354	861			1239	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	3	2	162	162	9	4	289	289
Volume Left	3	0	0	0	0	4	0	0
Volume Right	0	2	0	0	9	0	0	0
cSH	354	861	1700	1700	1700	1239	1700	1700
Volume to Capacity	0.01	0.00	0.10	0.10	0.01	0.00	0.17	0.17
Queue Length 95th (m)	0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.0
Control Delay (s/veh)	15.3	9.2	0.0	0.0	0.0	7.9	0.0	0.0
Lane LOS	C	A				A		
Approach Delay (s/veh)	12.8		0.0			0.1		
Approach LOS	B							

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	26.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	22	2145	954	15	6	9
Future Volume (Veh/h)	22	2145	954	15	6	9
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)	22	2145	954	15	6	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (m)		265	147			
pX, platoon unblocked	0.96				0.77	0.96
vC, conflicting volume	969				1721	326
vC1, stage 1 conf vol					962	
vC2, stage 2 conf vol					759	
vCu, unblocked vol	827				534	157
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	97				98	99
cM capacity (veh/h)	782				374	833

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	22	715	715	715	382	382	206	6	9
Volume Left	22	0	0	0	0	0	0	6	0
Volume Right	0	0	0	0	0	0	15	0	9
cSH	782	1700	1700	1700	1700	1700	1700	374	833
Volume to Capacity	0.03	0.42	0.42	0.42	0.22	0.22	0.12	0.02	0.01
Queue Length 95th (m)	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.3
Control Delay (s/veh)	9.7	0.0	0.0	0.0	0.0	0.0	0.0	14.8	9.4
Lane LOS	A							B	A
Approach Delay (s/veh)	0.1				0.0			11.5	
Approach LOS								B	

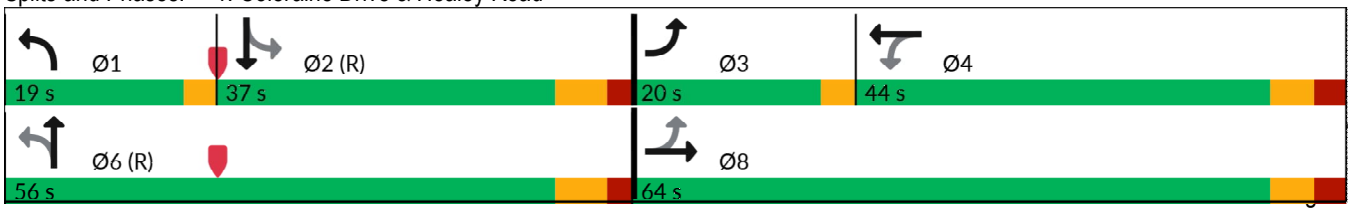
Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	51.4%	ICU Level of Service		A
Analysis Period (min)	15			

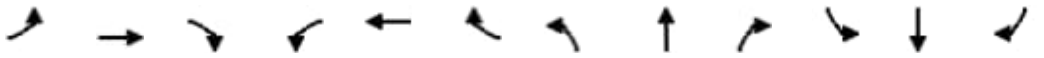
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	251	277	81	571	420	551	47	217
Future Volume (vph)	251	277	81	571	420	551	47	217
Lane Group Flow (vph)	276	533	89	720	462	689	52	368
Turn Type	pm+pt	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases	3	8		4	1	6		2
Permitted Phases	8		4		6		2	
Detector Phase	3	8	4	4	1	6	2	2
Switch Phase								
Minimum Initial (s)	5.0	8.0	8.0	8.0	5.0	8.0	8.0	8.0
Minimum Split (s)	9.5	32.8	32.8	32.8	9.5	36.7	36.7	36.7
Total Split (s)	20.0	64.0	44.0	44.0	19.0	56.0	37.0	37.0
Total Split (%)	16.7%	53.3%	36.7%	36.7%	15.8%	46.7%	30.8%	30.8%
Yellow Time (s)	3.0	4.0	4.0	4.0	3.0	4.6	4.6	4.6
All-Red Time (s)	0.0	2.8	2.8	2.8	0.0	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	6.8	6.8	6.8	3.0	6.7	6.7	6.7
Lead/Lag	Lead		Lag	Lag	Lead		Lag	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max
v/c Ratio	0.95	0.32	0.40	1.28	1.04	0.53	0.35	0.46
Control Delay (s/veh)	70.5	15.2	39.2	177.0	83.2	27.9	45.2	31.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	70.5	15.2	39.2	177.0	83.2	27.9	45.2	31.4
Queue Length 50th (m)	51.0	37.1	17.3	~227.4	~92.9	65.3	10.6	31.4
Queue Length 95th (m)	#108.9	46.5	34.3	#304.0	#179.8	84.3	23.8	47.0
Internal Link Dist (m)		823.7		424.0		1711.9		1121.0
Turn Bay Length (m)	55.0		50.0		80.0		155.0	
Base Capacity (vph)	291	1658	222	560	444	1288	146	784
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	0.95	0.32	0.40	1.29	1.04	0.53	0.36	0.47

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 31 (26%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 130
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: Coleraine Drive & Healey Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	251	277	208	81	571	85	420	551	76	47	217	118
Future Volume (vph)	251	277	208	81	571	85	420	551	76	47	217	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	3.0	6.8		6.8	6.8		3.0	6.7		6.7	6.7	
Lane Util. Factor	1.00	0.95		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.93		1.00	0.98		1.00	0.98		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1620	3238		1504	1790		1652	3116		1416	2865	
Flt Permitted	0.09	1.00		0.45	1.00		0.41	1.00		0.38	1.00	
Satd. Flow (perm)	169	3238		719	1790		728	3116		581	2865	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	276	304	229	89	627	93	462	605	84	52	238	130
RTOR Reduction (vph)	0	115	0	0	4	0	0	9	0	0	61	0
Lane Group Flow (vph)	276	418	0	89	716	0	462	680	0	52	307	0
Heavy Vehicles (%)	4%	1%	6%	12%	1%	16%	2%	12%	16%	19%	24%	7%
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	3	8			4		1	6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	57.2	57.2		37.3	37.3		49.3	49.3		30.3	30.3	
Effective Green, g (s)	57.2	57.2		37.3	37.3		49.3	49.3		30.3	30.3	
Actuated g/C Ratio	0.48	0.48		0.31	0.31		0.41	0.41		0.25	0.25	
Clearance Time (s)	3.0	6.8		6.8	6.8		3.0	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	284	1543		223	556		422	1280		146	723	
v/s Ratio Prot	c0.14	0.13			c0.40		c0.15	0.22			0.11	
v/s Ratio Perm	0.32			0.12			c0.30			0.09		
v/c Ratio	0.97	0.27		0.39	1.28		1.09	0.53		0.35	0.42	
Uniform Delay, d1	36.2	18.8		32.5	41.3		32.1	26.6		36.8	37.5	
Progression Factor	0.91	1.34		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	44.7	0.0		1.1	142.5		71.8	1.5		6.6	1.8	
Delay (s)	77.7	25.5		33.7	183.8		104.0	28.2		43.5	39.3	
Level of Service	E	C		C	F		F	C		D	D	
Approach Delay (s/veh)		43.3			167.3			58.6			39.8	
Approach LOS		D			F			E			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	79.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	100.1%	ICU Level of Service	G
Analysis Period (min)	15		

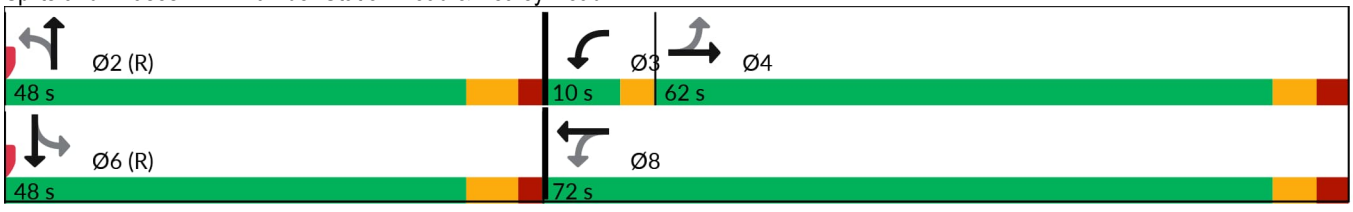
c Critical Lane Group

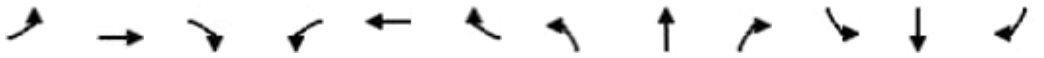
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	21	478	128	1130	208	279	28	68
Future Volume (vph)	21	478	128	1130	208	279	28	68
Lane Group Flow (vph)	22	574	132	1188	214	496	29	76
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		4	3	8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	8.0	8.0	5.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	24.8	24.8	8.0	24.8	24.7	24.7	24.7	24.7
Total Split (s)	62.0	62.0	10.0	72.0	48.0	48.0	48.0	48.0
Total Split (%)	51.7%	51.7%	8.3%	60.0%	40.0%	40.0%	40.0%	40.0%
Yellow Time (s)	4.0	4.0	3.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	0.0	2.8	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	3.0	6.8	6.7	6.7	6.7	6.7
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.29	0.48	0.46	0.79	0.41	0.31	0.08	0.04
Control Delay (s/veh)	37.9	30.7	14.7	25.1	32.5	19.9	22.0	18.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.9	30.7	14.7	25.1	32.5	19.9	22.0	18.6
Queue Length 50th (m)	3.9	56.3	13.2	124.4	48.4	43.4	4.0	4.9
Queue Length 95th (m)	11.3	65.3	m9.8	m81.9	73.5	57.9	11.6	11.0
Internal Link Dist (m)		465.5		505.1		463.9		452.2
Turn Bay Length (m)	30.0		60.0		30.0		30.0	
Base Capacity (vph)	100	1569	286	1914	515	1576	341	1574
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	0.22	0.37	0.46	0.62	0.42	0.31	0.09	0.05

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 11 (9%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Humber Station Road & Healey Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	478	79	128	1130	22	208	279	202	28	68	6
Future Volume (vph)	21	478	79	128	1130	22	208	279	202	28	68	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.8	6.8		3.0	6.8		6.7	6.7		6.7	6.7	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.99		1.00	0.93		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1685	3389		1504	3522		1504	3219		1620	3402	
Flt Permitted	0.12	1.00		0.31	1.00		0.70	1.00		0.43	1.00	
Satd. Flow (perm)	218	3389		501	3522		1116	3219		741	3402	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	22	493	81	132	1165	23	214	288	208	29	70	6
RTOR Reduction (vph)	0	13	0	0	2	0	0	90	0	0	3	0
Lane Group Flow (vph)	22	561	0	132	1186	0	214	406	0	29	73	0
Heavy Vehicles (%)	0%	1%	16%	12%	1%	5%	12%	1%	8%	4%	4%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	41.1	41.1		51.1	51.1		55.4	55.4		55.4	55.4	
Effective Green, g (s)	41.1	41.1		51.1	51.1		55.4	55.4		55.4	55.4	
Actuated g/C Ratio	0.34	0.34		0.43	0.43		0.46	0.46		0.46	0.46	
Clearance Time (s)	6.8	6.8		3.0	6.8		6.7	6.7		6.7	6.7	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	74	1160		271	1499		515	1486		342	1570	
v/s Ratio Prot		0.17		0.03	c0.34			0.13			0.02	
v/s Ratio Perm	0.10			0.18			c0.19			0.04		
v/c Ratio	0.29	0.48		0.48	0.79		0.41	0.27		0.08	0.04	
Uniform Delay, d1	28.8	31.0		22.4	29.8		21.5	19.8		18.0	17.7	
Progression Factor	1.00	1.00		0.73	0.82		1.24	1.37		1.00	1.00	
Incremental Delay, d2	2.2	0.3		0.3	0.7		2.4	0.4		0.4	0.0	
Delay (s)	31.1	31.4		16.8	25.1		29.2	27.7		18.5	17.8	
Level of Service	C	C		B	C		C	C		B	B	
Approach Delay (s/veh)		31.3			24.3			28.2			18.0	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	26.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		

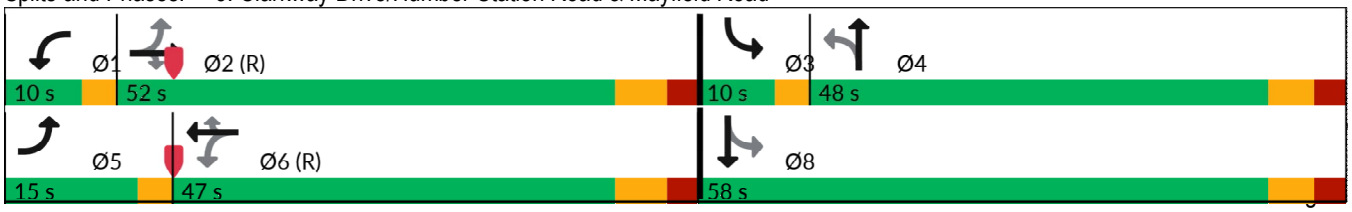
c Critical Lane Group

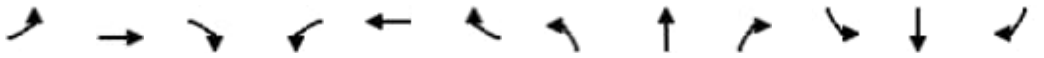
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	166	1282	19	100	1569	94	59	417	106	165
Future Volume (vph)	166	1282	19	100	1569	94	59	417	106	165
Lane Group Flow (vph)	171	1322	20	103	1618	97	61	537	109	437
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	pm+pt	NA
Protected Phases	5	2		1	6			4	3	8
Permitted Phases	2		2	6		6	4		8	
Detector Phase	5	2	2	1	6	6	4	4	3	8
Switch Phase										
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	12.0	8.0	8.0	5.0	8.0
Minimum Split (s)	9.5	27.3	27.3	9.5	27.3	27.3	26.0	26.0	9.5	26.0
Total Split (s)	15.0	52.0	52.0	10.0	47.0	47.0	48.0	48.0	10.0	58.0
Total Split (%)	12.5%	43.3%	43.3%	8.3%	39.2%	39.2%	40.0%	40.0%	8.3%	48.3%
Yellow Time (s)	3.0	4.6	4.6	3.0	4.6	4.6	4.2	4.2	3.0	4.2
All-Red Time (s)	0.0	2.7	2.7	0.0	2.7	2.7	2.8	2.8	0.0	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.3	7.3	3.0	7.3	7.3	7.0	7.0	3.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
v/c Ratio	0.86	0.70	0.03	0.60	0.96	0.18	0.24	0.93	0.66	0.33
Control Delay (s/veh)	64.2	34.0	0.1	32.9	48.0	2.1	31.7	62.5	46.0	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	64.2	34.0	0.1	32.9	48.0	2.1	31.7	62.5	46.0	9.2
Queue Length 50th (m)	28.3	103.0	0.0	12.3	~153.2	1.1	10.7	122.5	12.2	11.6
Queue Length 95th (m)	#70.9	121.3	0.0	#28.9	#187.7	3.8	22.5	#187.2	#35.1	20.4
Internal Link Dist (m)		1635.6			240.8			1187.5		1542.4
Turn Bay Length (m)	150.0		105.0	150.0		115.0			105.0	
Base Capacity (vph)	200	1863	583	170	1683	537	269	610	163	1367
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.71	0.03	0.61	0.96	0.18	0.23	0.88	0.67	0.32

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 86 (72%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 100
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: 3: Clarkway Drive/Humber Station Road & Mayfield Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	166	1282	19	100	1569	94	59	417	104	106	165	259
Future Volume (vph)	166	1282	19	100	1569	94	59	417	104	106	165	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	3.0	7.3	7.3	3.0	7.3	7.3	7.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1416	4794	1358	1518	4839	1322	1504	1766		1518	2946	
Flt Permitted	0.08	1.00	1.00	0.12	1.00	1.00	0.49	1.00		0.12	1.00	
Satd. Flow (perm)	133	4794	1358	202	4839	1322	789	1766		198	2946	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	171	1322	20	103	1618	97	61	430	107	109	170	267
RTOR Reduction (vph)	0	0	12	0	0	63	0	7	0	0	120	0
Lane Group Flow (vph)	171	1322	8	103	1618	34	61	530	0	109	317	0
Heavy Vehicles (%)	19%	7%	11%	11%	6%	14%	12%	3%	4%	11%	7%	12%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases	5	2		1	6			4		3	8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	57.0	46.7	46.7	49.1	41.8	41.8	38.7	38.7		48.7	48.7	
Effective Green, g (s)	57.0	46.7	46.7	49.1	41.8	41.8	38.7	38.7		48.7	48.7	
Actuated g/C Ratio	0.48	0.39	0.39	0.41	0.35	0.35	0.32	0.32		0.41	0.41	
Clearance Time (s)	3.0	7.3	7.3	3.0	7.3	7.3	7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	193	1865	528	162	1685	460	254	569		157	1195	
v/s Ratio Prot	c0.09	0.28		0.04	c0.33			c0.30		c0.04	0.11	
v/s Ratio Perm	0.33		0.01	0.22		0.03	0.08			0.24		
v/c Ratio	0.88	0.70	0.01	0.63	0.96	0.07	0.24	0.93		0.69	0.26	
Uniform Delay, d1	31.6	30.9	22.5	23.8	38.2	26.1	29.8	39.3		27.3	23.7	
Progression Factor	1.00	1.00	1.00	1.02	0.86	0.47	1.00	1.00		1.29	0.70	
Incremental Delay, d2	34.8	2.3	0.0	7.4	13.6	0.2	0.4	22.0		12.2	0.1	
Delay (s)	66.4	33.2	22.5	31.8	46.8	12.7	30.3	61.4		47.5	16.8	
Level of Service	E	C	C	C	D	B	C	E		D	B	
Approach Delay (s/veh)		36.8			44.1			58.2			22.9	
Approach LOS		D			D			E			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	41.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.3
Intersection Capacity Utilization	92.2%	ICU Level of Service	F
Analysis Period (min)	15		

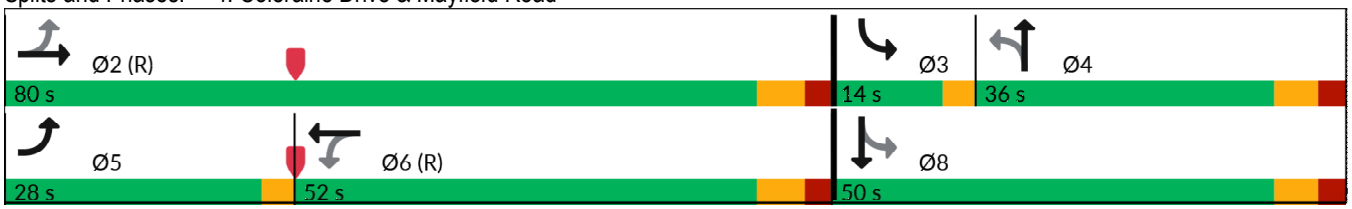
c Critical Lane Group

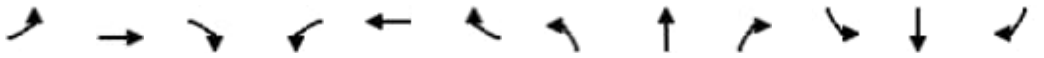
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	399	1071	13	904	26	413	135	201
Future Volume (vph)	399	1071	13	904	26	413	135	201
Lane Group Flow (vph)	420	1142	14	1091	27	457	142	641
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	pm+pt	NA
Protected Phases	5	2		6		4	3	8
Permitted Phases	2		6		4		8	
Detector Phase	5	2	6	6	4	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	12.0	12.0	12.0	12.0	12.0	5.0	12.0
Minimum Split (s)	8.0	37.0	37.0	37.0	37.0	37.0	8.0	37.0
Total Split (s)	28.0	80.0	52.0	52.0	36.0	36.0	14.0	50.0
Total Split (%)	21.5%	61.5%	40.0%	40.0%	27.7%	27.7%	10.8%	38.5%
Yellow Time (s)	3.0	4.6	4.6	4.6	4.2	4.2	3.0	4.2
All-Red Time (s)	0.0	2.4	2.4	2.4	2.8	2.8	0.0	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.0	7.0	7.0	7.0	7.0	3.0	7.0
Lead/Lag	Lead		Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None	None
v/c Ratio	0.98	0.37	0.10	0.95	0.23	0.76	0.71	0.57
Control Delay (s/veh)	86.3	12.1	31.5	59.1	50.3	59.6	54.5	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	86.3	12.1	31.5	59.1	50.3	59.6	54.5	15.7
Queue Length 50th (m)	105.5	49.8	2.6	149.1	6.4	62.0	29.5	27.2
Queue Length 95th (m)	#189.6	59.5	8.1	#196.0	15.5	77.7	#47.1	44.4
Internal Link Dist (m)		290.4		195.1		791.2		576.8
Turn Bay Length (m)	100.0		85.0		105.0		145.0	
Base Capacity (vph)	427	3074	134	1141	154	793	202	1255
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	0.98	0.37	0.10	0.96	0.18	0.58	0.70	0.51

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
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: 4: Coleraine Drive & Mayfield Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	399	1071	14	13	904	132	26	413	21	135	201	408
Future Volume (vph)	399	1071	14	13	904	132	26	413	21	135	201	408
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	0.91		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.98		1.00	0.99		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1504	4972		1560	3271		1685	3544		1440	2973	
Flt Permitted	0.08	1.00		0.23	1.00		0.39	1.00		0.23	1.00	
Satd. Flow (perm)	132	4972		388	3271		693	3544		364	2973	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	420	1127	15	14	952	139	27	435	22	142	212	429
RTOR Reduction (vph)	0	1	0	0	9	0	0	3	0	0	295	0
Lane Group Flow (vph)	420	1141	0	14	1082	0	27	454	0	142	346	0
Heavy Vehicles (%)	12%	3%	0%	8%	5%	21%	0%	0%	0%	17%	0%	12%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	5	2			6			4		3	8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	80.3	80.3		44.9	44.9		21.9	21.9		35.7	35.7	
Effective Green, g (s)	80.3	80.3		44.9	44.9		21.9	21.9		35.7	35.7	
Actuated g/C Ratio	0.62	0.62		0.35	0.35		0.17	0.17		0.27	0.27	
Clearance Time (s)	3.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	423	3071		134	1129		116	597		189	816	
v/s Ratio Prot	c0.25	0.23			0.33			0.13		c0.06	0.12	
v/s Ratio Perm	c0.36			0.04			0.04			c0.14		
v/c Ratio	0.99	0.37		0.10	0.95		0.23	0.75		0.75	0.42	
Uniform Delay, d1	40.3	12.3		28.8	41.6		46.7	51.5		38.7	38.7	
Progression Factor	1.31	0.92		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	41.0	0.3		1.5	18.4		1.0	5.5		15.4	0.3	
Delay (s)	94.0	11.7		30.4	60.0		47.8	57.0		54.1	39.0	
Level of Service	F	B		C	E		D	E		D	D	
Approach Delay (s/veh)		33.8			59.7			56.5			41.8	
Approach LOS		C			E			E			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	45.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	100.8%	ICU Level of Service	G
Analysis Period (min)	15		

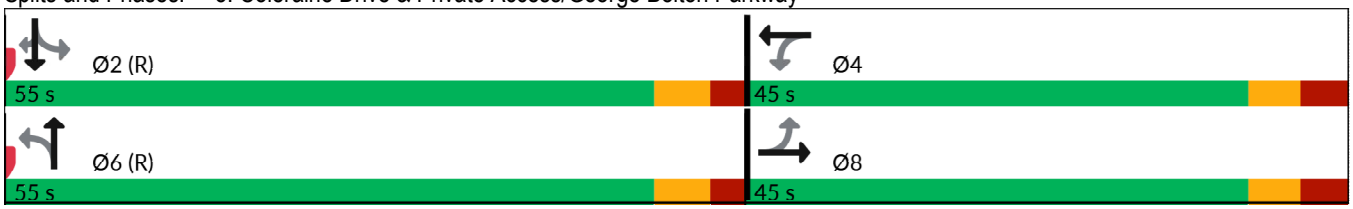
c Critical Lane Group

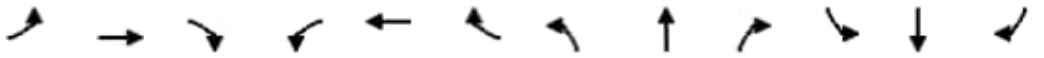
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	76	87	61	9	95	522	169	538	52
Future Volume (vph)	76	87	61	9	95	522	169	538	52
Lane Group Flow (vph)	92	363	73	198	114	713	204	648	63
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		8		4		6		2	
Permitted Phases	8		4		6		2		2
Detector Phase	8	8	4	4	6	6	2	2	2
Switch Phase									
Minimum Initial (s)	8.0	8.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.5	32.5	32.5	32.5	34.2	34.2	33.7	33.7	33.7
Total Split (s)	45.0	45.0	45.0	45.0	55.0	55.0	55.0	55.0	55.0
Total Split (%)	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.2	4.2	4.2	4.2	4.2
All-Red Time (s)	3.5	3.5	3.5	3.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	7.5	7.5	6.7	6.7	6.7	6.7	6.7
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.45	0.81	0.87	0.41	0.31	0.36	0.53	0.32	0.07
Control Delay (s/veh)	38.8	36.6	106.0	7.5	13.4	10.0	19.0	9.9	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	38.8	36.6	106.0	7.5	13.4	10.0	19.0	9.9	3.1
Queue Length 50th (m)	16.4	44.2	14.5	1.8	9.5	31.4	20.5	28.5	0.0
Queue Length 95th (m)	25.3	58.5	#28.7	13.5	24.4	51.5	49.9	47.0	5.2
Internal Link Dist (m)		152.4		468.8		784.9		1711.9	
Turn Bay Length (m)	70.0		105.0		75.0		100.0		100.0
Base Capacity (vph)	342	655	142	675	367	1968	384	2014	830
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.55	0.51	0.29	0.31	0.36	0.53	0.32	0.08

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Coleraine Drive & Private Access/George Bolton Parkway





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	87	214	61	9	155	95	522	70	169	538	52
Future Volume (vph)	76	87	214	61	9	155	95	522	70	169	538	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.89		1.00	0.85		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1518	1510		1491	1491		1392	3076		1574	3159	1267
Flt Permitted	0.57	1.00		0.24	1.00		0.39	1.00		0.36	1.00	1.00
Satd. Flow (perm)	913	1510		381	1491		578	3076		603	3159	1267
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	92	105	258	73	11	187	114	629	84	204	648	63
RTOR Reduction (vph)	0	111	0	0	146	0	0	7	0	0	0	23
Lane Group Flow (vph)	92	252	0	73	52	0	114	706	0	204	648	40
Heavy Vehicles (%)	11%	9%	12%	13%	11%	8%	21%	14%	14%	7%	13%	19%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	22.0	22.0		22.0	22.0		63.8	63.8		63.8	63.8	63.8
Effective Green, g (s)	22.0	22.0		22.0	22.0		63.8	63.8		63.8	63.8	63.8
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.64	0.64		0.64	0.64	0.64
Clearance Time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	200	332		83	328		368	1962		384	2015	808
v/s Ratio Prot		0.17			0.03			0.23			0.21	
v/s Ratio Perm	0.10			c0.19			0.20			c0.34		0.03
v/c Ratio	0.46	0.75		0.87	0.15		0.30	0.35		0.53	0.32	0.04
Uniform Delay, d1	33.8	36.5		37.7	31.5		8.1	8.5		9.9	8.2	6.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.6	9.6		59.6	0.2		2.1	0.5		5.1	0.4	0.1
Delay (s)	35.5	46.1		97.4	31.7		10.3	9.0		15.0	8.6	6.8
Level of Service	D	D		F	C		B	A		B	A	A
Approach Delay (s/veh)		43.9			49.4			9.2			9.9	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		

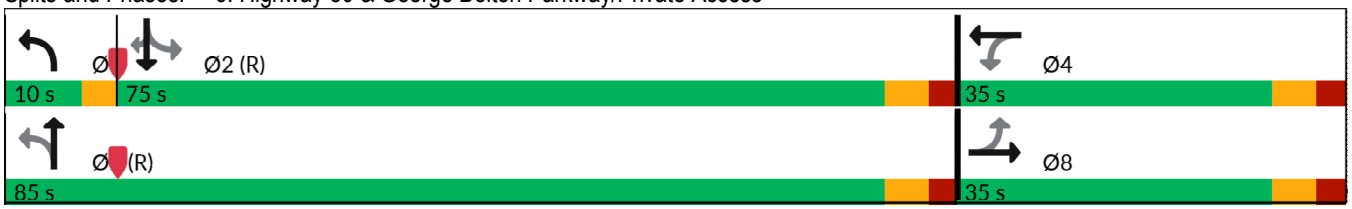
c Critical Lane Group

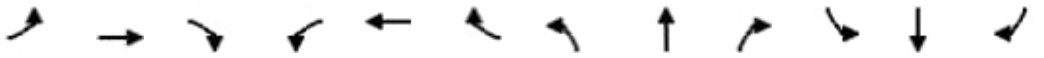
Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	253	0	0	157	1534	1	983	169
Future Volume (vph)	253	0	0	157	1534	1	983	169
Lane Group Flow (vph)	264	244	7	164	1598	1	1024	176
Turn Type	Perm	NA	NA	pm+pt	NA	Perm	NA	Perm
Protected Phases		8	4	1	6		2	
Permitted Phases	8			6		2		2
Detector Phase	8	8	4	1	6	2	2	2
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0	5.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.6	32.6	32.6	8.0	27.3	27.3	27.3	27.3
Total Split (s)	35.0	35.0	35.0	10.0	85.0	75.0	75.0	75.0
Total Split (%)	29.2%	29.2%	29.2%	8.3%	70.8%	62.5%	62.5%	62.5%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.6	2.6	2.6	0.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.6	6.6	3.0	6.3	6.3	6.3	6.3
Lead/Lag				Lead		Lag	Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.91	0.52	0.01	0.56	0.69	0.00	0.50	0.19
Control Delay (s/veh)	80.2	14.2	0.1	14.6	14.7	11.0	16.1	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	80.2	14.2	0.1	14.6	14.7	11.0	16.1	2.2
Queue Length 50th (m)	63.1	10.1	0.0	13.2	123.4	0.1	77.0	0.0
Queue Length 95th (m)	#111.2	35.5	0.0	21.7	149.7	1.0	94.9	9.7
Internal Link Dist (m)		846.5	43.0		1045.6		1307.8	
Turn Bay Length (m)	85.0			40.0		135.0		60.0
Base Capacity (vph)	306	479	428	290	2296	119	2023	915
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	0.86	0.51	0.02	0.57	0.70	0.01	0.51	0.19

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Highway 50 & George Bolton Parkway/Private Access





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	253	0	234	0	0	7	157	1534	0	1	983	169
Future Volume (vph)	253	0	234	0	0	7	157	1534	0	1	983	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	6.6	6.6			6.6		3.0	6.3		6.3	6.3	6.3
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.98			1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00			1.00		0.99	1.00		1.00	1.00	1.00
Frt	1.00	0.85			0.86		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1636	1405			1625		1440	3433		1685	3466	1444
Flt Permitted	0.75	1.00			1.00		0.21	1.00		0.11	1.00	1.00
Satd. Flow (perm)	1297	1405			1625		320	3433		206	3466	1444
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	264	0	244	0	0	7	164	1598	0	1	1024	176
RTOR Reduction (vph)	0	150	0	0	5	0	0	0	0	0	0	73
Lane Group Flow (vph)	264	94	0	0	2	0	164	1598	0	1	1024	103
Confl. Peds. (#/hr)			2	2			1					1
Heavy Vehicles (%)	3%	0%	12%	0%	0%	0%	17%	4%	0%	0%	3%	2%
Turn Type	Perm	NA			NA		pm+pt	NA		Perm	NA	Perm
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	26.8	26.8			26.8		80.3	80.3		70.1	70.1	70.1
Effective Green, g (s)	26.8	26.8			26.8		80.3	80.3		70.1	70.1	70.1
Actuated g/C Ratio	0.22	0.22			0.22		0.67	0.67		0.58	0.58	0.58
Clearance Time (s)	6.6	6.6			6.6		3.0	6.3		6.3	6.3	6.3
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	289	313			362		281	2297		120	2024	843
v/s Ratio Prot		0.07			0.00		0.03	c0.47			0.30	
v/s Ratio Perm	c0.20						0.36			0.00		0.07
v/c Ratio	0.91	0.30			0.00		0.58	0.69		0.00	0.50	0.12
Uniform Delay, d1	45.4	38.7			36.2		9.6	12.2		10.4	14.7	11.1
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	31.2	0.5			0.0		3.0	1.7		0.1	0.9	0.2
Delay (s)	76.7	39.3			36.2		12.6	14.0		10.5	15.6	11.4
Level of Service	E	D			D		B	B		B	B	B
Approach Delay (s/veh)		58.7			36.2			13.9			15.0	
Approach LOS		E			D			B			B	

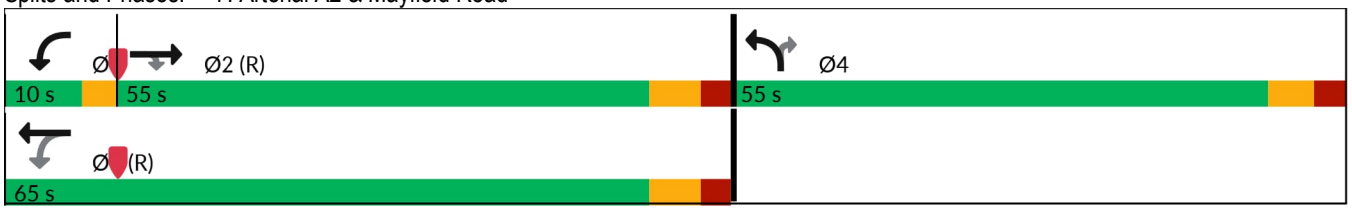
Intersection Summary			
HCM 2000 Control Delay (s/veh)	20.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.9
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1197	297	251	1287	464	251
Future Volume (vph)	1197	297	251	1287	464	251
Lane Group Flow (vph)	1234	306	259	1327	509	228
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2	6			4
Detector Phase	2	2	1	6	4	4
Switch Phase						
Minimum Initial (s)	12.0	12.0	5.0	12.0	8.0	8.0
Minimum Split (s)	30.3	30.3	9.5	30.3	30.0	30.0
Total Split (s)	55.0	55.0	10.0	65.0	55.0	55.0
Total Split (%)	45.8%	45.8%	8.3%	54.2%	45.8%	45.8%
Yellow Time (s)	4.6	4.6	3.0	4.6	4.2	4.2
All-Red Time (s)	2.7	2.7	0.0	2.7	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	7.3	3.0	7.3	7.0	7.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	C-Max	C-Max	None	C-Max	None	None
v/c Ratio	0.60	0.38	0.55	0.41	0.75	0.56
Control Delay (s/veh)	8.1	1.0	17.8	9.9	51.2	19.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	8.1	1.0	17.8	9.9	51.2	19.6
Queue Length 50th (m)	19.1	0.1	22.5	49.7	61.0	17.3
Queue Length 95th (m)	22.0	m0.1	56.5	71.0	74.7	43.5
Internal Link Dist (m)	123.0			619.0	876.4	
Turn Bay Length (m)		60.0	100.0			
Base Capacity (vph)	2051	794	467	3163	1281	629
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	0.60	0.39	0.55	0.42	0.40	0.36

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 96 (80%), 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: 7: Arterial A2 & Mayfield Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1197	297	251	1287	464	251
Future Volume (vph)	1197	297	251	1287	464	251
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.0	3.0	3.5	3.0	3.0
Total Lost time (s)	7.3	7.3	3.0	7.3	7.0	7.0
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	0.91
Frt	1.00	0.85	1.00	1.00	0.99	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	4749	1463	1620	4706	3192	1345
Flt Permitted	1.00	1.00	0.14	1.00	0.95	1.00
Satd. Flow (perm)	4749	1463	243	4706	3192	1345
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1234	306	259	1327	478	259
RTOR Reduction (vph)	0	163	0	0	6	121
Lane Group Flow (vph)	1234	143	259	1327	503	107
Heavy Vehicles (%)	8%	3%	4%	9%	2%	2%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2	6			4
Actuated Green, G (s)	51.9	51.9	80.7	80.7	25.0	25.0
Effective Green, g (s)	51.9	51.9	80.7	80.7	25.0	25.0
Actuated g/C Ratio	0.43	0.43	0.67	0.67	0.21	0.21
Clearance Time (s)	7.3	7.3	3.0	7.3	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2053	632	459	3164	665	280
v/s Ratio Prot	c0.26		c0.12	0.28	c0.16	
v/s Ratio Perm		0.10	0.26			0.08
v/c Ratio	0.60	0.22	0.56	0.41	0.75	0.38
Uniform Delay, d1	26.1	21.4	13.7	8.9	44.6	40.8
Progression Factor	0.27	0.01	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.5	1.5	0.4	4.9	0.8
Delay (s)	8.0	0.9	15.3	9.3	49.5	41.7
Level of Service	A	A	B	A	D	D
Approach Delay (s/veh)	6.6			10.3	47.1	
Approach LOS	A			B	D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	15.9	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)	17.3
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		

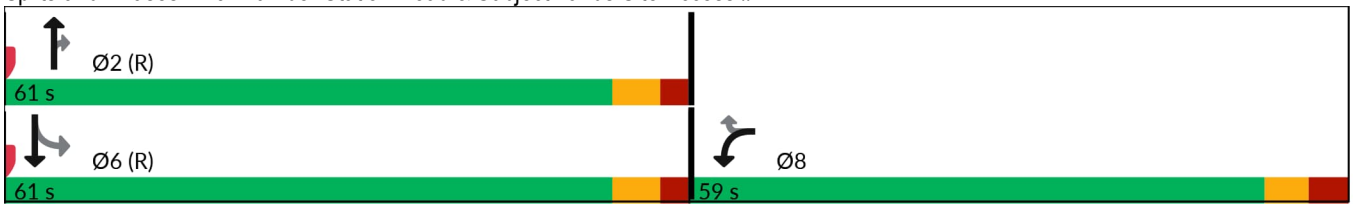
c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	284	161	515	162	89	246
Future Volume (vph)	284	161	515	162	89	246
Lane Group Flow (vph)	284	161	515	162	89	246
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	25.5	25.5	24.7	24.7	24.7	24.7
Total Split (s)	59.0	59.0	61.0	61.0	61.0	61.0
Total Split (%)	49.2%	49.2%	50.8%	50.8%	50.8%	50.8%
Yellow Time (s)	4.0	4.0	4.2	4.2	4.2	4.2
All-Red Time (s)	3.5	3.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	6.7	6.7	6.7	6.7
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.78	0.36	0.23	0.18	0.20	0.11
Control Delay (s/veh)	57.5	7.0	10.5	5.2	9.7	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	57.5	7.0	10.5	5.2	9.7	7.6
Queue Length 50th (m)	66.3	0.0	38.0	9.3	5.8	8.2
Queue Length 95th (m)	88.7	15.6	m55.9	m16.1	14.2	15.6
Internal Link Dist (m)	321.1		1542.4			454.2
Turn Bay Length (m)	100.0			30.0	100.0	
Base Capacity (vph)	645	669	2181	861	436	2100
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	0.44	0.24	0.24	0.19	0.20	0.12

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 21 (18%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: Humber Station Road & Subject Lands Site Access #1



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	284	161	515	162	89	246
Future Volume (vph)	284	161	515	162	89	246
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.0	3.5	3.0	3.0	3.5
Total Lost time (s)	7.5	7.5	6.7	6.7	6.7	6.7
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1504	1346	3400	1256	1416	3275
Flt Permitted	0.95	1.00	1.00	1.00	0.45	1.00
Satd. Flow (perm)	1504	1346	3400	1256	680	3275
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	284	161	515	162	89	246
RTOR Reduction (vph)	0	122	0	56	0	0
Lane Group Flow (vph)	284	39	515	106	89	246
Heavy Vehicles (%)	12%	12%	5%	20%	19%	9%
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Actuated Green, G (s)	28.8	28.8	77.0	77.0	77.0	77.0
Effective Green, g (s)	28.8	28.8	77.0	77.0	77.0	77.0
Actuated g/C Ratio	0.24	0.24	0.64	0.64	0.64	0.64
Clearance Time (s)	7.5	7.5	6.7	6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	360	323	2181	805	436	2101
v/s Ratio Prot	c0.19		c0.15			0.08
v/s Ratio Perm		0.03		0.08	0.13	
v/c Ratio	0.78	0.11	0.23	0.13	0.20	0.11
Uniform Delay, d1	42.7	35.6	9.0	8.4	8.8	8.3
Progression Factor	1.00	1.00	1.03	2.42	0.78	0.79
Incremental Delay, d2	10.9	0.1	0.1	0.2	1.0	0.1
Delay (s)	53.6	35.8	9.5	20.5	7.9	6.7
Level of Service	D	D	A	C	A	A
Approach Delay (s/veh)	47.2		12.1			7.0
Approach LOS	D		B			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		

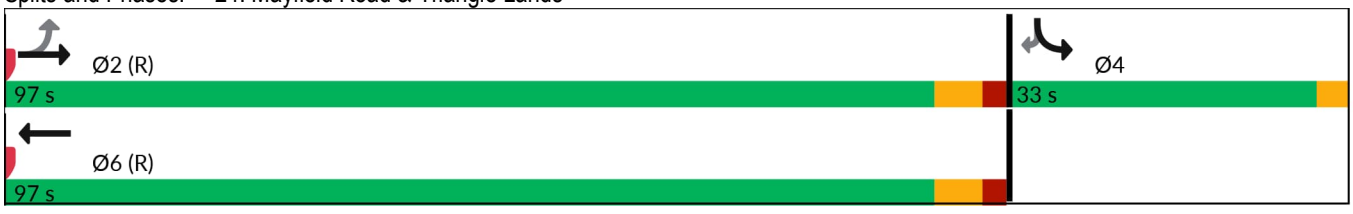
c Critical Lane Group

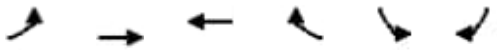
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	85	1363	1345	75	167
Future Volume (vph)	85	1363	1345	75	167
Lane Group Flow (vph)	85	1363	1402	75	167
Turn Type	Perm	NA	NA	Prot	Perm
Protected Phases		2	6	4	
Permitted Phases	2				4
Detector Phase	2	2	6	4	4
Switch Phase					
Minimum Initial (s)	12.0	12.0	12.0	5.0	5.0
Minimum Split (s)	37.0	37.0	37.0	33.0	33.0
Total Split (s)	97.0	97.0	97.0	33.0	33.0
Total Split (%)	74.6%	74.6%	74.6%	25.4%	25.4%
Yellow Time (s)	4.6	4.6	4.6	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4	0.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	3.0	3.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max	C-Max	None	None
v/c Ratio	0.38	0.33	0.34	0.45	0.75
Control Delay (s/veh)	10.5	3.8	0.9	61.0	48.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	10.5	3.8	0.9	61.0	48.5
Queue Length 50th (m)	5.0	27.5	6.1	19.3	22.5
Queue Length 95th (m)	20.0	47.9	m9.1	33.3	45.4
Internal Link Dist (m)		619.0	290.4	250.9	
Turn Bay Length (m)	30.0			30.0	
Base Capacity (vph)	220	4119	4037	338	368
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	0.39	0.33	0.35	0.22	0.45

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
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: 24: Mayfield Road & Triangle Lands





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	85	1363	1345	57	75	167
Future Volume (vph)	85	1363	1345	57	75	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.0	3.0
Total Lost time (s)	7.0	7.0	7.0		3.0	3.0
Lane Util. Factor	1.00	0.91	0.91		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1478	5079	4974		1465	1322
Flt Permitted	0.17	1.00	1.00		0.95	1.00
Satd. Flow (perm)	272	5079	4974		1465	1322
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	85	1363	1345	57	75	167
RTOR Reduction (vph)	0	0	2	0	0	73
Lane Group Flow (vph)	85	1363	1400	0	75	94
Heavy Vehicles (%)	14%	1%	2%	14%	15%	14%
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Actuated Green, G (s)	105.4	105.4	105.4		14.6	14.6
Effective Green, g (s)	105.4	105.4	105.4		14.6	14.6
Actuated g/C Ratio	0.81	0.81	0.81		0.11	0.11
Clearance Time (s)	7.0	7.0	7.0		3.0	3.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	220	4117	4032		164	148
v/s Ratio Prot		0.27	0.28		0.05	
v/s Ratio Perm	c0.31					c0.07
v/c Ratio	0.38	0.33	0.34		0.45	0.63
Uniform Delay, d1	3.3	3.1	3.2		53.9	55.1
Progression Factor	1.00	1.00	0.21		1.00	1.00
Incremental Delay, d2	5.0	0.2	0.1		2.0	8.6
Delay (s)	8.4	3.3	0.8		56.0	63.8
Level of Service	A	A	A		E	E
Approach Delay (s/veh)		3.6	0.8		61.4	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	6.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	56.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	88	54	622	54	30	242
Future Volume (Veh/h)	88	54	622	54	30	242
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)	88	54	622	54	30	242
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	803	311			676	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	803	311			676	
tC, single (s)	7.1	7.2			4.4	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.3	
p0 queue free %	69	92			96	
cM capacity (veh/h)	287	648			841	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	88	54	311	311	54	30	121	121
Volume Left	88	0	0	0	0	30	0	0
Volume Right	0	54	0	0	54	0	0	0
cSH	287	648	1700	1700	1700	841	1700	1700
Volume to Capacity	0.31	0.08	0.18	0.18	0.03	0.04	0.07	0.07
Queue Length 95th (m)	10.1	2.2	0.0	0.0	0.0	0.9	0.0	0.0
Control Delay (s/veh)	23.0	11.1	0.0	0.0	0.0	9.4	0.0	0.0
Lane LOS	C	B				A		
Approach Delay (s/veh)	18.5		0.0			1.0		
Approach LOS	C							

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	35.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	663	45	35	1208	72	64
Future Volume (Veh/h)	663	45	35	1208	72	64
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)	663	45	35	1208	72	64
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			708		1360	354
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			708		1360	354
tC, single (s)			4.4		7.1	7.2
tC, 2 stage (s)						
tF (s)			2.3		3.6	3.4
p0 queue free %			96		40	89
cM capacity (veh/h)			811		120	609

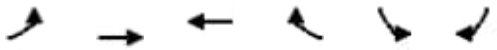
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	442	266	438	805	72	64
Volume Left	0	0	35	0	72	0
Volume Right	0	45	0	0	0	64
cSH	1700	1700	811	1700	120	609
Volume to Capacity	0.26	0.16	0.04	0.47	0.60	0.11
Queue Length 95th (m)	0.0	0.0	1.1	0.0	24.0	2.8
Control Delay (s/veh)	0.0	0.0	1.3	0.0	72.1	11.6
Lane LOS			A		F	B
Approach Delay (s/veh)	0.0		0.4		43.6	
Approach LOS					E	

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	7	5	671	5	2	328
Future Volume (Veh/h)	7	5	671	5	2	328
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)	7	5	671	5	2	328
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	839	336			676	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	839	336			676	
tC, single (s)	7.1	7.3			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.5			2.2	
p0 queue free %	98	99			100	
cM capacity (veh/h)	281	610			925	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	7	5	336	336	5	2	164	164
Volume Left	7	0	0	0	0	2	0	0
Volume Right	0	5	0	0	5	0	0	0
cSH	281	610	1700	1700	1700	925	1700	1700
Volume to Capacity	0.02	0.01	0.20	0.20	0.00	0.00	0.10	0.10
Queue Length 95th (m)	0.6	0.2	0.0	0.0	0.0	0.1	0.0	0.0
Control Delay (s/veh)	18.1	10.9	0.0	0.0	0.0	8.9	0.0	0.0
Lane LOS	C	B				A		
Approach Delay (s/veh)	15.1		0.0			0.1		
Approach LOS	C							

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	28.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	1480	1743	8	14	20
Future Volume (Veh/h)	12	1480	1743	8	14	20
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)	12	1480	1743	8	14	20
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (m)		265	147			
pX, platoon unblocked	0.88				0.84	0.88
vC, conflicting volume	1751				2264	585
vC1, stage 1 conf vol					1747	
vC2, stage 2 conf vol					517	
vCu, unblocked vol	1373				864	46
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	97				92	98
cM capacity (veh/h)	445				177	896

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	12	493	493	493	697	697	357	14	20
Volume Left	12	0	0	0	0	0	0	14	0
Volume Right	0	0	0	0	0	0	8	0	20
cSH	445	1700	1700	1700	1700	1700	1700	177	896
Volume to Capacity	0.03	0.29	0.29	0.29	0.41	0.41	0.21	0.08	0.02
Queue Length 95th (m)	0.7	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.5
Control Delay (s/veh)	13.3	0.0	0.0	0.0	0.0	0.0	0.0	27.1	9.1
Lane LOS	B							D	A
Approach Delay (s/veh)	0.1				0.0			16.5	
Approach LOS								C	

Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	43.9%	ICU Level of Service		A
Analysis Period (min)	15			

APPENDIX L

Sensitivity Analysis

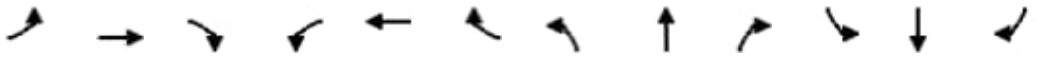
5: Coleraine Drive & Private Access/George Bolton Parkway

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	30	35	63	23	188	412	94	499	66
Future Volume (vph)	30	35	63	23	188	412	94	499	66
Lane Group Flow (vph)	35	141	73	196	219	591	109	580	77
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		8		4		6		2	
Permitted Phases	8		4		6		2		2
Detector Phase	8	8	4	4	6	6	2	2	2
Switch Phase									
Minimum Initial (s)	8.0	8.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.5	32.5	32.5	32.5	34.2	34.2	33.7	33.7	33.7
Total Split (s)	45.0	45.0	45.0	45.0	55.0	55.0	55.0	55.0	55.0
Total Split (%)	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.2	4.2	4.2	4.2	4.2
All-Red Time (s)	3.5	3.5	3.5	3.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	7.5	7.5	6.7	6.7	6.7	6.7	6.7
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.23	0.29	0.54	0.35	0.44	0.27	0.21	0.26	0.07
Control Delay (s/veh)	39.6	14.0	53.8	9.8	10.6	5.7	7.1	6.0	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	39.6	14.0	53.8	9.8	10.6	5.7	7.1	6.0	1.6
Queue Length 50th (m)	6.5	3.9	14.2	2.5	15.5	17.2	6.3	18.1	0.0
Queue Length 95th (m)	14.1	10.8	25.7	10.4	37.4	30.2	16.1	31.3	4.4
Internal Link Dist (m)		344.0		468.8		784.9		1711.9	
Turn Bay Length (m)	70.0		105.0		75.0		100.0		100.0
Base Capacity (vph)	370	1051	331	1123	494	2144	502	2212	1009
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.13	0.22	0.17	0.44	0.28	0.22	0.26	0.08

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 5: Coleraine Drive & Private Access/George Bolton Parkway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	35	86	63	23	145	188	412	96	94	499	66
Future Volume (vph)	30	35	86	63	23	145	188	412	96	94	499	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.89		1.00	0.87		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1491	2636		1267	2713		1532	3017		1574	3131	1396
Flt Permitted	0.62	1.00		0.66	1.00		0.43	1.00		0.42	1.00	1.00
Satd. Flow (perm)	986	2636		883	2713		699	3017		711	3131	1396
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	35	41	100	73	27	169	219	479	112	109	580	77
RTOR Reduction (vph)	0	85	0	0	143	0	0	11	0	0	0	23
Lane Group Flow (vph)	35	56	0	73	53	0	219	580	0	109	580	54
Heavy Vehicles (%)	13%	26%	19%	33%	43%	10%	10%	14%	19%	7%	14%	8%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	15.1	15.1		15.1	15.1		70.7	70.7		70.7	70.7	70.7
Effective Green, g (s)	15.1	15.1		15.1	15.1		70.7	70.7		70.7	70.7	70.7
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.71	0.71		0.71	0.71	0.71
Clearance Time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	148	398		133	409		494	2133		502	2213	986
v/s Ratio Prot		0.02			0.02			0.19			0.19	
v/s Ratio Perm	0.04			c0.08			c0.31			0.15		0.04
v/c Ratio	0.23	0.14		0.54	0.12		0.44	0.27		0.21	0.26	0.05
Uniform Delay, d1	37.3	36.8		39.2	36.7		6.2	5.3		5.0	5.2	4.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.8	0.1		4.5	0.1		2.8	0.3		0.9	0.2	0.1
Delay (s)	38.2	36.9		43.8	36.8		9.1	5.6		6.0	5.5	4.5
Level of Service	D	D		D	D		A	A		A	A	A
Approach Delay (s/veh)		37.2			38.7			6.5			5.5	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	106	61	251	347	230	372
Future Volume (Veh/h)	106	61	251	347	230	372
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)	106	61	251	347	230	372
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	897	126			598	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	897	126			598	
tC, single (s)	7.1	7.2			4.2	
tC, 2 stage (s)						
tF (s)	3.7	3.5			2.3	
p0 queue free %	45	93			76	
cM capacity (veh/h)	192	859			941	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	106	61	126	126	347	230	186	186
Volume Left	106	0	0	0	0	230	0	0
Volume Right	0	61	0	0	347	0	0	0
cSH	192	859	1700	1700	1700	941	1700	1700
Volume to Capacity	0.55	0.07	0.07	0.07	0.20	0.24	0.11	0.11
Queue Length 95th (m)	23.2	1.8	0.0	0.0	0.0	7.7	0.0	0.0
Control Delay (s/veh)	44.6	9.5	0.0	0.0	0.0	10.1	0.0	0.0
Lane LOS	E	A				B		
Approach Delay (s/veh)	31.8		0.0			3.8		
Approach LOS	D							

Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	40.9%	ICU Level of Service	A
Analysis Period (min)	15		

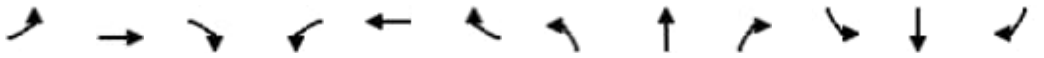
5: Coleraine Drive & Private Access/George Bolton Parkway

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	76	87	61	9	84	616	169	537	28
Future Volume (vph)	76	87	61	9	84	616	169	537	28
Lane Group Flow (vph)	92	362	73	200	101	826	204	647	34
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		8		4		6		2	
Permitted Phases	8		4		6		2		2
Detector Phase	8	8	4	4	6	6	2	2	2
Switch Phase									
Minimum Initial (s)	8.0	8.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.5	32.5	32.5	32.5	34.2	34.2	33.7	33.7	33.7
Total Split (s)	45.0	45.0	45.0	45.0	55.0	55.0	55.0	55.0	55.0
Total Split (%)	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.2	4.2	4.2	4.2	4.2
All-Red Time (s)	3.5	3.5	3.5	3.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	7.5	7.5	6.7	6.7	6.7	6.7	6.7
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.57	0.59	0.65	0.35	0.24	0.37	0.54	0.29	0.03
Control Delay (s/veh)	52.7	21.7	64.5	12.9	8.3	7.0	15.3	6.6	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	52.7	21.7	64.5	12.9	8.3	7.0	15.3	6.6	1.3
Queue Length 50th (m)	17.9	17.2	14.4	5.3	6.2	29.1	16.6	21.7	0.0
Queue Length 95th (m)	29.0	25.0	25.1	12.0	16.0	46.5	42.2	35.5	1.9
Internal Link Dist (m)		445.6		468.8		784.9		1711.9	
Turn Bay Length (m)	70.0		105.0		75.0		100.0		100.0
Base Capacity (vph)	375	1194	266	1152	413	2197	377	2209	908
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.30	0.27	0.17	0.24	0.38	0.54	0.29	0.04

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 5: Coleraine Drive & Private Access/George Bolton Parkway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	87	213	61	9	157	84	616	70	169	537	28
Future Volume (vph)	76	87	213	61	9	157	84	616	70	169	537	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.89		1.00	0.85		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1518	2870		1491	2833		1392	3133		1574	3159	1277
Flt Permitted	0.62	1.00		0.45	1.00		0.40	1.00		0.32	1.00	1.00
Satd. Flow (perm)	1000	2870		711	2833		592	3133		541	3159	1277
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	92	105	257	73	11	189	101	742	84	204	647	34
RTOR Reduction (vph)	0	158	0	0	121	0	0	5	0	0	0	10
Lane Group Flow (vph)	92	204	0	73	79	0	101	821	0	204	647	24
Heavy Vehicles (%)	11%	9%	12%	13%	11%	8%	21%	12%	14%	7%	13%	18%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	15.9	15.9		15.9	15.9		69.9	69.9		69.9	69.9	69.9
Effective Green, g (s)	15.9	15.9		15.9	15.9		69.9	69.9		69.9	69.9	69.9
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.70	0.70		0.70	0.70	0.70
Clearance Time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	159	456		113	450		413	2189		378	2208	892
v/s Ratio Prot		0.07			0.03			0.26			0.20	
v/s Ratio Perm	0.09			c0.10			0.17			c0.38		0.02
v/c Ratio	0.57	0.44		0.64	0.17		0.24	0.37		0.53	0.29	0.02
Uniform Delay, d1	38.9	38.0		39.4	36.3		5.4	6.1		7.2	5.6	4.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.0	0.7		12.0	0.1		1.4	0.4		5.4	0.3	0.0
Delay (s)	43.9	38.7		51.4	36.5		6.8	6.6		12.7	6.0	4.6
Level of Service	D	D		D	D		A	A		B	A	A
Approach Delay (s/veh)		39.8			40.5			6.6			7.5	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	284	161	445	173	113	240
Future Volume (Veh/h)	284	161	445	173	113	240
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)	284	161	445	173	113	240
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	791	223			618	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	791	223			618	
tC, single (s)	7.0	7.1			4.5	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.4	
p0 queue free %	0	79			87	
cM capacity (veh/h)	266	751			851	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	284	161	223	223	173	113	120	120
Volume Left	284	0	0	0	0	113	0	0
Volume Right	0	161	0	0	173	0	0	0
cSH	266	751	1700	1700	1700	851	1700	1700
Volume to Capacity	1.07	0.21	0.13	0.13	0.10	0.13	0.07	0.07
Queue Length 95th (m)	91.9	6.5	0.0	0.0	0.0	3.7	0.0	0.0
Control Delay (s/veh)	115.5	11.1	0.0	0.0	0.0	9.9	0.0	0.0
Lane LOS	F	B				A		
Approach Delay (s/veh)	77.7		0.0			3.2		
Approach LOS	F							

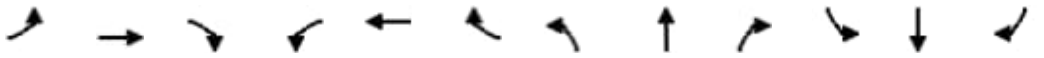
Intersection Summary			
Average Delay	25.2		
Intersection Capacity Utilization	44.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	30	35	63	23	213	485	93	499	113
Future Volume (vph)	30	35	63	23	213	485	93	499	113
Lane Group Flow (vph)	35	141	73	191	248	676	108	580	131
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		8		4		6		2	
Permitted Phases	8		4		6		2		2
Detector Phase	8	8	4	4	6	6	2	2	2
Switch Phase									
Minimum Initial (s)	8.0	8.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.5	32.5	32.5	32.5	34.2	34.2	33.7	33.7	33.7
Total Split (s)	45.0	45.0	45.0	45.0	55.0	55.0	55.0	55.0	55.0
Total Split (%)	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.2	4.2	4.2	4.2	4.2
All-Red Time (s)	3.5	3.5	3.5	3.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	7.5	7.5	6.7	6.7	6.7	6.7	6.7
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.23	0.29	0.54	0.34	0.50	0.30	0.23	0.26	0.12
Control Delay (s/veh)	39.5	14.0	53.8	10.0	11.9	6.0	7.4	6.0	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	39.5	14.0	53.8	10.0	11.9	6.0	7.4	6.0	1.4
Queue Length 50th (m)	6.5	3.9	14.2	2.5	18.7	20.8	6.3	18.1	0.0
Queue Length 95th (m)	14.1	10.8	25.7	10.4	45.2	35.6	16.4	31.3	5.5
Internal Link Dist (m)		351.5		468.8		784.9		1711.9	
Turn Bay Length (m)	70.0		105.0		75.0		100.0		100.0
Base Capacity (vph)	372	1051	331	1112	494	2182	463	2212	1034
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.13	0.22	0.17	0.50	0.31	0.23	0.26	0.13

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 5: Coleraine Drive & Private Access/George Bolton Parkway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	35	86	63	23	141	213	485	96	93	499	113
Future Volume (vph)	30	35	86	63	23	141	213	485	96	93	499	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.89		1.00	0.87		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1491	2636		1267	2692		1532	3076		1589	3131	1409
Flt Permitted	0.63	1.00		0.66	1.00		0.43	1.00		0.39	1.00	1.00
Satd. Flow (perm)	991	2636		883	2692		699	3076		655	3131	1409
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	35	41	100	73	27	164	248	564	112	108	580	131
RTOR Reduction (vph)	0	85	0	0	139	0	0	9	0	0	0	38
Lane Group Flow (vph)	35	56	0	73	52	0	248	667	0	108	580	93
Heavy Vehicles (%)	13%	26%	19%	33%	43%	11%	10%	12%	19%	6%	14%	7%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	15.1	15.1		15.1	15.1		70.7	70.7		70.7	70.7	70.7
Effective Green, g (s)	15.1	15.1		15.1	15.1		70.7	70.7		70.7	70.7	70.7
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.71	0.71		0.71	0.71	0.71
Clearance Time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	149	398		133	406		494	2174		463	2213	996
v/s Ratio Prot		0.02			0.02			0.22			0.19	
v/s Ratio Perm	0.04			c0.08			c0.35			0.16		0.07
v/c Ratio	0.23	0.14		0.54	0.12		0.50	0.30		0.23	0.26	0.09
Uniform Delay, d1	37.3	36.8		39.2	36.7		6.6	5.4		5.1	5.2	4.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.8	0.1		4.5	0.1		3.6	0.3		1.1	0.2	0.1
Delay (s)	38.1	36.9		43.8	36.8		10.2	5.8		6.3	5.5	4.7
Level of Service	D	D		D	D		B	A		A	A	A
Approach Delay (s/veh)		37.2			38.8			7.0			5.5	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		

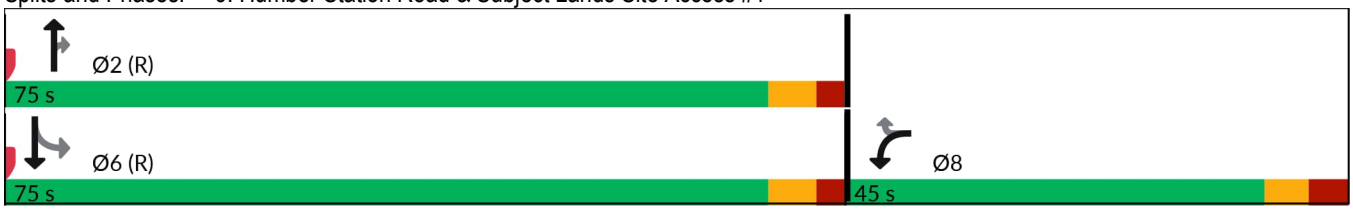
c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	106	61	271	324	181	400
Future Volume (vph)	106	61	271	324	181	400
Lane Group Flow (vph)	106	61	271	324	181	400
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	25.5	25.5	24.7	24.7	24.7	24.7
Total Split (s)	45.0	45.0	75.0	75.0	75.0	75.0
Total Split (%)	37.5%	37.5%	62.5%	62.5%	62.5%	62.5%
Yellow Time (s)	4.0	4.0	4.2	4.2	4.2	4.2
All-Red Time (s)	3.5	3.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	6.7	6.7	6.7	6.7
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.58	0.28	0.10	0.28	0.24	0.15
Control Delay (s/veh)	62.3	14.3	4.9	1.6	4.5	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	62.3	14.3	4.9	1.6	4.5	3.5
Queue Length 50th (m)	25.4	0.0	7.7	4.3	7.2	8.2
Queue Length 95th (m)	42.6	12.4	m11.2	m5.9	m14.7	14.2
Internal Link Dist (m)	920.1		1542.4			454.2
Turn Bay Length (m)				30.0	100.0	
Base Capacity (vph)	453	447	2549	1145	734	2623
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	0.23	0.14	0.11	0.28	0.25	0.15

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 116 (97%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: Humber Station Road & Subject Lands Site Access #1



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	106	61	271	324	181	400
Future Volume (vph)	106	61	271	324	181	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.0	3.5	3.0	3.0	3.5
Total Lost time (s)	7.5	7.5	6.7	6.7	6.7	6.7
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1452	1299	3368	1409	1574	3466
Flt Permitted	0.95	1.00	1.00	1.00	0.58	1.00
Satd. Flow (perm)	1452	1299	3368	1409	969	3466
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	106	61	271	324	181	400
RTOR Reduction (vph)	0	53	0	79	0	0
Lane Group Flow (vph)	106	8	271	245	181	400
Heavy Vehicles (%)	16%	16%	6%	7%	7%	3%
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Actuated Green, G (s)	15.0	15.0	90.8	90.8	90.8	90.8
Effective Green, g (s)	15.0	15.0	90.8	90.8	90.8	90.8
Actuated g/C Ratio	0.13	0.13	0.76	0.76	0.76	0.76
Clearance Time (s)	7.5	7.5	6.7	6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	181	162	2548	1066	733	2622
v/s Ratio Prot	c0.07		0.08			0.12
v/s Ratio Perm		0.01		0.17	c0.19	
v/c Ratio	0.58	0.04	0.10	0.22	0.24	0.15
Uniform Delay, d1	49.5	46.2	3.8	4.3	4.3	4.0
Progression Factor	1.00	1.00	1.17	2.11	0.77	0.79
Incremental Delay, d2	4.7	0.1	0.0	0.3	0.7	0.1
Delay (s)	54.3	46.3	4.5	9.4	4.0	3.3
Level of Service	D	D	A	A	A	A
Approach Delay (s/veh)	51.4		7.2			3.5
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		

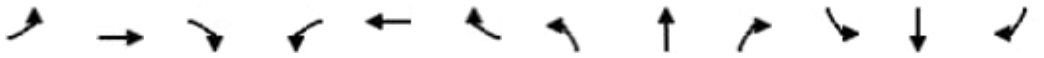
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	76	87	61	9	95	522	169	538	52
Future Volume (vph)	76	87	61	9	95	522	169	538	52
Lane Group Flow (vph)	92	363	73	198	114	713	204	648	63
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		8		4		6		2	
Permitted Phases	8		4		6		2		2
Detector Phase	8	8	4	4	6	6	2	2	2
Switch Phase									
Minimum Initial (s)	8.0	8.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	32.5	32.5	32.5	32.5	34.2	34.2	33.7	33.7	33.7
Total Split (s)	45.0	45.0	45.0	45.0	55.0	55.0	55.0	55.0	55.0
Total Split (%)	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.2	4.2	4.2	4.2	4.2
All-Red Time (s)	3.5	3.5	3.5	3.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	7.5	7.5	6.7	6.7	6.7	6.7	6.7
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.57	0.59	0.65	0.32	0.27	0.33	0.47	0.29	0.06
Control Delay (s/veh)	52.7	21.8	64.6	7.4	8.7	6.6	12.3	6.6	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	52.7	21.8	64.6	7.4	8.7	6.6	12.3	6.6	1.9
Queue Length 50th (m)	17.9	17.3	14.4	1.0	7.2	23.8	15.4	21.7	0.0
Queue Length 95th (m)	28.9	25.0	25.1	8.0	18.3	39.0	36.8	35.7	3.9
Internal Link Dist (m)		562.7		468.8		784.9		1711.9	
Turn Bay Length (m)	70.0		105.0		75.0		100.0		100.0
Base Capacity (vph)	375	1193	265	1178	413	2156	433	2209	905
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.30	0.28	0.17	0.28	0.33	0.47	0.29	0.07

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 5: Coleraine Drive & Private Access/George Bolton Parkway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	87	214	61	9	155	95	522	70	169	538	52
Future Volume (vph)	76	87	214	61	9	155	95	522	70	169	538	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Total Lost time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.89		1.00	0.85		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1518	2870		1491	2833		1392	3076		1574	3159	1267
Flt Permitted	0.62	1.00		0.45	1.00		0.40	1.00		0.37	1.00	1.00
Satd. Flow (perm)	1002	2870		709	2833		592	3076		620	3159	1267
Peak-hour factor, PHF	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Adj. Flow (vph)	92	105	258	73	11	187	114	629	84	204	648	63
RTOR Reduction (vph)	0	158	0	0	157	0	0	6	0	0	0	19
Lane Group Flow (vph)	92	205	0	73	41	0	114	707	0	204	648	44
Heavy Vehicles (%)	11%	9%	12%	13%	11%	8%	21%	14%	14%	7%	13%	19%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8			4			6			2		2
Actuated Green, G (s)	15.9	15.9		15.9	15.9		69.9	69.9		69.9	69.9	69.9
Effective Green, g (s)	15.9	15.9		15.9	15.9		69.9	69.9		69.9	69.9	69.9
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.70	0.70		0.70	0.70	0.70
Clearance Time (s)	7.5	7.5		7.5	7.5		6.7	6.7		6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	159	456		112	450		413	2150		433	2208	885
v/s Ratio Prot		0.07			0.01			0.23			0.21	
v/s Ratio Perm	0.09			c0.10			0.19			c0.33		0.03
v/c Ratio	0.57	0.44		0.65	0.09		0.27	0.32		0.47	0.29	0.04
Uniform Delay, d1	38.9	38.0		39.4	35.8		5.6	5.8		6.7	5.6	4.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.0	0.7		12.7	0.0		1.6	0.4		3.6	0.3	0.1
Delay (s)	43.9	38.7		52.2	35.9		7.2	6.2		10.4	6.0	4.7
Level of Service	D	D		D	D		A	A		B	A	A
Approach Delay (s/veh)		39.8			40.3			6.4			6.9	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		

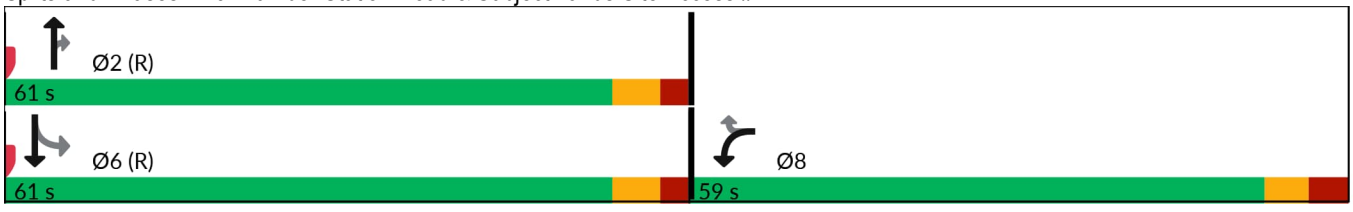
c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	284	161	515	162	89	246
Future Volume (vph)	284	161	515	162	89	246
Lane Group Flow (vph)	284	161	515	162	89	246
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	12.0	12.0	12.0	12.0	12.0	12.0
Minimum Split (s)	25.5	25.5	24.7	24.7	24.7	24.7
Total Split (s)	59.0	59.0	61.0	61.0	61.0	61.0
Total Split (%)	49.2%	49.2%	50.8%	50.8%	50.8%	50.8%
Yellow Time (s)	4.0	4.0	4.2	4.2	4.2	4.2
All-Red Time (s)	3.5	3.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.5	7.5	6.7	6.7	6.7	6.7
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.78	0.36	0.23	0.18	0.20	0.11
Control Delay (s/veh)	57.5	7.0	10.5	5.2	9.7	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	57.5	7.0	10.5	5.2	9.7	7.6
Queue Length 50th (m)	66.3	0.0	38.0	9.3	5.8	8.2
Queue Length 95th (m)	88.7	15.6	m55.9	m16.1	14.2	15.6
Internal Link Dist (m)	690.6		1542.4			454.2
Turn Bay Length (m)				30.0	100.0	
Base Capacity (vph)	645	669	2181	861	436	2100
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	0.44	0.24	0.24	0.19	0.20	0.12

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 21 (18%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: Humber Station Road & Subject Lands Site Access #1



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	284	161	515	162	89	246
Future Volume (vph)	284	161	515	162	89	246
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.0	3.5	3.0	3.0	3.5
Total Lost time (s)	7.5	7.5	6.7	6.7	6.7	6.7
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1504	1346	3400	1256	1416	3275
Flt Permitted	0.95	1.00	1.00	1.00	0.45	1.00
Satd. Flow (perm)	1504	1346	3400	1256	680	3275
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	284	161	515	162	89	246
RTOR Reduction (vph)	0	122	0	56	0	0
Lane Group Flow (vph)	284	39	515	106	89	246
Heavy Vehicles (%)	12%	12%	5%	20%	19%	9%
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Actuated Green, G (s)	28.8	28.8	77.0	77.0	77.0	77.0
Effective Green, g (s)	28.8	28.8	77.0	77.0	77.0	77.0
Actuated g/C Ratio	0.24	0.24	0.64	0.64	0.64	0.64
Clearance Time (s)	7.5	7.5	6.7	6.7	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	360	323	2181	805	436	2101
v/s Ratio Prot	c0.19		c0.15			0.08
v/s Ratio Perm		0.03		0.08	0.13	
v/c Ratio	0.78	0.11	0.23	0.13	0.20	0.11
Uniform Delay, d1	42.7	35.6	9.0	8.4	8.8	8.3
Progression Factor	1.00	1.00	1.03	2.42	0.78	0.79
Incremental Delay, d2	10.9	0.1	0.1	0.2	1.0	0.1
Delay (s)	53.6	35.8	9.5	20.5	7.9	6.7
Level of Service	D	D	A	C	A	A
Approach Delay (s/veh)	47.2		12.1			7.0
Approach LOS	D		B			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.2
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

APPENDIX M

Transportation Engineering Comments (February 2024)

MEMORANDUM

Transportation Engineering
Public Works & Transportation Department

Date: **February 13th, 2024**

To: **Jeff Hignett, Senior Planner, Policy**

From: **Kavleen S. Younan, P.Eng., Transportation Engineer**
Transportation Engineering, Public Works, & Transportation Department

Subject: **Humber Station Employment Area Secondary Plan (Option #6)**
Transportation Engineering Comments

Transportation Engineering Staff have reviewed the materials submitted for the Humber Station Employment Area Secondary Plan (Option #6), 1st Submission and offer the following high-level comments. Please be aware that more detailed technical comments may be provided during subsequent application phases, as applicable to each specific phase:

- All collector and arterial roads should have on-boulevard cycling facilities. Preference for MUTs on both sides of collector and arterial roads to serve both pedestrians and cyclists.

- Caledon's Official Plan seeks complete communities with compact design, mixed uses, connected streets, and sustainable transportation.

- The active transportation network within the study area and the future potential connections to the Town's active transportation network should be Illustrated. They must be aligned with the active transportation network identified in the Town's Multi-Modal Transportation Master Plan.

- Please note that the Technical Studies, including the Traffic Impact Study, may not meet the Town's requirements for the SABE lands. The Town endorses a grid-style transportation network for better connectivity. The non-grid system leads to more driver turns and longer travel times. Direct north-south and east-west connections are recommended for improved connectivity. The current design isolates the community with few links to the south. Also, the non-grid transportation network is not transit-supportive for the coverage.

- Transportation Demand Management measures and initiatives and Parking policies need to be developed to achieve the Town's future non-auto modal split targets and reduce single-occupant vehicles.

- The secondary plan should suggest high-level policies for access management along Collector and Arterial roadways aligning with the Multimodal TMP and recommendation of TAC.

- Regarding the proposed land use plan, it is recommended that more than one option be developed and evaluated to select the one with the most negligible impact.

- It is noted that the plan proposes prestige employment along the future Highway 413. It is understood that this serves the visibility aspect; however, this area is landlocked and cannot be accessed from Humber Station Road since it is within the interchange functional area (see the image below). The Town understands that MTO does not typically allow access within this area. These lands can only

be accessible from the George Bolton Parkway extension and the north-south access road through the General Employment Area. Also, the area south of 413 is currently earmarked for the Transitway station. Consideration should be given to relocating the prestige employment areas along Humber Station, George Bolton Parkway extension and the north-south access road. The north-south access road will potentially connect (subject to a feasibility study) to the A2 arterial south of Mayfield Road.

- Please ensure that the George Bolton Parkway (GBP) extension is included in the analysis. The full buildout is proposed for 2033, but the GBP is included in the 2043 horizon (10 years after the full buildout). In the MMTMP, the GBP Parkway is planned for 2031 and, as such, should be taken as a future planned network, and accordingly, traffic should be assigned for 2033 to build out future total conditions. Also, table 4-3 should be updated to align with the recommendations noted in the MMTMP and accordingly the analyses.

- As part of subsequent applications:

    - Site access proposed unsignalized intersections; intersection operations are to be determined

    - Traffic management measures at intersections should be further reviewed and developed to ensure they operate at an acceptable LOS to the Town's satisfaction.

    - General bicycle parking rates should be proposed in line with nearby municipalities.

    - Further details on the internal road network will be required in subsequent applications.

    - Please note that a phasing plan for the Transportation Infrastructure could be requested to be reviewed by transportation after the OPA approval.

- Transportation Engineering reserves the right for additional comments based on a revised submission. Transportation Engineering requests that the Traffic Consultant provide a response letter with the re-submission package clearly reiterating the Town's comments in order and including details for how each comment has been addressed.

Please let me know if you have any questions or require additional information.

Regards,

Kavleen S. Younan, P.Eng.
Transportation Engineer
Engineering, Public Works, & Transportation Department

HUMBER STATION VILLAGES
LANDOWNERS GROUP