# TRANSPORTATION STUDY

# TULLAMORE NORTHWEST EMPLOYMENT AREA SECONDARY PLAN

**TOWN OF CALEDON**
**REGION OF PEEL**

**PREPARED FOR:**

**BROCCOLINI AIRPORT ROAD LP**

**PREPARED BY:**

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**MAY 2025**

**CFCA FILE NO. 2778-7228**



CROZIER

| Revision Number | Date | Comments |
|---|---|---|
| Rev.0 | April 2025 | Internal Review |
| Rev.1 | May 2025 | Issued for First Submission |

## Executive Summary

C.F. Crozier & Associates Inc. (Crozier) was retained by the Broccolini Airport Road LP (Broccolini) to prepare a Transportation Study in support the Tullamore Northwest Employment Area Secondary Plan, located in the Town of Caledon, Region of Peel.

This Secondary Plan application for the Tullamore Northwest Employment Area is intended to support future site-specific applications within the Secondary Plan area.

The Tullamore Northwest Employment Area covers an area of 165.7 ha and currently consists of agricultural fields, forested areas and natural heritage areas. The Subject Lands are bound by Old School Road to the north, the proposed Tullamore Industrial Business Park to the south, Airport Road to the east and Torbram Road to the west. The Tullamore Northwest Employment Area will consist of various industrial employment uses.

An internal collector road network will be required to support the Tullamore Northwest Employment Area. The Secondary Plan application is being submitted to allow for the site-specific application(s) for the Broccolini property to be advanced. As the Town's recent Transportation Master Plan (2024) has been considered out of date by the Town and is currently undergoing an update expected to be complete in late 2025, a comprehensive collector road network was not prescribed to provide flexibility for future site-specific applications. Thus, the Land Use Schedule does not outline a detailed collector road network. Instead, conceptual roadway connections to the external road network have been assumed. These conceptual roadway connections assumed herein align with the approved and planned developments to the south, east and west of the Secondary Plan area. The details regarding the internal collector road network, including roadway locations and external connections, will be determined as individual site-specific development applications are advanced.

**2025 Existing Conditions**

- The study road network is operating at a LOS "E" or better with lower to moderate control delays and volume-to-capacity (v/c) ratios. As such, these metrics indicate that the intersections are operating efficiently with reserve capacity for future growth.

- There are no major queueing concerns that are expected to cause significant impacts within the study area.

**2044 Future Background Conditions**

- Future background traffic volumes were forecasted by application of corridor growth rates and inclusion of background development trip assignments as confirmed with the Region and Town during the terms of reference.

- While a traffic signal is not warranted for Airport Road & Perdue Court/Davis Lane, it is recommended that the intersection be signalized to support future background traffic operations.

- The signalized intersection of Mayfield Road & Airport Road is expected to operate with a LOS "D" or better with a maximum control delay and v/c ratio of 49 s and 1.06, respectively. While the intersection is expected to operate above the theoretical capacity, the intersection is still expected to operate efficiently with a moderate LOS and control delay.

- Mayfield Road & Torbram Road is expected to operate at a LOS "E" with a maximum control delay and v/c ratio of 59 s and 1.20, respectively.

    - As the intersection is expected to operate above the theoretical capacity, the cycle length can be increased to 145 s to improve operations. With the increased cycle length, the intersection is expected to operate at a LOS "E" or better with a maximum control delay of 63 s and a maximum v/c ratio of 1.15. Despite the minor increase in intersection control delay, a significant decrease in control delay for the critical movements is expected. Thus, increasing the cycle length to allocate additional time to the critical movements is appropriate.

    - It is recommended that the Region monitors traffic operations along Mayfield Road to determine if signal timing plan improvements are required as well as confirm if the projected traffic growth materializes.

- The remaining study intersections are expected to operate efficiently at a LOS "C" or better with low to moderate control delays and v/c ratios.

- The queues for the following movements are expected to exceed the effective storage length:

    - Mayfield Road & Airport Road (NBL)

    - Mayfield Road & Torbram Road (EBL, NBL)

**2044 Future Total Conditions**

- The Secondary Plan area is expected to generate 1,484 and 1,484 two-way vehicle trips during the weekday a.m. and p.m. peak hours, respectively assuming the conservative Industrial Park land use. This is expected to consist of 207 and 207 two-way heavy truck trips during the weekday a.m. and p.m. peak hours, respectively, as well as 1,277 and 1,277 two-way mode split adjusted passenger car trips during the weekday a.m. and p.m. peak hours, respectively.

    - The trip generation can be considered conservative as Land Use Category (LUC) 130 "Industrial Park" was assumed, as the exact mix of industrial uses are unknown, and most industrial uses have a lower trip generation rate. For comparison purposes, if LUC 150 "Warehousing" was assumed, 881 and 933 two-way vehicle trips are expected for the weekday a.m. and p.m. peak hours, respectively. This represents a reduction in at least 50% in comparison to LUC 130 "Industrial Park". Since the trip generation associated with LUC 130 "Industrial Park" was used herein, the analysis can be considered conservative.

- The Mayfield Road & Airport Road intersection is expected to operate at a LOS "E" or better with a maximum control delay and v/c ratio of 55 s and 1.18 respectively. While the intersection is expected to operate above theoretical capacity, this represents a minor increase of 7 s and 0.12 in control delay and v/c ratio, respectively, in comparison to future background conditions.

    - Nevertheless, the cycle length can be increased to 145 s to improve operations. With the increased cycle length, the intersection is expected to operate with a LOS "D" and improved control delay of 54 s and v/c ratio of 1.10.

- Under future total conditions, Mayfield Road & Torbram Road is expected to operate at a LOS "E" with a maximum increase in control delay and v/c ratio of 12 s and 0.08, respectively.

- Airport Road & Old School Road/Healy Road is expected to operate at a LOS "D" or better. While some approaches are operating above the Region's critical threshold of 0.85, the intersection is still anticipated to operate efficiently with moderate control delays. These metrics are not uncommon during peak hours on heavily travelled arterial corridors, such as Airport Road.

    - Should a westbound right-turn by-pass be implemented, the roundabout operations are expected to improve to a LOS "B" or better and with v/c ratios under 1.0. It is noted that given the trip generation assumptions can be considered conservative, with warehousing trip generation representing at least a 50% reduction in comparison to the assumed industrial park, the operations outlined herein may be overstated, and the by-pass may not be required. Nevertheless, a potential westbound right-turn by-pass as part of the Healy Road widening should be protected for, should the need arise for future implementation.

- The remaining study intersections are expected to continue operating efficiently at a LOS "C" or better as well as low-to-moderate control delays and v/c ratios, with reserve capacity to accommodate future traffic growth.

- Overall, the intersection operations indicate that the site generated traffic is not expected to significantly impact the study road network, and with the recommended improvements and signal optimizations, the proposed future intersections are expected to operate acceptably. Therefore, the Secondary Plan site-generated traffic can be supported.

**Roadway Connection Opportunities Review**

- An internal collector road network will be required to support the Tullamore Northwest Employment Area; however, a comprehensive collector road network has not been prescribed at the time of writing to provide flexibility for future development via site-specific applications. Instead, to demonstrate potential roadway connectivity to the Subject Lands and the adequacy of potential intersections, operations conservatively assumed consolidated, conceptual roadway connections with one each to Torbram Road, Airport Road, Old School Road and Mayfield Road (via Street B). These assumed connections reviewed herein are in general conformance with the collector road network contemplated in the Town's Multi-Modal Transportation Master Plan (June 2024), recognizing that the Town has recently commenced an update to the TMP, expected to be complete later this year (2025).

    - Based on the applicable intersection spacing requirements, along the site frontage, there is the potential to accommodate 4 full-moves accesses to Airport Road and Torbram Road as well as 9 full-moves accesses to Old School Road. Therefore, significant connection opportunities exist to support the Secondary Plan lands.

- Signal warrants were assessed for the potential roadway connections, under 2044 future total conditions, and a signal may be warranted at the potential consolidated Airport Road Connection, subject to further analysis as part of future site-specific applications.

- The future potential road connections to Torbram Road, Airport Road and Old School Road are expected to operate at a LOS "D" or better with low to moderate control delays and v/c ratios. In addition, no queues concerns are expected at the future roadway connections.
    - Should additional connections be proposed off the external road network, improved operations are expected. Thus, the future road connections are supportable from a transportation perspective.
    - These findings will need to be reviewed and confirmed once the internal road network is finalized and proposed as part of subsequent development application(s).

**Transportation Framework**

- Active transportation infrastructure can be provided within the Secondary Plan area as part of a future internal collector road network, which connects to external active transportation facilities planned as part of road widening and urbanization of Old School Road and Torbram Road.
    - Given the potential connection to Tullamore Industrial Business Park via Ionic Drive, it is expected that continuity with the approved cross-section will be provided by future public roadways. The approved 26 m cross-section includes a multi-use path on one side of the road and a sidewalk on the other side.
    - Multi-use trail connections to the Natural Heritage System should also be explored as part of future site-specific development applications.
- Transit service via extensions of existing and planned routes should be accounted for in the development of an internal collector road network as part of future site-specific development applications. Where feasible, development should be located within 400 m from a transit stop
- To support the Town and Region's sustainable mode share targets, the Tullamore Northwest Employment Area should implement a transportation demand management strategy that enhances the viability of sustainable transportation modes. The following measures should be considered as part of future site-specific applications:
    - Off-Peak Shift Changes
    - Real-Time Transit Information Screens
    - Wayfinding Signage
    - Cycling Supportive Infrastructure
    - Electric Vehicle Infrastructure
    - Carpooling Opportunities
    - Smart Commute Opportunities
    - Priority Rideshare and Pick-Up/Drop-Off Areas

- The comprehensive development of lands within the Secondary Plan can continue to advance, as desired through future site-specific development applications. At such time, additional details regarding an area-wide active transportation, transit and collector road network consistent with the Town's policy objectives will be refined.

- We recommend the Town consider permitting an alternate year-round truck routes for the segment of Old School Road between Airport Road and Torbram Road given the proximity to the Highway 413 Interchange with Airport Road, potential for accesses on Old School Road and to support increased truck route efficiency and reduce circuity. These improvements can be coordinated as part of the planned widening to four lanes by 2041

**Recommendations**

**Table E1** summarizes the recommended improvements.

**Table E1: Recommended Improvements**

| Location | Improvement |
|---|---|
| **2044 Future Background** | |
| Mayfield Road | Maintain schedule for planned road widening and associated improvements between Airport Road and Coleraine Drive. |
| Airport Road | Maintain schedule for planned road widening and associated improvements between Mayfield Road and King Street. |
| Torbram Road | Maintain schedule for planned road widening and urbanization between Mayfield Road and Old School Road. |
| Highway 413 | Maintain schedule for planned highway between Highway 401 to Highway 400. |
| Street A | Maintain schedule for planned roadway between Mayfield Road and Street B. |
| Street B | Maintain schedule for planned roadway between Tullamore Industrial Business Park northern limits and Mayfield Road. |
| Street C | Maintain schedule for planned roadway between Street B and Torbram Road. |
| Mayfield Road & Airport Road | Extend the NBL auxiliary turn lane (135 m). |
| Mayfield Road & Torbram Road | Extend auxiliary turn lanes for the following movements:<br>• EBL: 160 m<br>• NBL: 190 m |
| Mayfield Road & Torbram Road | Implement auxiliary turn lanes for the following movements per Mayfield-Tullamore Secondary Plan.<br>• WBL (Dual): 75 m<br>• WBR: 60 m |
| Torbram Road & Old School Road | Implement signal control per Mayfield-Tullamore Secondary Plan. |

| Location | Improvement |
|---|---|
| Airport Road & Old School Road/Healy Road | Maintain schedule for planned roundabout, with two lanes on each approach. |
| Airport Road & Street A/12333 Airport Road | Implement planned signal control per Tullamore Industrial Business Park.<br><br>Implement auxiliary turn lanes for the following movements per Tullamore Industrial Business Park.<br>• EBL: 55 m<br>• NBL: 120 m<br>• SBR: 100 m |
| Airport Road & Perdue Court/Davis Lane | Implement signal control. |
| Mayfield Road & Street B | Implement signal control per Tullamore Industrial Business Park.<br><br>Implement auxiliary turn lanes for the following movements per Tullamore Industrial Business Park.<br>• EBL: 55 m<br>• WBR: 130 m<br>• SBL: 55 m<br><br>Implement auxiliary turn lanes for the following movements per Countryside Villages Block 48-2.<br>• EBR: 30 m<br>• WBL: 105 m<br>• NBL: 55 m |
| Torbram Road & Street C | Implement planned one-way stop control per Tullamore Industrial Business Park.<br><br>Implement auxiliary turn lanes for the following movements per Tullamore Industrial Business Park.<br>• EBL: 55 m<br>• WBL: 55 m<br><br>Implement auxiliary turn lanes for the following movements per the Mayfield-Tullamore Secondary Plan.<br>• NBL: 55 m<br>• SBL: 55 m |
| **2044 Future Total Considerations** | |
| Mayfield Road & Airport Road | Extend the NBL auxiliary turn lane (150 m). |
| Mayfield Road & Torbram Road | Extend auxiliary turn lanes for the following movements:<br>• EBL: 170 m<br>• NBL: 205 m |
| Airport Road & Old School Road/Healy Road | Protect for a potential westbound right-turn by-pass as part of the Healy Road widening. |

| Location | Improvement |
|---|---|
| **Future Roadway Connection Considerations** | |
| Potential Torbram Road Connection | Implement the following two-way turn lane storage for the following movements:<br>• WBL: 55 m<br>• SBL: 55 m |
| Potential Airport Road Connection | Implement signal control.<br><br>Implement the following two-way turn lane storage for the following movements:<br>• EBL: 55 m<br>• NBL: 55 m<br><br>Confirm the need for and implement a 65 m WBR auxiliary turn lane. |
| Potential Old School Road Connection | Implement the following two-way turn lane storage for the following movements:<br>• WBL: 55 m<br>• NBL: 55 m |

We note that the 2044 future total considerations illustrate improvements required to support full buildout of the secondary plan with conservative trip generation. However, these improvements are highlighted to demonstrate that they can be feasibly implemented on the study road network and therefore the Secondary Plan can be supported. As the trip generation can potentially be significantly less depending on the ultimate land uses implemented, as site specific applications advance network improvements should be confirmed.

In summary, the study road network can support the full buildout of the Secondary Plan area with the improvement considerations noted, recognizing that as land uses are confirmed with future site-specific applications, significant reductions in trip generation may result. Further development of a connected mobility framework consistent with the Town’s policy objectives will also be refined as part of site-specific applications. Moreover, given the site’s frontage on Airport Road, Torbram Road and Old School Road, several connection opportunities to the study road network exist to effectively support multimodal circulation.

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# 1.0 Introduction

C.F. Crozier & Associates Inc. (Crozier) was retained by the Broccolini Airport Road Limited Partnership (Broccolini) to prepare a Transportation Study in support the Tullamore Northwest Employment Area Secondary Plan, located in the Town of Caledon, Region of Peel. This study provides a review of the ability of the planned mobility framework to support the future buildout of the Secondary Plan lands, and outlines recommendations from a transportation perspective to ensure multi-modal transportation demands can be accommodated.

## 1.1 Development Lands

The Secondary Plan area covers an area of 165.7 ha and currently consists of agricultural fields, forested areas, and natural heritage areas. The Subject Lands are bound by Old School Road to the north, the proposed Tullamore Industrial Business Park to the south, Airport Road to the east and Torbram Road to the west.

**Figure 1** outlines the Secondary Plan Location.

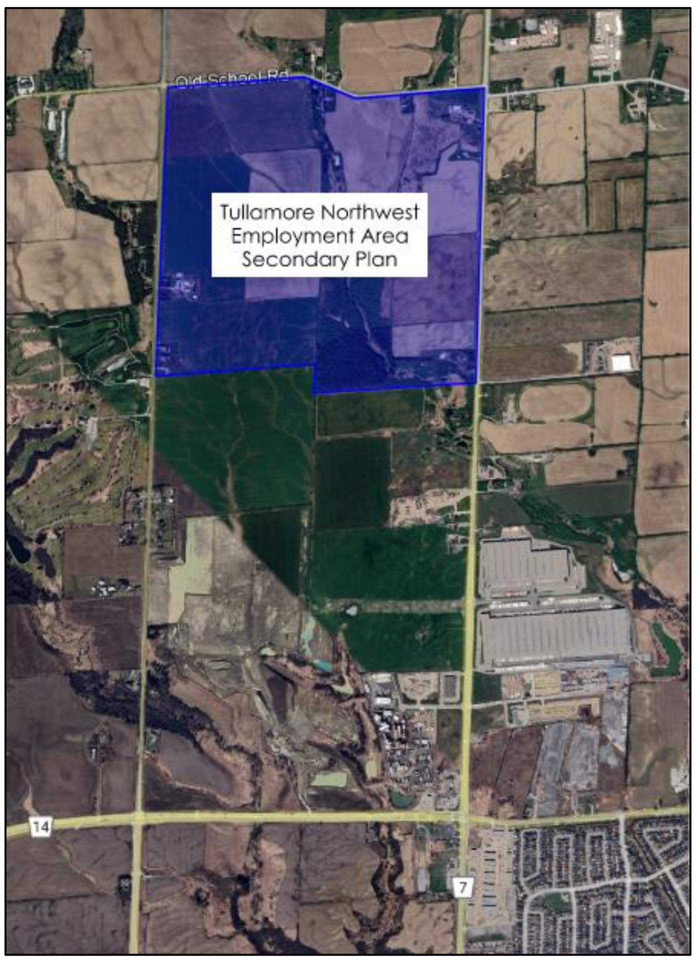
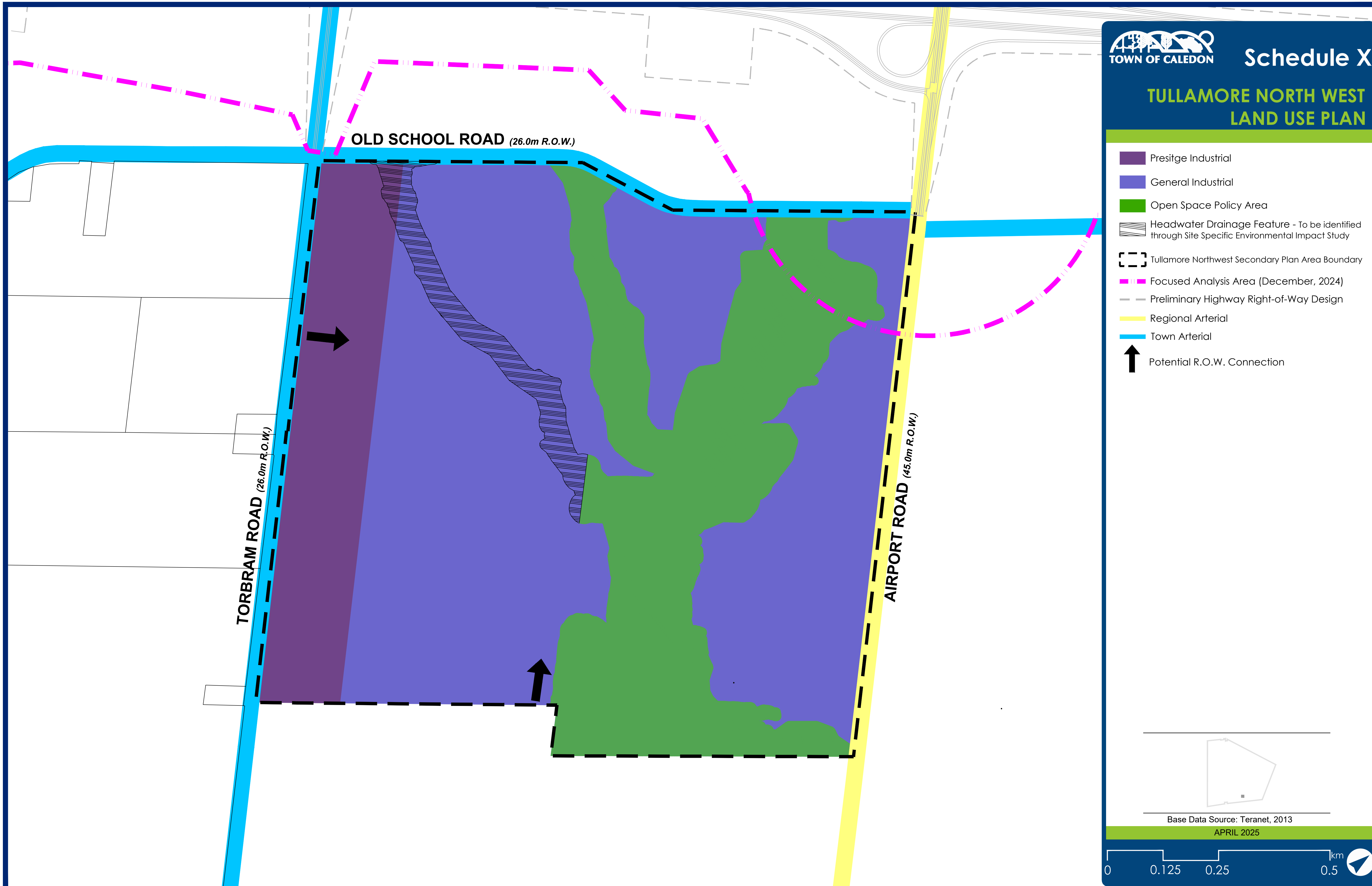



**Figure 1: Secondary Plan Location**

## 1.2 Development Proposal

Per the Land Use Schedule prepared by Glen Schnarr & Associates Inc., the Tullamore Northwest Employment Area will consist of various industrial employment uses.
**Figure 2** outlines the Land Use Schedule.



TOWN OF CALEDON
Schedule X
TULLAMORE NORTH WEST
LAND USE PLAN
Presitge Industrial
General Industrial
Open Space Policy Area
Headwater Drainage Feature - To be identified through Site Specific Environmental Impact Study
Tullamore Northwest Secondary Plan Area Boundary
Focused Analysis Area (December, 2024)
Preliminary Highway Right-of-Way Design
Regional Arterial
Town Arterial
Potential R.O.W. Connection
OLD SCHOOL ROAD (26.0m R.O.W.)
TORBRAM ROAD (26.0m R.O.W.)
AIRPORT ROAD (45.0m R.O.W.)
Base Data Source: Teranet, 2013
APRIL 2025
0
0.125
0.25
0.5
km

Figure 2

### 1.3 Study Purpose and Scope

The study herein is in support of the Secondary Plan application and evaluates the transportation-related impacts of the Tullamore Northwest Employment Area on the study road network as well as recommends any required mitigation measures, if warranted. Broccolini is desirous of advancing the site-specific development application(s) for their property, which is located within the 2051 Urban Area; however, there is no Secondary Plan in place for the Subject Lands. As such, the Secondary Plan application for the Tullamore Northwest Employment Area is intended to support future site-specific applications on the Broccolini lands, while providing a flexible framework to support future development for the surrounding parcels. It should be underscored that Broccolini is the only participating landowner within this Secondary Plan process; therefore, the conservative analysis herein is intended to provide flexibility for the fulsome development of the surrounding lands through future site-specific applications.

It is expected that as other development application(s) advance within the Secondary Plan Area, more detailed studies for each individual lands will be required to support their respective applications.

The study reviews the Secondary Plan area, from a transportation engineering perspective, for the following:

- Impact of the development traffic on the study road network through analyzing the existing, future background and future total traffic operations.
- Improvements to the study road network to mitigate traffic impacts, if required.
- Opportunities for the Secondary Plan from a vehicle circulation, parking, and transportation safety perspective.
- Opportunities for the Secondary Plan from an active transportation, transit and transportation demand management perspective.

The study has been completed in accordance with the agreed upon Terms of Reference with the Town of Caledon and Region of Peel staff as well as the following municipal guidelines:

- Region of Peel's Transportation Impact Study Guidelines (n.d.)
- Region of Peel's Synchro 9 Guidelines (December 2016)

The study horizons to be assessed as part of the network review will include an evaluation of the existing 2024 conditions, the ultimate 2044 horizon, as confirmed with Town and Region staff.

As confirmed in the Terms of Reference, the TIS considers the following existing study intersections:

- Mayfield Road & Airport Road
- Mayfield Road & Torbram Road
- Torbram Road & Old School Road
- Airport Road & Old School Road/Healy Road

- Airport Road & Perdue Court/Davis Lane

**Appendix A** outlines the Terms of Reference correspondence.

# 2.0 Existing Transportation Context

## 2.1 Existing Transportation Characteristics

Currently, the Subject Lands are comprised of greenfield and are currently undeveloped. Thus, no travel characteristics exist for the immediate area within the Town of Caledon. As a proxy, the travel characteristics for the entire Town of Caledon was reviewed. The travel characteristics were determined using 2022 Transportation Tomorrow Survey (TTS) data.

The existing mode split in Caledon was determined using TTS data, filtered to employment trips in the Town of Caledon. **Table 1** summarizes the existing mode split for employment trips in the Town of Caledon.

**Table 1: Existing Travel Characteristics – Town of Caledon**

| Travel Mode | Mode Split |
|---|---|
| Auto Driver | 85% |
| Auto Passenger | 11% |
| Transit | 1% |
| Cycle | 1% |
| Walk | 2% |
| Other[1] | 1% |
| **Total** | **100%** |

*Note 1: Includes school buses, taxis, and motorcycles.*

Currently, employment trips in the Town of Caledon are heavily automobile oriented, with a 96% auto mode share.

**Appendix B** includes the TTS data.

## 2.2 Study Road Network

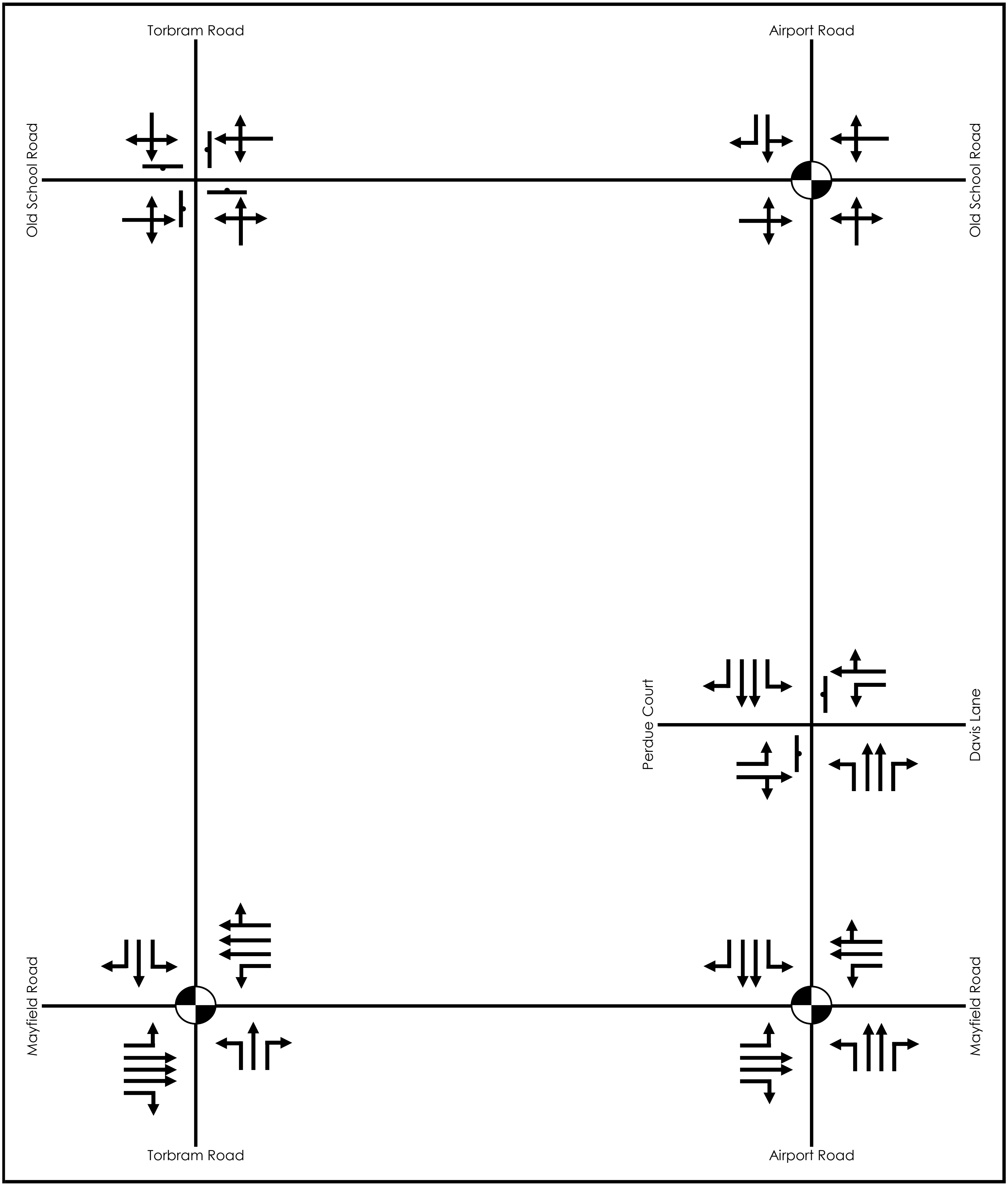
**Table 2** summarizes the study roadways under the Town and Region's jurisdiction, including road and active transportation network features.

**Table 2: Study Road Network**

| Feature | Mayfield Road | Airport Road | Torbram Road | Old School Road/Healy Road | Perdue Court/ Davis Lane |
|---|---|---|---|---|---|
| Direction | Two-Way (East-West) | Two-Way (North-South) | Two-Way (North-South) | Two-Way (East-West) | Two-Way (East-West) |
| Span | Winston Churchill Blvd to Hwy 50 | North Region Boundary to Hwy 427 | Olde Base Line Rd to Derry Rd | Winston Churchill Blvd to Queen St S | N/A |
| Classification | Arterial | Arterial | Arterial | Arterial | Local |
| Jurisdiction | Region | Region | Town | Town | Town |
| Speed Limit | 60–80 km/h[1] (Posted) | 60-80 km/h[2] (Posted) | 70 km/h (Posted) | 70 km/h (Posted) | 50 km/h (Assumed) |
| Number of Travel Lanes | 5 Lanes[3] | 4 Lanes | 2 Lanes[4] | 2 Lanes | 2 Lanes |
| Median Type | Concrete | Concrete[5] | None | None | None |
| Pedestrian Facilities | Multi-Use Path (South Side) | Multi-Use Path[5] (East Side) | None[4] | None | Sidewalk (South Side) |
| Cycling Facilities | Multi-Use Path (South Side) | Multi-Use Path[5] (East Side) | None[4] | None | None |

*Note 1: Mayfield Road has a posted speed limit of 60 km/h for eastbound traffic beginning approximately 460 m west of Airport Road, and 60 km/h posted speed limit for westbound traffic ending approximately 450 m west of Airport road. 80 km/h posted speed limit elsewhere on the boundary road network.*
*Note 2: Airport Road has a speed limit of 60 km/h both directions, south of Purdue Court/Davis Lane, 80 km/h elsewhere*
*Note 3: Mayfield Road has four travel lanes, east of Airport Road and 6 travel lanes, west of Torbram Road.*
*Note 4: Torbram Road has four travel lanes and a multi-use path on the west side and sidewalk on the east side, south of Mayfield Road.*
*Note 5: Airport Road has a multi-use path on the east side and a concrete median, south of 12333 Airport Road.*

**Figure 3** illustrates the existing study road network.




**Legend**

Signal Control
Stop Control

**Tullamore Northwest Employment Area Secondary Plan**

**Existing Study Road Network**

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**Figure 3**

Project No. 2278-7228
Date: 04/30/25
Analyst: MY

### 2.3 Transit Network

The Town does not currently have its own transit system, but areas that abut Mayfield Road as the border between Caledon and Brampton currently benefit from extensions of Brampton Transit routes based on service agreements with the Town and City.

**Table 3** outlines the existing transit routes, direction, days of operation, peak hour headways, and the location of bus stops in the study area as of February 2024.

**Table 3: Existing Transit Services**

| Route | Direction | Limits | Days of Operation | Peak Hour Headway[1] | Transit Stops in Study Area |
|---|---|---|---|---|---|
| 30 Airport | Two-Way (North-South) | Mayfield Rd/12333 Airport Rd to Westwood Mall | Monday to Sunday[2] | 8 min[2] | 12203 Airport Rd |

*Note 1: Frequency and operations may have changed due to change in travel demands.*
*Note 2: Brampton Transit extension into Caledon is limited service from Monday to Saturday with longer headways.*

Brampton Transit only operates one bus route within the study area. The closest transit stop at 12203 Airport Road is located approximately 1.2 km from the Subject Development. It is noted that that the extension into the Town of Caledon along Brampton Transit Route 30 is limited service from Monday to Saturday with longer headways.

The existing bus stops along Airport Road, north of Mayfield Road provides limited access to the Subject Lands, with transit users required to walk to and from the existing bus stops and the Proposed Development. Furthermore, with limited service in the Town of Caledon, there is the opportunity to improve transit frequency as the study area is developed.

## 3.0 Existing Transportation Network Review

### 3.1 Transportation Data

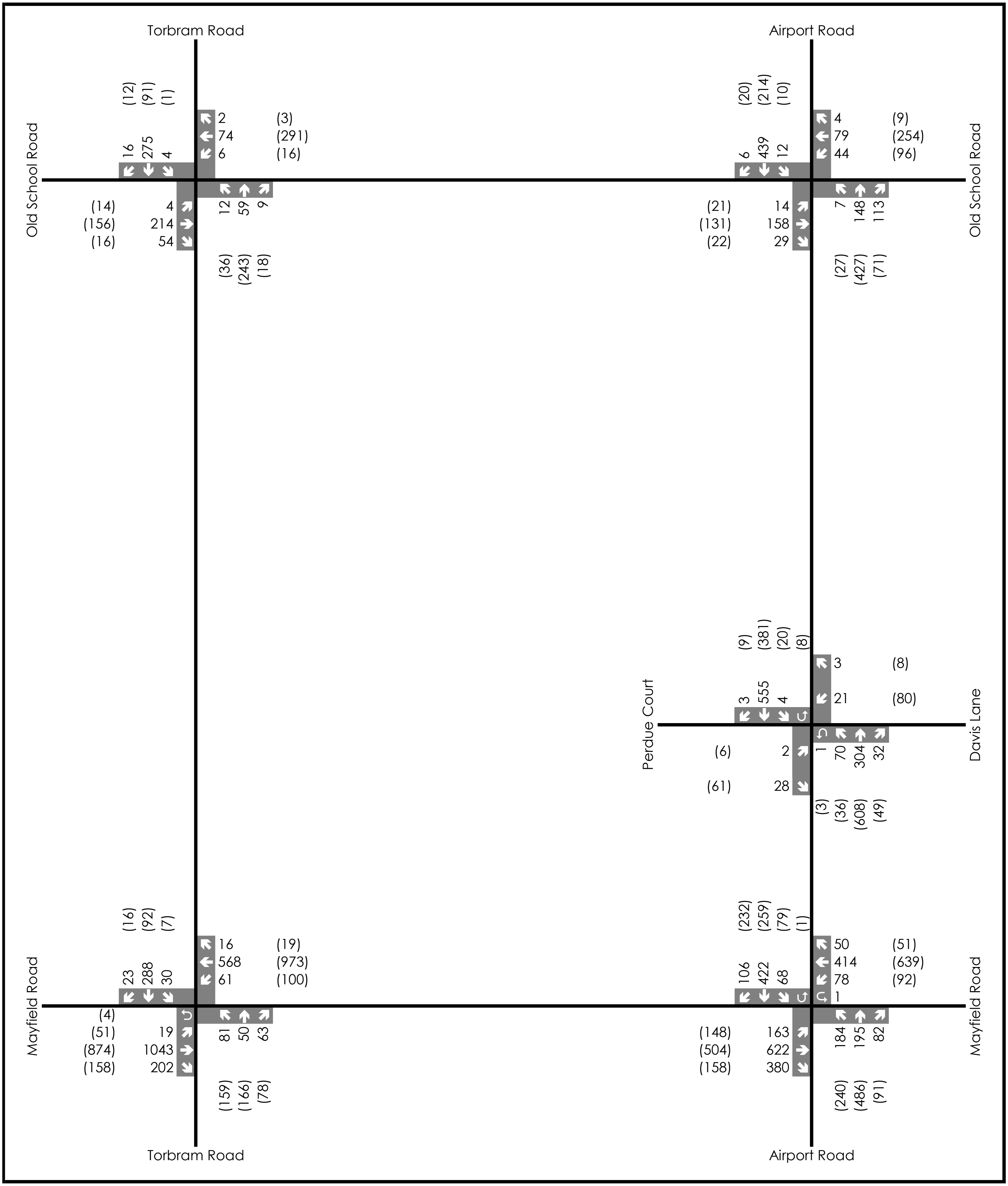
Turning movement counts (TMCs) were conducted by Spectrum Traffic at all the study intersections. The TMCs were conducted on a weekday between 6:00 a.m. to 10:00 a.m., and 3:00 p.m. to 7:00 p.m. to reflect typical a.m. and p.m. commuter peak hours, respectively.

**Table 4** summarizes the TMCs and signal timing plans. **Appendix C** contains the relevant traffic count and signal timing plan data.

**Table 4: Traffic Data**

| Intersection | TMCs | | Signal Timing Plans | |
|---|---|---|---|---|
| | Date | Source | Date | Source |
| Mayfield Road & Airport Road | November 20, 2024 | Spectrum | October 8, 2024 | Region |
| Mayfield Road & Torbram Road | | | October 8, 2024 | Region |
| Torbram Road & Old School Road | | | N/A | N/A |
| Airport Road & Old School Road/Healey Road | | | November 7, 2024 | Region |
| Airport Road & 12333 Airport Road/Tullamore Industrial Street A | | | October 16, 2024 | Region |
| Airport Road & Perdue Court/Davis Lane | | | N/A | N/A |

**Figure 4** outlines the 2024 existing traffic volumes used in assessing the existing conditions.




## Legend

xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes
{xx} Weekend Peak Hour Traffic Volumes

**Tullamore Northwest Employment Area Secondary Plan**

**2024 Existing Traffic Volumes**

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**Figure 4**

Project No. 2278-7228
Date: 04/30/25
Analyst: MY

## 3.2 Traffic Modelling and Assumptions

The intersection operations were modelled in conformance with the Region of Peel's Traffic Impact Study guidelines (n.d.). For parameters where guidelines were not provided, default values were used for the modelling of existing conditions.

Consistent with the Region's guidelines, a peak hour factor of 1.00 was used as well as a lane width of 3.5 m for exclusive movements, and 3.7 m for through and shared movements.

The signal timing plans identified in **Section 3.1** were incorporated into the model for the signalized study intersections, while stop control was applied in the model to the remaining study intersections. For the signalized intersections, no lost time adjustments were applied, consistent with the Region's guidelines.

The assessment of the study intersections is based on the Highway Capacity Manual (HCM) methodology, which prescribes a method for estimating the level of service, control delay, and volume-to-capacity of an intersection along with the approaches and movements of the intersection. HCM 2000 was for all intersections, except for all-way stop controlled (AWSC) intersections in which HCM 2010 was used. **Appendix D** outlines the LOS definitions.

Finally, queuing was analyzed using SimTraffic software. The SimTraffic modelling was run using 3 simulations with 15 min seeding and 60 min recording periods.

## 3.3 Intersection Operations

The section herein reviews the intersection operations under 2044 future background conditions. This assessment includes key metrics including level of service (LOS), control delay and volume-to-capacity (v/c) ratio. **Appendix E** contains the detailed capacity analysis worksheets.

### *3.3.1 Signalized Intersections*

**Table 5** details the 2024 existing traffic operations for the signalized study intersections.

**Table 5: 2024 Existing Traffic Operations – Signalized Intersections**

| Intersection | Movement | LOS[1] | | Delay (s)[2] | | v/c ratio[3] | |
|---|---|---|---|---|---|---|---|
| | | A.M. | P.M. | A.M. | P.M. | A.M. | P.M. |
| **Mayfield Road & Airport Road** | **Overall** | **D** | **D** | **40** | **41** | **0.50** | **0.55** |
| | EBL | B | C | 13 | 26 | 0.34 | 0.41 |
| | EBT | C | C | 20 | 28 | 0.35 | 0.29 |
| | EBR | F | E | 101 | 78 | 0.26 | 0.11 |
| | WBL | B | B | 14 | 13 | 0.22 | 0.20 |
| | WBTR | B | B | 19 | 20 | 0.31 | 0.40 |
| | NBL | D | E | 51 | 66 | 0.77 | 0.85 |
| | NBT | D | E | 41 | 59 | 0.31 | 0.78 |
| | NBR | D | D | 39 | 45 | 0.0 | 0.08 |
| | SBL | D | D | 37 | 44 | 0.27 | 0.50 |
| | SBT | D | D | 50 | 49 | 0.72 | 0.42 |
| | SBR | D | D | 41 | 47 | 0.09 | 0.17 |
| **Mayfield Road & Torbram Road** | **Overall** | **C** | **C** | **21** | **21** | **0.44** | **0.39** |
| | EBL | A | A | 8 | 7 | 0.04 | 0.14 |
| | EBT | B | A | 11 | 10 | 0.35 | 0.28 |
| | EBR | A | A | 10 | 9 | 0.13 | 0.10 |
| | WBL | A | B | 8 | 11 | 0.18 | 0.22 |
| | WBTR | B | B | 11 | 15 | 0.20 | 0.31 |
| | NBL | E | E | 80 | 72 | 0.79 | 0.78 |
| | NBT | D | D | 40 | 54 | 0.14 | 0.54 |
| | NBR | D | D | 40 | 48 | 0.04 | 0.05 |
| | SBL | D | D | 40 | 48 | 0.11 | 0.04 |
| | SBT | E | D | 57 | 50 | 0.79 | 0.30 |
| | SBR | D | D | 39 | 48 | 0.02 | 0.01 |
| **Airport Road & Old School Road/Healy Road** | **Overall** | **C** | **D** | **28** | **38** | **0.54** | **0.71** |
| | EBLTR | E | E | 58 | 56 | 0.76 | 0.70 |
| | WBLTR | D | E | 52 | 55 | 0.60 | 0.83 |
| | NBLTR | B | C | 14 | 29 | 0.29 | 0.66 |
| | SBLT | B | C | 17 | 21 | 0.48 | 0.32 |
| | SBR | B | B | 11 | 17 | 0.00 | 0.01 |

*Note 1: The overall LOS of a signalized intersection is based on the average control delay per vehicle (HCM 2000).*
*Note 2: The overall control delay of a signalized intersection is based on the average control delay per vehicle (HCM 2000).*
*Note 3: All v/c ratios above 0.90 for overall intersections, through movement and shared through/turning movements are in red text. All v/c ratios above 1.00 for exclusive movements are also in red text.*

The signalized study intersections are currently operating at a LOS "D" or better with low to moderate control delays and v/c ratios. As such, these intersections are operating efficiently with reserve capacity for future growth.

### *3.3.2 Unsignalized Intersections*

**Table 6** details the 2024 existing traffic operations for the unsignalized study intersections.

**Table 6: 2024 Existing Traffic Operations – Unsignalized Intersections**

| Intersection | Movement | LOS[1] | | Delay (s)[2] | | v/c ratio[3] | |
|---|---|---|---|---|---|---|---|
| | | A.M. | P.M. | A.M. | P.M. | A.M. | P.M. |
| **Torbram Road & Old School Road** | **Overall** | **B** | **B** | **11** | **13** | **0.44** | **0.47** |
| | EBLTR | B | B | 11 | 11 | 0.37 | 0.29 |
| | WBLTR | A | B | 9 | 13 | 0.12 | 0.47 |
| | SBLTR | A | B | 9 | 13 | 0.12 | 0.46 |
| | NBLTR | B | B | 12 | 13 | 0.44 | 0.22 |
| **Airport Road & Perdue Court/Davis Lane** | **Overall** | **D** | **E** | **27** | **43** | **0.16** | **0.49** |
| | EBL | D | C | 34 | 20 | 0.02 | 0.02 |
| | EBTR | B | A | 12 | 10 | 0.05 | 0.08 |
| | WBL | D | E | 29 | 46 | 0.12 | 0.49 |
| | WBTR | B | B | 11 | 11 | 0.00 | 0.01 |
| | NBL | A | A | 9 | 10 | 0.08 | 0.04 |
| | NBT | A | A | 0 | 0 | 0.09 | 0.18 |
| | NBR | A | A | 0 | 0 | 0.02 | 0.03 |
| | SBL | A | B | 9 | 12 | 0.00 | 0.04 |
| | SBT | A | A | 0 | 0 | 0.16 | 0.11 |
| | SBR | A | A | 0 | 0 | 0.00 | 0.00 |

*Note 1: The overall LOS of a two-way stop-controlled intersection is based on the delay associated with the critical minor road approach (HCM 2000).*
*Note 2: The overall control delay of a stop-controlled intersection is based on the delay associated with the critical minor road approach (HCM 2000).*
*Note 3: The overall v/c ratio for unsignalized intersections is the maximum movement v/c ratio. All v/c ratios above 0.90 for overall intersections, through movement and shared through/turning movements are in red text. All v/c ratios above 1.00 for exclusive movements are also in red text.*

The unsignalized study intersections are currently operating at a LOS "E" or better with low to moderate control delays and v/c ratios. As such, these intersections are operating efficiently with reserve capacity for future growth.

## 3.4 Queueing Assessment

SimTraffic was used to assess the queues within the study road network. The 95th percentile queues were compared against the available storage length to determine if any queues are expected to extend beyond the auxiliary turn lanes. **Appendix F** contains the detailed queueing analysis worksheets.

**Table 7** outlines the results of the 2024 existing queueing assessment.

**Table 7: 2024 Existing Queuing Assessment**

| Intersection | Movement | 95th Percentile Queue Length (m)[1] | | Auxiliary Lane Storage Length (m) |
|---|---|---|---|---|
| | | A.M. | P.M. | |
| **Mayfield Road & Airport Road** | EBL | 50 | 65 | 200 |
| | WBL | 45 | 50 | 50 |
| | WBTR | 60 | 80 | 70 |
| | NBL | 70 | 115 | 95 |
| | NBR | 25 | 25 | 60 |
| | SBL | 35 | 45 | 100 |
| | SBR | 25 | 35 | 105 |
| **Mayfield Road & Torbram Road** | EBL | 10 | 20 | 100 |
| | EBR | 25 | 20 | 125 |
| | WBL | 30 | 35 | 105 |
| | NBL | 35 | 65 | 80 |
| | SBL | 20 | 10 | 80 |
| | SBR | 10 | 10 | 80 |
| **Old School Road & Healy Road** | SBR | 10 | 15 | 50 |
| **Airport Road & Perdue Court/Davis Lane** | WBL | 25 | 25 | 30 |
| | NBL | 20 | 20 | 70 |
| | NBR | 5 | 5 | 65 |
| | SBL | 5 | 20 | 70 |
| | SBR | - | 5 | 60 |

The westbound through-right-turn and northbound left-turn queues at Mayfield Road & Airport Road are expected to extend beyond the storage lane, however, the queue can be accommodated within the provided parallel lane and taper length, which is typical within urban environments.

No other queueing concerns are observed at the study intersections. Overall, queuing is not expected to result in notable operational impacts within the study road network.

## 4.0 Future Transportation Context

The study area is expected to experience significant changes from a transportation perspective with the development of existing greenfield lands. The following documents, including relevant environmental assessments (EA) are reviewed in the subsequent sections:

Completed and Ongoing Planning Studies

- Region of Peel Settlement Area Boundary Expansion Transportation Study (Paradigm, August 2021)
- Region of Peel 2051 Transportation Master Plan (2019)
- Region of Peel Sustainable Transportation Strategy (February 2019)
- Town of Caledon Official Plan (March 2024)
- Town of Caledon Multi-Modal Transportation Master Plan (June 2024)
- Town of Caledon Active Transportation Master Plan (June 2024)

Planned Mobility Infrastructure

- On-Going Projects
  - Mayfield Road EA
  - Airport Road EA
  - Highway 413 Individual EA
- Long-Range Projects
  - Torbram Road Widening
  - Old School Road Widening
  - Healy Road Widening

## 4.1 Completed and Ongoing Planning Studies

### *4.1.1 Region of Peel Settlement Area Boundary Expansion*

The Region of Peel's Settlement Area Boundary Expansion (SABE) was a study conducted in support of the Region of Peel 2051 Official Plan to determine locations of additional community land for inclusion in the plan within the Town of Caledon. The study included various supporting technical studies, such as a transportation study, to understand whether certain new lands were appropriate for inclusion in the Region of Peel urban area. The study culminated with the recommendation of approximately 4,400 ha of new community and employment areas within the Town of Caledon to accommodate future population and employment growth. The Tullamore Northwest Employment Area is in the SABE.

**Appendix G** includes Region of Peel SABE excerpts.

### *4.1.2 Region of Peel 2051 Transportation Master Plan*

The Region is currently undertaking an update to their Transportation Master Plan, a key aspect of which will be the target of 50% sustainable mode share by 2041 Region-wide. This is envisioned by taking a balanced approach to put strategic investment in active transportation and transit infrastructure.

A key approach to this target is that new developments will have to surpass this target to counteract the lower sustainable mode shares associated with existing developments. Therefore, new developments have to be designed to be more walkable, transit oriented complete communities, that help to balance peak hour trip demand via more sustainable modes.

The Region of Peel's Long Range Transportation Plan (LRTP) (2019) outlined mode share targets for the entire Region of Peel as well as each individual municipality. **Table 8** outlines the Region of Peel's mode share targets for both the entire Region as well as the Town of Caledon.

**Table 8: 2041 Region of Peel Mode Share Targets**

| Mode | Region of Peel | Town of Caledon |
|---|---|---|
| Automobile Driver | 50% | 68% |
| Automobile Passenger (Carpool) | 18% | 10% |
| Transit | 17% | 3% |
| Walk | 9% | 4% |
| Cycle | 2% | 1% |
| Other[1] | 4% | 15% |
| **Total** | **100%** | **100%** |
| *Sustainable Transportation* | *50%* | *32%* |

*Note 1: Includes school buses, taxis, and motorcycles.*

The Region's mode share targets outlined herein are appropriate for the study area given the planned transit route extensions as well as the proximity to the future transit station at the Highway 413 Airport Road interchange and Highway 413 transit corridor.

**Appendix G** includes Region of Peel LRTP excerpts.

#### *4.1.3 Region of Peel Sustainable Transportation Strategy*

The Region of Peel's Sustainable Transportation Strategy (February 2018) is an action plan to significantly increase the mode share of non-single occupant vehicle use and provided the basis for the proposed 2041 sustainable transportation mode share target.

The Sustainable Transportation Strategy is accompanied by two supporting implementation plans, the Active Transportation Implementation Plan (Region of Peel, n.d.) and the Transportation Demand Management (TDM) Implementation Plan (Region of Peel, n.d.). Both supporting plans cover implementation between 2018 and 2022.

#### *4.1.4 Town of Caledon Official Plan*

The Future Caledon Official Plan (Town of Caledon, March 2024) has been adopted by the Town's council, however, adoption from the Ministry of Municipal Affairs and Housing is still pending. As such, the Future Caledon Official Plan is not currently in effect. Regardless, the section herein reviews the Future Caledon Official Plan under the lens of a council-adopted Official Plan.

Detailed in the Future Caledon Official Plan is the Town's intention to reduce single-occupant vehicle dependency by supporting and promoting sustainable modes of transportation. The achievement of such will be accomplished through:

- Efficient local and inter-regional transit connections.
- Introduction, implementation, and periodic update of an Active Transportation Master Plan.
- People-first complete streets design principles.
- Parking strategies that balance modal choice objectives with operations needs.
- Support for carpooling and carsharing initiatives.
- Support for the use of zero-emission vehicles through the implementation of more elective vehicle sharing infrastructure.

Schedule C1 of the Future Caledon Official Plan illustrates the Town-wide Transportation Network and shows a grid system of collector roads within the Tullamore Northwest Employment Area. The framework plan being advanced differs from that shown in Schedule C1, as it responds to detailed study undertaken on environmental, transportation and other elements. The future Highway 413 is also shown along the northern boundary of the Alloa Secondary Plan lands.

**Appendix G** includes the relevant excerpts from the Town of Caledon Official Plan.

#### *4.1.5 Town of Caledon Multi-Modal Transportation Master Plan*

The Town of Caledon's Multi-Modal Transportation Master Plan (MMTMP) (June 2024) was adopted by Town Council on June 25, 2024. The MMTMP outlines the future transportation infrastructure, services and policies to support the Town's growth.

MMTMP policies for new development are largely centred around the adoption of a complete streets design principles, which ensure the provision pedestrian and cyclist supportive infrastructure.

The MMTMP also outlines road improvements to be completed by the 2031, 2041 and 2051 horizon years. Future active transportation and transit networks were also proposed with the implementation left for further studies. It is noted that the Town has initiated an addendum to the MMTMP, and the work is currently ongoing. Nevertheless, the information outlined the MMTMP is used herein as no further details regarding the addendum are available at the time of writing. The improvements pertinent to the Tullamore Northwest Employment Area are discussed further in **Section 4.2**

In the effort to transition to more sustainable modes of transportation, the MMTMP also outlines future mode share targets within the Town. **Table 9** outlines the Town of Caledon's mode share targets for the 2041 and 2051 horizon years per the MMTMP.

**Table 9: Town of Caledon Mode Share Targets**

| Mode | 2041 Vision[1] | 2051 Vision |
|---|---|---|
| Automobile Driver | 68% | 60% |
| Automobile Passenger (Carpool) | 10% | 13% |
| Transit | 3% | 6% |
| Walk | 4% | 6% |
| Cycle | 1% | 1% |
| Other[2] | 15% | 14% |
| **Total** | **100%** | **100%** |
| *Sustainable Mode Share* | *32%* | *40%* |

*Note 1: Consistent with the Region of Peel's LRTP (2019).*
*Note 2: Other includes motorcycle and school bus.*

**Appendix G** includes the relevant Town of Caledon MMTMP excerpts.

### *4.1.6 Town of Caledon Active Transportation Master Plan*

The Town of Caledon recently completed the Active Transportation Master Plan (ATMP) (June 2024), which supplements the Town's MMTMP by providing more details and policies objectives concerning sidewalks, dedicated cycling facilities and trails. Notably, the plan identifies a recommended Active Transportation Network for on-road and off-road facilities. In addition, a sidewalk policy, identifying sidewalk framework for when sidewalks should be implemented on one or both sides of roadways, has also been developed as part of this plan.

**Appendix G** contains relevant Town of Caledon ATMP.

## 4.2 Planned Mobility Infrastructure

The section herein outlines the planned mobility infrastructure within the study area and horizon.

### *4.2.1 Mayfield Road*

Mayfield Road is planned to be widened to 6 lanes between Airport Road and Coleraine Drive. Auxiliary turn lanes/centre turn lanes are also proposed at major intersections. The widening will occur in stages, with the entire widening to be built out by 2031. The Region has completed the EA, and the project is in the Detailed Design & Construction phase.

As identified in the EA, a reduction in the speed limit along Mayfield Road to 60 km/h is proposed. A sidewalk and multi-use trail are also proposed on the north and south sides of Mayfield Road, respectively.

**Figure 5** highlights the proposed six-lane cross-section for Mayfield Road, east of Airport Road.

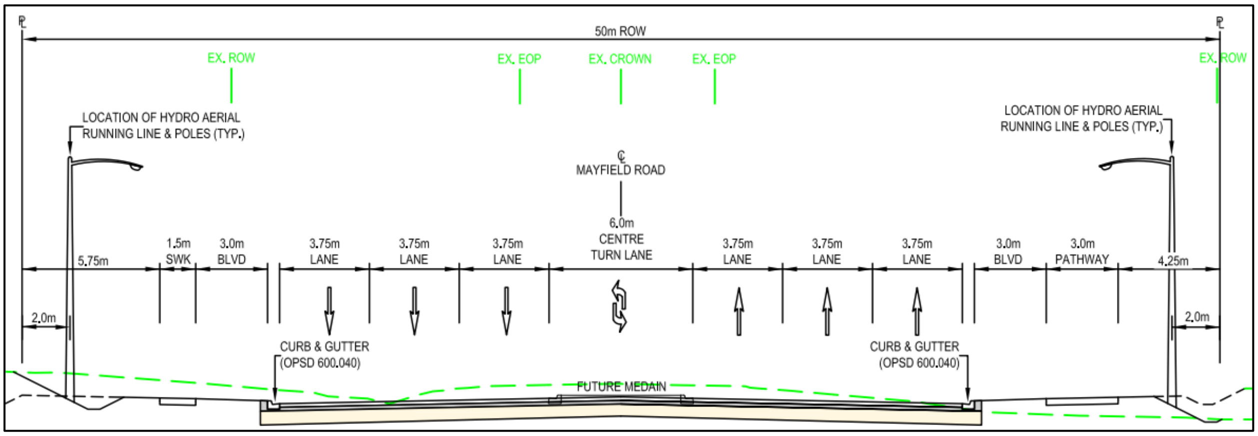


**Figure 5: Proposed Mayfield Road Six-Lane Cross-Section (Region of Peel)**

**Appendix H** includes the relevant Mayfield Road improvement excerpts.

### *4.2.2 Airport Road*

Airport Road is planned to be widened to four lanes from approximately 1000 m north of Mayfield Road to 600 m north of King Street. Auxiliary turn lanes/centre turn lanes are also proposed at major intersections. The widening is expected to be built out by 2031. The Region has completed the EA, and the project is in the Detailed Design & Construction phase.

**Figure 6** highlights the proposed four-lane cross-section for Airport Road.

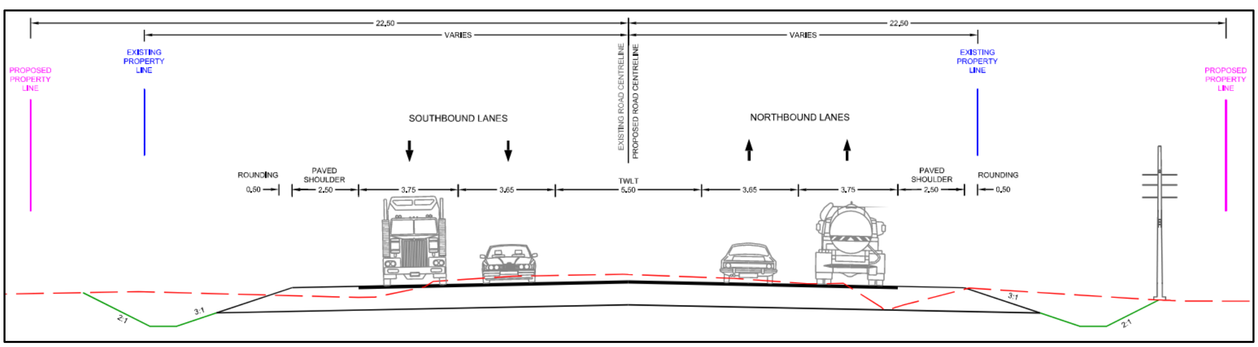


**Figure 6: Proposed Airport Road Four-Lane Cross-Section (Region of Peel)**

It is noted that the EA identifies Airport Road between Mayfield Road & Airport Road as a rural cross-section without any active transportation elements. Airport Road, between approximately 100 m north of Mayfield Road and 610 m south of King Street, is identified as a rural segment. As such, the posted speed limit of 80 km/h north of Airport Road & Perdue Court/Davis Lane is expected to remain unchanged.

As part of the capital improvements along Airport Road, the intersection of Airport Road & Old School Road/Healy Road will be converted to a two-lane roundabout.

**Figure 7** outlines the proposed Airport Road cross section approaching the proposed roundabout.

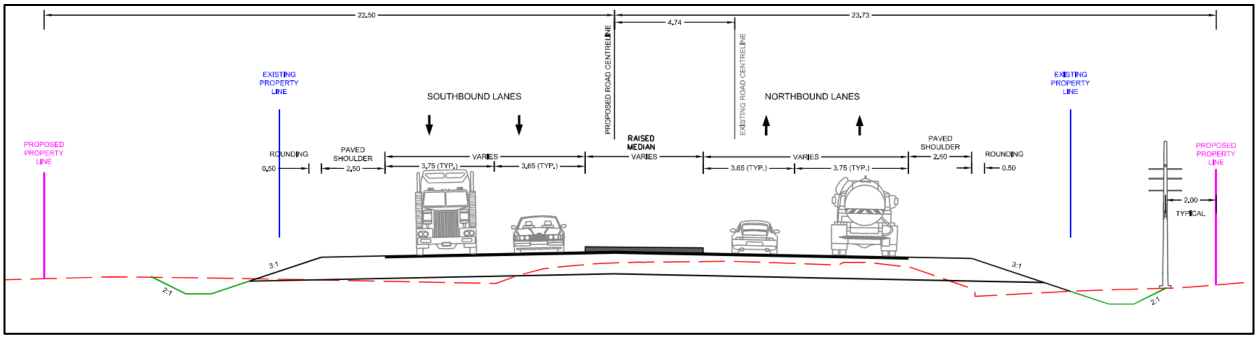



**Figure 7: Proposed Airport Road Roundabout Approach Cross-Section (Region of Peel)**

**Appendix H** includes the relevant Airport Road improvement excerpts.

### *4.2.3 Torbram Road*

As outlined in the Town of Caledon Multi-Modal Transportation Master Plan (MMTMP) (June 2024), Torbram Road is planned to be widened to four travel lanes by 2031. The road widening will span from Mayfield Road to Old School Road and the roadway will also be urbanized.

At the time of writing, no design of Torbram Road has been prepared, and the full cross-section details will be determined at a later date. Nevertheless, the Town's MMTMP outlines a planned right-of-way of 36 m. The recommended 36 m cross-section per the MMTMP for urban four-lane arterials includes a 4.0 m multi-use path on both sides as well as auxiliary turn lanes/centre turn lanes.

**Figure 8** highlights the Town's recommended cross-section for urban four-lane arterials, as outlined in the Town's MMTMP.

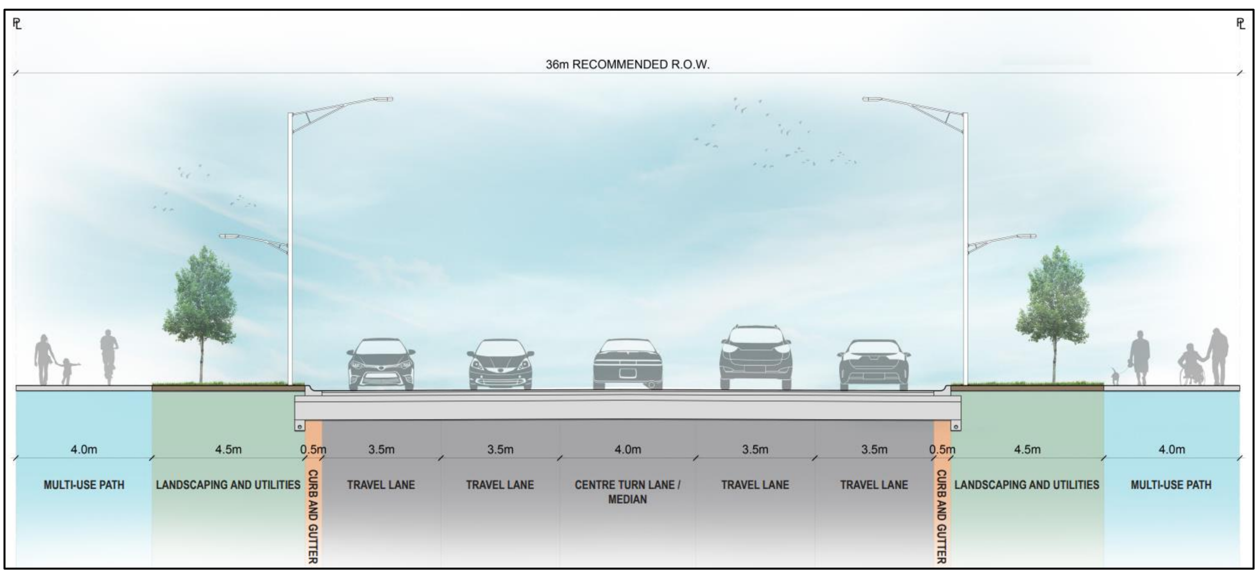



**Figure 8: Urban Four-Lane Arterial Cross-Section (Town of Caledon)**

**Appendix G** includes the relevant Town of Caledon MMTMP excerpts.

#### *4.2.4 Old School Road*

Old School Road is planned to be widened to four travel lanes by 2041. The road widening will span from Winston Churchill Boulevard to Airport Road and will also be urbanized.

Similarly to Torbram Road, no design of Old School Road has been prepared, thus, the full cross-section details will be determined at a later date. The Town's Multi-Modal Transportation Master Plan (MMTMP) outlines a planned 36.0 m right-of-way for Old School Road. The recommended 36 m cross-section for urban four-lane arterials, illustrated in **Figure 8**, includes a 4.0 m multi-use path on both sides as well as auxiliary turn lanes/centre turn lanes.

**Appendix G** includes the relevant Town of Caledon MMTMP excerpts.

#### *4.2.5 Healy Road*

Healy Road is planned to be widened to four travel lanes as well as urbanized by 2041. The road widening is expected to span between Airport Road and The Gore Road.

Consistent with Old School Road, no design has been prepared at the time of writing and the full cross-section details will be determined at a later date. The Town's Multi-Modal Transportation Master Plan (MMTMP) outlines a planned 36.0 m right-of-way for Healy Road. The recommended 36 m cross-section for urban four-lane arterials, included as **Figure 8,** features a 4.0 m multi-use path on both sides as well as auxiliary turn lanes/centre turn lanes.

#### *4.2.6 Highway 413*

Highway 413 is a planned 400-series highway under MTO's jurisdiction along a 52-kilometre corridor in the Greater Toronto Area. In addition to the highway, a transitway is also proposed which will be a separate corridor alongside the highway which will be for exclusive public transit use via bus rapid transit or light rail transit. The corridor will span from a southern terminus at the Highway 401 and Highway 401 interchange in Halton Hills to an eastern terminus at Highway 400 between of Kirby Road and King-Vaughan Road in the City of Vaughan. As a new significant corridor, Highway 413 will connect Halton Region, Peel Region, and York Region.

At the time of writing of this report, the project is in the latter parts of Stage 2 of the Individual EA with Preliminary Design ongoing of the preferred route. Field studies as well as public and Indigenous engagement are also being performed.

Based on the 50% preliminary design, as of November 16, 2023, a partial cloverleaf interchange is planned at Airport Road, north of the Airport Road & Old School Road/Healey Road intersection. A transitway station is also proposed at the Airport Road interchange. There will also be grade separations for the crossings at Torbram Road allowing for north-south travel across the highway. It is noted that a preliminary 90% design for Highway 413 has been prepared, however, no details are publicly available at the time of writing.

**Appendix H** includes the relevant Highway 413 excerpts. **Figure 9** outlines the proposed Highway 413 corridor.

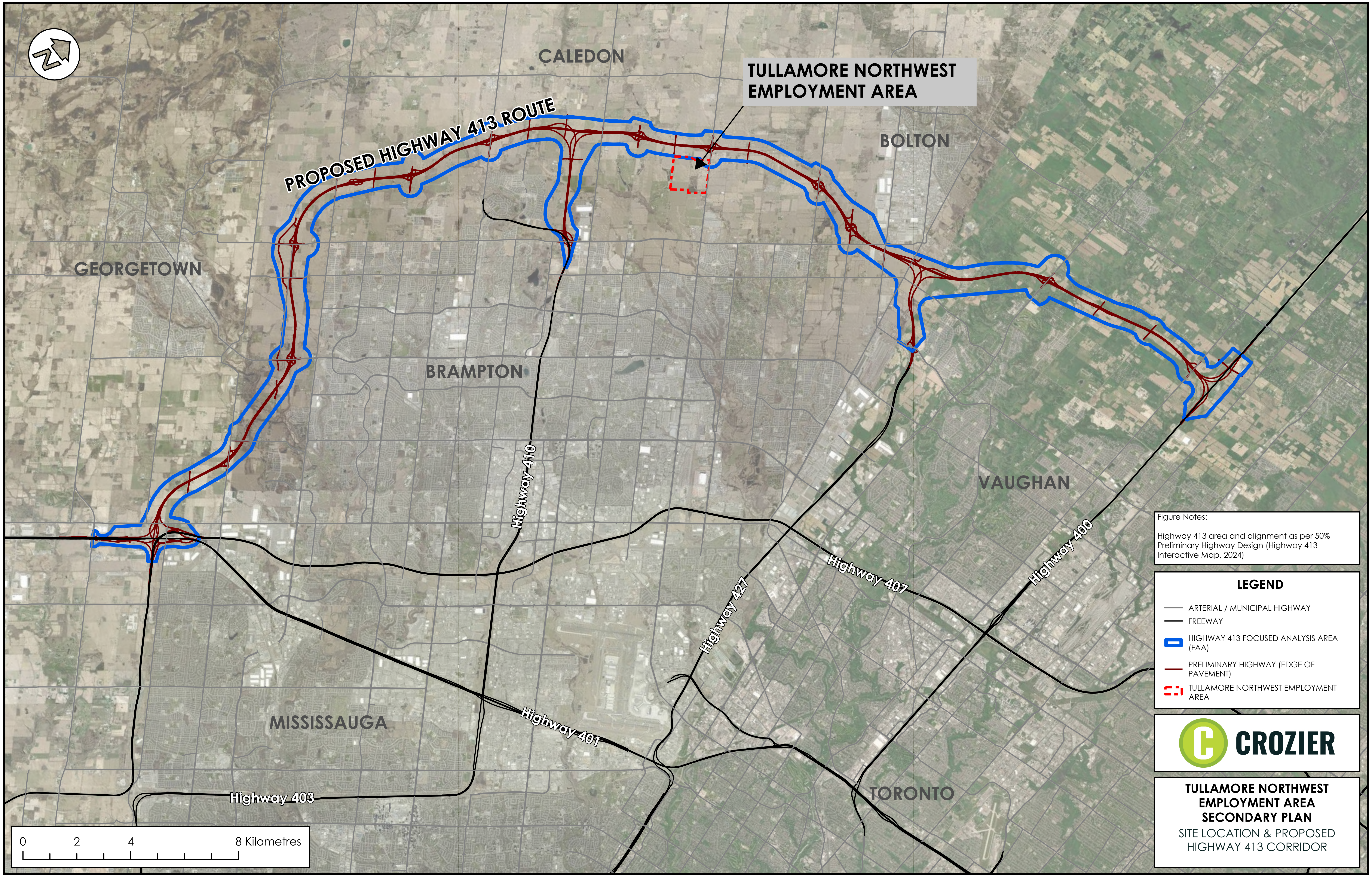

CALEDON
TULLAMORE NORTHWEST
EMPLOYMENT AREA
PROPOSED HIGHWAY 413 ROUTE
BOLTON
GEORGETOWN
BRAMPTON
VAUGHAN
MISSISSAUGA
TORONTO
Highway 410
Highway 407
Highway 400
Highway 427
Highway 401
Highway 403
0 2 4 8 Kilometres
Figure Notes:
Highway 413 area and alignment as per 50% Preliminary Highway Design (Highway 413 Interactive Map, 2024)
LEGEND
ARTERIAL / MUNICIPAL HIGHWAY
FREEWAY
HIGHWAY 413 FOCUSED ANALYSIS AREA (FAA)
PRELIMINARY HIGHWAY (EDGE OF PAVEMENT)
TULLAMORE NORTHWEST EMPLOYMENT AREA
CROZIER
TULLAMORE NORTHWEST EMPLOYMENT AREA SECONDARY PLAN
SITE LOCATION & PROPOSED HIGHWAY 413 CORRIDOR

Figure 9

#### *4.2.7 Summary*

**Table 10** summarizes the planned mobility improvements within the study area.

**Table 10: Planned Mobility Improvements**

| Roadway | Segment | Improvement | Year |
|---|---|---|---|
| Mayfield Road | Airport Road to Coleraine Drive | Widening from 2 to 6 Lanes | 2031 |
| Airport Road | Mayfield Road to King Street | Widening from 2 to 4 Lanes | 2031 |
| Torbram Road | Mayfield Road to Old School Road | Widening from 2 to 4 Lanes | 2031 |
| Old School Road | Winston Churchill Boulevard to Airport Road | Widening from 2 to 4 Lanes | 2041 |
| Healey Road | Airport Road to The Gore Road | Widening from 2 to 4 Lanes | 2041 |
| Highway 413 | Highway 401 to Highway 400 | New 400-Series Highway | By 2031[1] |
| Airport Road & Old School Road/Healy Road | | Roundabout | 2031 |

*Note 1: Construction is scheduled to start in 2026. Assumed to be built out by the 2044 horizon year.*

## 5.0 Future Background Transportation Network Review

This section summarizes the future background conditions of the study road network and provides details relating to growth rates and background developments within the study area. As outlined in **Section 1.3**, the study herein considers the 2044 ultimate horizon years for future analysis.

### 5.1 Future Background Study Area

In addition to the existing study area outlined in **Section 1.3**, the future study area includes future roadways and intersections planned as part of the nearby background developments.

#### *5.1.1 Naming Conventions*

The future background study area includes several future streets planned as part of nearby background developments. As various background developments utilize different street names, however, a naming convention was established herein for consistency.

**Table 11** summarizes the naming conventions used for the proposed roadways included in the background developments.

**Table 11: Future Study Roadways Naming Conventions**

| Designated Street Name | Background Development | | Span |
|---|---|---|---|
| | Name | Street Name | |
| Street A[1] | Tullamore Industrial Business Park | Street A | Tullamore Industrial Street B to Airport Road |
| Street B[2] | Tullamore Industrial Business Park | Street B | Tullamore Industrial Business Park North Limits to Mayfield Road |
| | Countryside Villages Block 48-2 | Street C (west) | Mayfield Road to Countryside Villages Street C (east) |
| Street C[3] | Tullamore Industrial Business Park | Street C | Torbram Road to Tullamore Industrial Street B |
| | Mayfield-Tullamore Secondary Plan | Street D | Tullamore Secondary Plan Street C to Torbram Road |

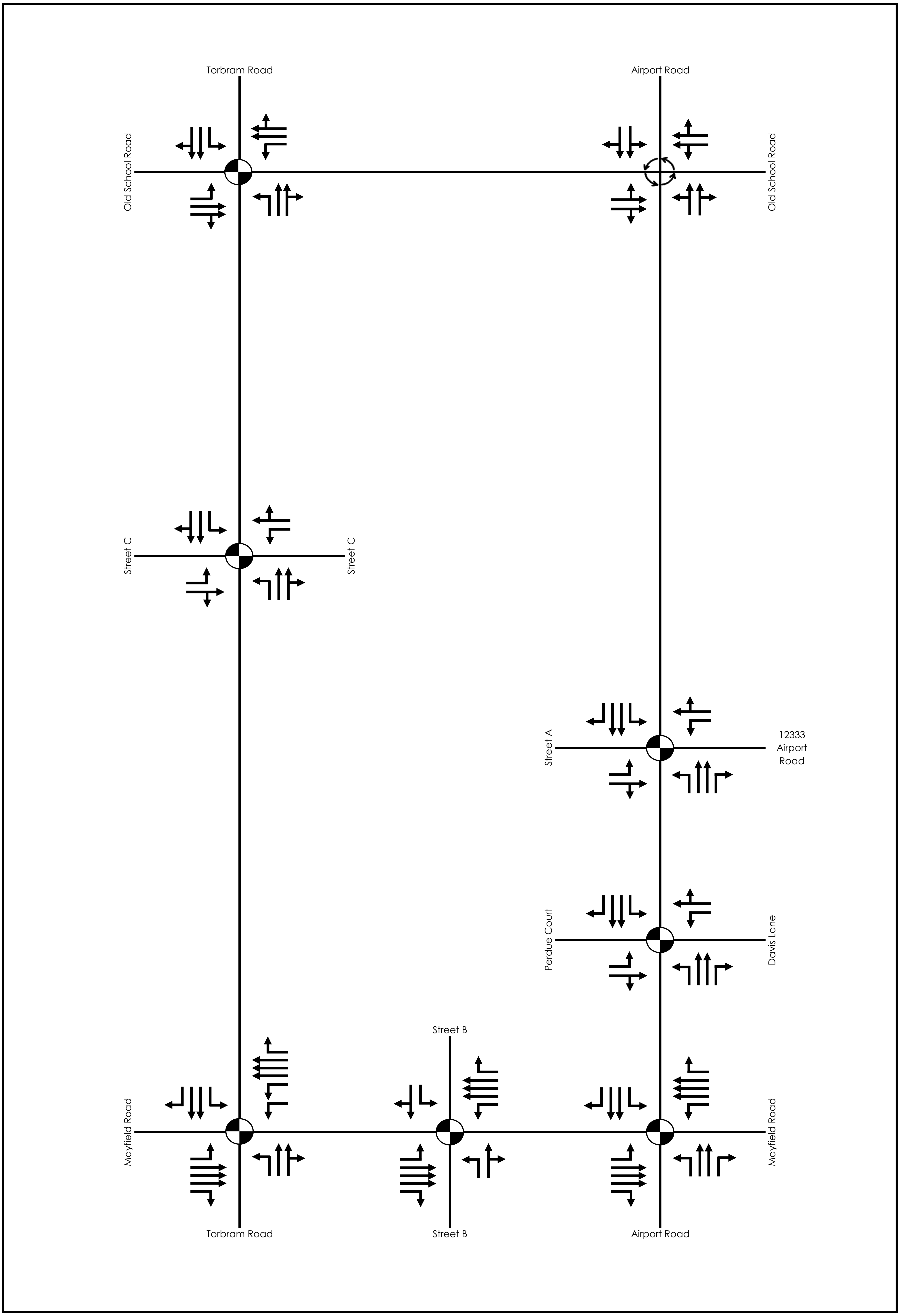
*Note 1: The planned roadway name is Alban Road. For consistency, the roadway is referred as Street A herein.*
*Note 2: The planned roadway name is Ionic Drive. For consistency, the roadway is referred as Street B herein.*
*Note 3: The planned roadway name is Meek Road. For consistency, the roadway is referred to as Street C herein.*

### *5.1.2 Study Intersections*

As confirmed during the Terms of Reference, the following existing and new intersections were reviewed for future background conditions, with the future intersections *italicized*:

- Mayfield Road & Airport Road
- Mayfield Road & Torbram Road
- Torbram Road & Old School Road
- Airport Road & Old School Road/Healy Road
- *Airport Road & Street A/12333 Airport Road*
- Airport Road & Perdue Court/Davis Lane
- *Mayfield Road & Street B*
- *Torbram Road & Street C*

**Figure 10** illustrates the future background study road network.




**Legend**

Signal Control
Stop Control
Roundabout Control

**Tullamore Northwest Employment Area Secondary Plan**

**Future Background Study Road Network**

CROZIER CONSULTING ENGINEERS

**Figure 10**

Project No. 2278-7228
Date: 04/30/25
Analyst. MY

## 5.2 Corridor Growth Rates

Region of Peel staff provided growth rates for regional roads between 2024 and 2041. These growth rates were applied to through movements along the regional study roadways. As the Region did not have growth rates beyond 2041 at the time of writing, the growth rates provided for 2031 to 2041 was applied between 2041 and 2044.

An industry standard annual 2.0% corridor growth rate was applied to through movements along Town collector roads, consistent with the Tullamore Industrial Business Park Transportation Impact Study Update (April 2024).

No growth was applied along the local roadways planned as part of future developments. Based on the configuration of these roadways, any corridor traffic growth would be attributed to the planned buildout of future developments. Moreover, future traffic growth on these roadways is expected to be captured by the background development traffic assignment, as applicable.

**Table 12** summarizes the growth rates applied to the study roadways.

**Table 12: Applied Annual Growth Rates**

| Corridor | 2024 to 2031 | 2031 to 2041 | 2041 to 2044 |
|---|---|---|---|
| Mayfield Road | 1.0% | 0.5% | 0.5% |
| Airport Road | 1.5% | 0.5% | 0.5% |
| Torbram Road | 2.0% | 2.0% | 2.0% |
| Old School Road/Healy Road | 2.0% | 2.0% | 2.0% |
| Street A | 0.0% | 0.0% | 0.0% |
| Street B | 0.0% | 0.0% | 0.0% |
| Street C | 0.0% | 0.0% | 0.0% |

## 5.3 Background Developments

**Table 13** outlines the noted developments proposed near the Subject Site and are included as background developments.

**Table 13: Background Developments**

| No. | Development | Land Use | Statistics | Report |
|---|---|---|---|---|
| 1 | Tullamore Industrial Business Park | Industrial Warehouse | 568,557 $m^2$ | Transportation Impact Study Update (Crozier, April 2024) |
| 2 | 6034 Mayfield Road | Industrial | 44,535 $m^2$ | Transportation Impact Study (WSP, July 2021) |
| 3 | Countryside Villages Block 48-2 | Residential | 3,391 units | Revised Transportation Impact Study (Cole Engineering, May 2017) |
| | | Mixed Use & Commercial | 12,715 $m^2$ | |
| | | Retail | 9.34 ha | |
| | | School | 5 schools | |
| | | Place of Worship | 2 places | |
| 4 | 13846 & 13940 Airport Road | Commercial | 19,741 $m^2$ | Transportation Impact Study (Trans-Plan, January 2022) |
| 5 | Mayfield-Tullamore Secondary Plan | Residential | 7,806 units | Transportation Study (BA Group, August 2024) |
| | | School | 4 schools | |
| | | Retail | ~40,000 $m^2$ | |
| 6 | Town of Caledon Secondary Plan Area F2[1] | Industrial | 902,083 $m^2$ | N/A |

*Note 1: No formal development application nor land use plan has been submitted to the Town at the time of writing. As such, the development yield is assumed.*

**Figure 11** illustrates the background development locations. **Appendix I** includes the relevant background development excerpts.

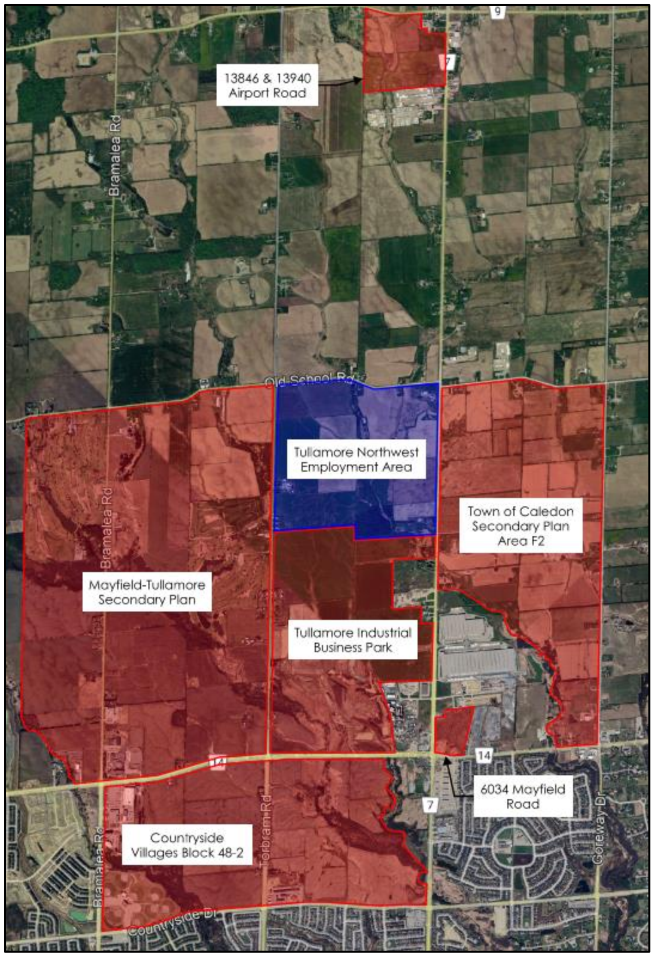



**Figure 11: Background Developments Map**

Tullamore Industrial Business Park

The Tullamore Industrial Business Park, located at 0 & 12245 Torbram Road, proposes an industrial park with 8 buildings comprised of a combined industrial warehouse gross floor area (GFA) of 568,557 $m^2$.

As outlined in the Transportation Impact Study Update (Crozier, April 2024), the background development is expected to generate 923 and 947 two-way vehicle trips during the weekday a.m. and p.m. peak hours, respectively.

6304 Mayfield Road

The background development at 6304 Mayfield Road proposes 2 industrial buildings with a combined GFA of 44,535 $m^2$.

The Transportation Impact Study (WSP, July 2021) outlines that the background development is expected to generate 142 and 109 two-way vehicle trips during the weekday a.m. and p.m. peak hours, respectively.

The Transportation Impact Study did not assign trips north of the proposed accesses, south of Airport Road & Perdue Court/Davis Lane nor west of Airport Road. As such, it is assumed that all trips travelling to/from the north along Airport Road will continue as through movements. Similarly, all trips travelling to/from the west of Airport Road will continue travelling as through movements along Mayfield Road.

Countryside Villages Block 48-2

The Countryside Villages Block 48-2 proposes a new community with 3,391 residential units, 12,715 $m^2$ of mixed use and commercial GFA, and 5 schools as well as a 9.34 ha retail district and 2 places of worship.

The Revised Transportation Impact Study (Cole Engineering, May 2017) outlines that the proposed community is expected to generate 4,452 and 3,880 two-way vehicle trips during the weekday a.m. and p.m. peak hours, respectively.

Since Cole Engineering's report did not assign trips north of Mayfield Road, it is assumed that all trips to/from the north will continue as through movements along Airport Road and Torbram Road, as applicable.

It is noted that the 5603 Mayfield Road, 0 & 11825 Torbram Road development was also listed as a background development in the Terms of Reference; however, this development is within Countryside Villages Block 48-2. Thus, the site generated trips outlined in the Traffic Impact Letter (Cole Engineering, September 2019) was not included in the background development volumes herein.

13846 & 13940 Airport Road

The background development at 13846 & 13940 Airport Road proposes a commercial development comprised of 8 buildings with a combined commercial GFA of 19,741 $m^2$. It is noted that the exact land use for each building is not yet determined.

Based on the Transportation Impact Study (Trans-Plan, January 2022), the development is expected to generate 258 and 627 two-way vehicle trips during the weekday a.m. and p.m. peak hours, respectively.

Trans-Plan's report did not assign trips south of Old School Road/Healy Road nor west of Airport Road. It is assumed that all trips travelling to/from the south of Airport Road & Old School Road/Healy Road will continue as through movements along Airport Road. Similarly, it is assumed that all trips travelling to/from the west of Airport Road & Old School Road/Healy Road will continue as through movements along Old School Road.

Mayfield-Tullamore Secondary Plan

The proposed Mayfield-Tullamore Secondary Plan proposes a community consisting of 7,806 units with supporting institutional, recreational and non-residential uses.

BA Group's Transportation Study (August 2024) in support of the Secondary Plan outlines that the background development is expected to generate 4,050 and 5,025 two-way vehicle trips during the weekday a.m. and p.m. peak hours, respectively.

As the Transportation Study did not assign trips east of Torbram Road, it is assumed that all trips to/from the east will continue as through movements along Old School Road and Mayfield Road, as applicable.

Town of Caledon Secondary Plan Area F2

The Town requested the inclusion of Secondary Plan Area F2 as part of the analysis for future conditions. However, a development application or land use plan has not been submitted to the Town nor made available for review at the time of writing. As such, the background development traffic expected was estimated and applied herein using the methodology outlined below

Based on a review of nearby proposed industrial development, Tullamore Industrial Business Park, the warehouse buildings account for 27% of the total lot area, recognizing that the remaining lands would be required to support features, including stormwater management ponds, roads and surface parking. This percentage was then applied to the estimated area of Secondary Plan Area F2 (~227 ha). Accordingly, it is estimated that Secondary Plan Area F2 will have a total GFA of approximately 6,600,000 $ft^2$.

The Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition (September 2021) was used to estimate the baseline trips generated by Secondary Plan Area F2 based on Land Use Category (LUC) 150 "Industrial Park". **Table 14** outlines the forecasted trip generation for Secondary Plan Area F2.

**Table 14: Secondary Plan Area F2 Trip Generation**

| Land Use | Statistic | Peak Hour | Equation | Trips[1] | | |
|---|---|---|---|---|---|---|
| | | | | In | Out | Total |
| **Total Vehicle Trips** | | | | | | |
| LUC 130 "Industrial Park" | ~6,600,000 $ft^2$ | A.M. | 0.34/1000 $ft^2$ | 1,820 | 427 | 2,247 |
| | | P.M. | 0.34/1000 $ft^2$ | 494 | 1,752 | 2,247 |
| **Heavy Truck Trips** | | | | | | |
| LUC 130 "Industrial Park" | ~6,600,000 $ft^2$ | A.M. | 0.04/1000 $ft^2$ | 119 | 145 | 264 |
| | | P.M. | 0.04/1000 $ft^2$ | 100 | 164 | 264 |
| **Passenger Car Trips** | | | | | | |
| LUC 130 "Industrial Park" | ~6,600,000 $ft^2$ | A.M. | N/A | 1,701 | 281 | 1,982 |
| | | P.M. | N/A | 394 | 1,588 | 1,982 |

*Note 1: Rounding may cause the appearance of discrepancies.*

Secondary Plan Area F2 is expected to generate 2,247 and 2,247 two-way vehicle trips during the weekday a.m. and p.m. peak hours, respectively.

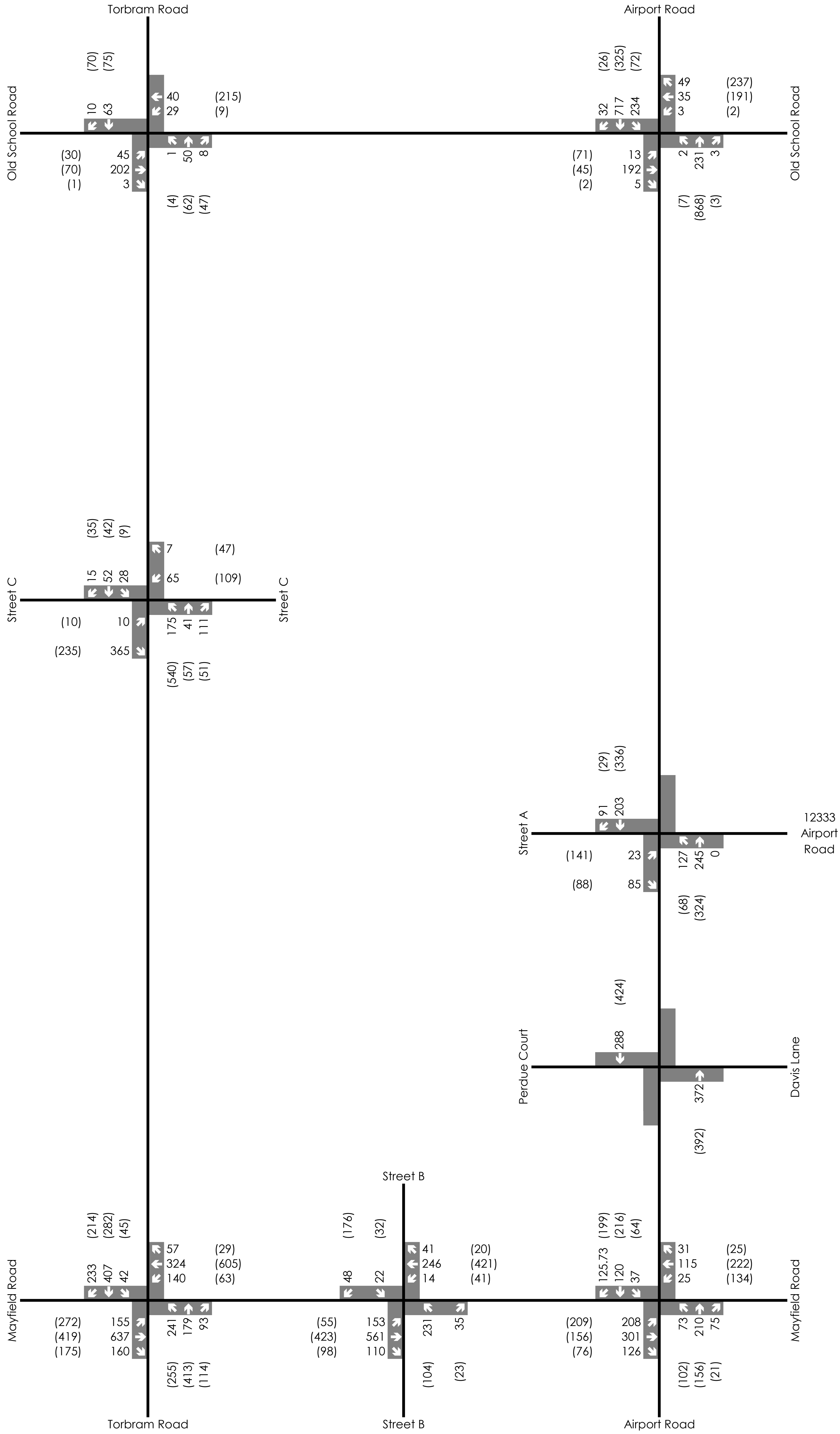
There is currently no proposed collector road network for Secondary Plan Area F2. Thus, for the purpose of trip distribution and trip assignment, a north-south collector road between Old School Road and Mayfield Road, as well as an east-west collector road between Airport Road and Goreway Drive is assumed.

The passenger car trips were distributed to the study road network based on the 2022 Transportation Tomorrow Survey data. The distribution is consistent with that applied to the Subject Development's site generated trips, outlined further in **Section 7.4.1**.
Due to the pre-existing truck restrictions within the study area, it is assumed that the heavy truck trips will access Secondary Plan Area F2 using the Highway 413 as well as Airport Road and Mayfield Road. With no details publicly available regarding the shift in heavy truck distribution upon the buildout of the Highway 413, it is assumed that two-thirds will use Highway 413, with the remaining one-third using Mayfield Road.

Heavy truck trips using Highway 413 is assumed to use the Airport Road interchange. This distribution is consistent with the distribution used for the Subject Development trips, which is detailed further in **Section 7.4.2**.

<u>Summary</u>

**Figure 12** outlines the future background development traffic volumes. **Figure 13** illustrates the 2044 future background traffic volumes.




**Legend**

xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes
{xx} Weekend Peak Hour Traffic Volumes

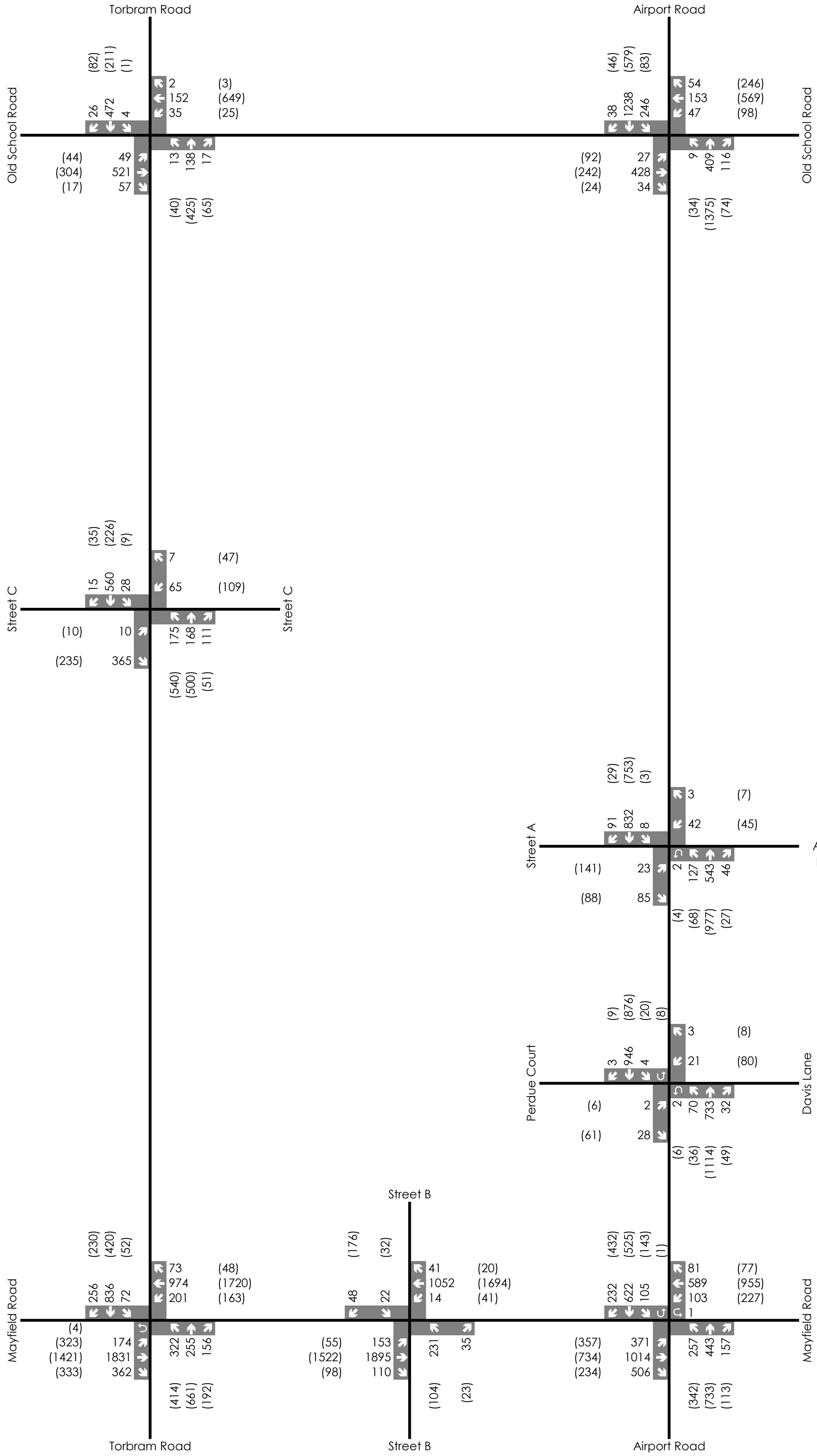
**Tullamore Northwest Employment Area Secondary Plan**

**Background Development Traffic Volumes**

CROZIER CONSULTING ENGINEERS

**Figure 12**

Project No. 2278-7228
Date: 04/30/25
Analyst. MY




**Legend**
- xx A.M. Peak Hour Traffic Volumes
- (xx) P.M. Peak Hour Traffic Volumes
- {xx} Weekend Peak Hour Traffic Volumes

**Tullamore Northwest Employment Area Secondary Plan**

**2044 Future Background Traffic Volumes**

CROZIER CONSULTING ENGINEERS

**Figure 13**

Project No. 2278-7228
Date: 04/30/25
Analyst. MY

## 5.4 Warrants Assessment

Signal warrants were assessed for the unsignalized study intersections under 2044 future background conditions.

The analysis was conducted based on Chapter 4 of the Ontario Traffic Manual Book 12: Traffic Signals (MTO, March 2012). As only peak hour volumes were available, Justification 7: Projected Volumes was selected as the most appropriate warrant to assess the unsignalized study intersections.

The average hour volume was determined using the following formula from Ontario Traffic Manual Book 12:

$$AHV = (amPHV + pmPHV) / 4$$

Where:

AHV = average hour volume
amPHV = a.m. peak hour volume
pmPHV = p.m. peak hour volume

For roadways with operational speeds of 60 km/h or lower, restricted flow was used. Conversely, unrestricted flow was used for roadways with operating speeds above 60 km/h.

**Table 15** summarizes the future background signal warrant analysis.

**Table 15: Future Background Signal Warrant Analysis**

| Intersection | Flow Conditions | Lanes on Major Road | Signal Warranted? |
|---|---|---|---|
| Airport Road & Perdue Court/Davis Lane | Free | 2+ Lanes | No |

Signals are not warranted at Airport Road & Perdue Court/Davis Lane, under future background conditions.

**Appendix J** includes the warrants assessment reports.

## 5.5 Traffic Modelling and Assumptions

The section herein outlines the traffic modelling assumptions used in evaluating future background conditions.

### *5.5.1 Road Geometry*

The Synchro model was updated to reflect the widening of Mayfield Road, Airport Road, Torbram Road and Old School Road within the study area for the 2044 horizon year.

Mayfield Road and Airport Road was modelled based on the geometry outlined in the most recent detailed design drawings prepared as part of the Mayfield Road and Airport Road Environmental Assessments, respectively. Furthermore, intersections proposed along Airport Road and Mayfield Road as part of the Tullamore Industrial Business Park were modelled based on the 60% detailed design drawings submitted.

As outlined in **Section 4.2.3** and **Section 4.2.4**, the design for the widening of Torbram Road and Old School Road is not publicly available at the time of writing. For modelling purposes, a two-way left-turn lane, through lane and through-right lane is proposed along the Torbram Road and Old School Road corridors, consistent with the Town's recommended cross-section. A storage length of 55 m is assumed for the two-way left-turn lane.

Auxiliary turn lanes for future study intersections were also recommended as part of the background developments. **Table 16** outlines the planned auxiliary turn lane storage under future background conditions.

**Table 16: Future Background Auxiliary Turn Lane Storage Length**

<table>
<tr><th>Intersection</th><th>Movement</th><th>Storage Length</th><th>Source</th></tr>
<tr><td rowspan="3">Airport Road & Street A/12333 Airport Road</td><td>EBL</td><td>55 m</td><td rowspan="3">Tullamore Industrial Business Park</td></tr>
<tr><td>NBL</td><td>120 m</td></tr>
<tr><td>SBR</td><td>100 m</td></tr>
<tr><td rowspan="6">Mayfield Road & Street B</td><td>EBL</td><td>160 m</td><td rowspan="3">Tullamore Industrial Business Park</td></tr>
<tr><td>WBR</td><td>130 m</td></tr>
<tr><td>SBL</td><td>55 m</td></tr>
<tr><td>EBR</td><td>30 m</td><td rowspan="3">Countryside Villages Block 48-2</td></tr>
<tr><td>WBL</td><td>105 m</td></tr>
<tr><td>NBL</td><td>55 m</td></tr>
<tr><td rowspan="4">Torbram Road & Street C</td><td>EBL</td><td>55 m</td><td rowspan="2">Tullamore Industrial Business Park</td></tr>
<tr><td>WBL</td><td>55 m</td></tr>
<tr><td>NBL[1]</td><td>55 m</td><td rowspan="2">Mayfield-Tullamore Secondary Plan</td></tr>
<tr><td>SBL[1]</td><td>55 m</td></tr>
</table>

*Note 1: Auxiliary turn lane storage of 55 m assumed for Torbram Road corridor.*

Changes to the existing intersection control were modelled based on planned background improvements and developments as well as to support future background traffic. **Table 17** summarizes the intersection control upgrades under future background conditions.

**Table 17: Future Background Intersection Control**

| Intersection | Intersection Control Type | | Source |
|---|---|---|---|
| | Existing | Planned | |
| Airport Road & Old School Road/Healy Road | Signal | Roundabout | Airport Road Environmental Assessment |
| Torbram Road & Old School Road | All-Way Stop | Signal | Mayfield-Tullamore Secondary Plan |
| Airport Road & Perdue Court/Davis Lane | Two-Way Stop | Signal | N/A[1] |
| Mayfield Road & Street B | N/A | Signal | Tullamore Industrial Business Park |
| Torbram Road & Street C | N/A | Signal | Mayfield-Tullamore Secondary Plan |

*Note 1: Recommended to support future background traffic operations.*

### 5.5.2 Modelling Parameters

Consistent with existing conditions, PHFs of 1.00 were kept unchanged for all Town and Region roads, per the Region's guidelines.

The signal timing plan splits for all signalized study intersections were optimized. Signals along the Mayfield Road and Airport Road corridor were modelled as actuated-coordinated, with all other signalized study intersections modelled as semi actuated-uncoordinated.

**Table 18** outlines the modelled cycles lengths for the signalized study intersections.

**Table 18: Modelled Cycle Lengths**

| Intersection | Cycle Length | | Source |
|---|---|---|---|
| | A.M. | P.M. | |
| Torbram Road & Old School Road | 100 s | 100 s | Mayfield-Tullamore Secondary Plan |
| Airport Road & Perdue Court/Davis Lane | 120 s | 120 s | Assumed[1] |
| Mayfield Road & Street B | 120 s | 135 s | Tullamore Industrial Business Park |
| Torbram Road & Street C | 100 s | 100 s | Mayfield-Tullamore Secondary Plan |

*Note 1: Consistent with existing cycle lengths for Airport Road & Street A/12333 Airport Road intersection.*

It is noted that the Mayfield-Tullamore Secondary Plan Transportation Study (BA Group, August 2024) recommended a 200 s cycle length along the Mayfield Road corridor to accommodate the high traffic volumes expected. While the increased cycle length is expected to improve the operations of critical movements, this cycle length is atypical for the Mayfield Road corridor. Thus, the existing cycle lengths of 120 s and 135 s for the weekday a.m. and p.m. peak hours, respectively, was maintained herein for consistency.

The heavy vehicle percentages were updated in the model to reflect the increased heavy vehicle traffic expected as part of the background developments.

### *5.5.3 Roundabout Analysis*

As outlined in the Airport Road Environmental Assessment, the signalized intersection of Airport Road & Old School Road/Healy Road is also planned to be converted to a roundabout. Roundabout analysis was completed for Airport Road & Old School Road/Healy Road intersections using ARACDY Junctions 8 software.

The roundabout geometry was modelled based on the 60% design drawings of Airport Road. It is noted that the 60% design drawings outline the west approach (Old School Road) to be one lane. Since the preparation of these design drawings, the Town has identified that Old School Road will be widened to four lanes by 2041. As such, a two-lane approach is assumed for Old School Road. Furthermore, the east approach (Healy Road) included one lane with a right-turn by-pass. However, given the future four lane cross section for Old School Road, a two-lane approach is assumed instead.

**Table 19** outlines the roundabout geometry used in the modelling.

**Table 19: Airport Road & Old School Road/Healy Road Roundabout Geometry**

| Parameter | Airport Road (North Approach) | Airport Road (South Approach) | Healy Road (East Approach) | Old School Road (West Approach) |
|---|---|---|---|---|
| Approach Road Half-Width | 7.4 m | 7.4 m | 7.4 m | 7.4 m |
| Entry Width | 10.0 m | 9.8 m | 10.0 m | 9.8 m |
| Effective Flare Length | 30 m | 30 m | 30 m | 30 m |
| Entry Radius | 28 m | 32 m | 28 m | 38 m |
| Inscribed Circle Diameter | 55 m | 55 m | 55 m | 55 m |
| Conflict (Entry) Angle | 12 degrees | 8 degrees | 26 degrees | 11 degrees |

In addition, a y-intercept value of 90% was used, consistent with the analysis outlined in the Airport Road Environmental Assessment and the Tullamore Industrial Business Park Transportation Impact Study Update (Crozier, April 2024). This accounts for motorist unfamiliarity with roundabouts in the Greater Toronto Area compared to in the United Kingdom.

**Appendix H** outlines the relevant Airport Road Environmental Assessment excerpts.

## 5.6 Intersection Operations

The section herein reviews the intersection operations under 2044 future background conditions. This assessment includes key metrics including level of service (LOS), control delay and volume-to-capacity (v/c) ratio.

**Appendix E** contains the detailed capacity analysis worksheets.

### *5.6.1 Signalized Intersections*

**Table 20** details the 2044 future background traffic operations for the signalized study intersections.

**Table 20: 2044 Future Background Traffic Operations – Signalized Intersections**

| Intersection | | Movement | LOS[1] | | Delay (s)[2] | | v/c ratio[3] | |
|---|---|---|---|---|---|---|---|---|
| | | | A.M. | P.M. | A.M. | P.M. | A.M. | P.M. |
| **Mayfield Road & Airport Road** | | **Overall** | **C** | **D** | **33** | **49** | **0.97** | **1.06** |
| | | EBL | D | F | 37 | 106 | 0.94 | 1.04 |
| | | EBT | B | C | 12 | 26 | 0.49 | 0.41 |
| | | EBR | C | D | 32 | 52 | 0.57 | 0.21 |
| | | WBL | C | C | 27 | 32 | 0.51 | 0.63 |
| | | WBT | C | D | 32 | 43 | 0.37 | 0.61 |
| | | WBR | C | C | 28 | 35 | 0.07 | 0.08 |
| | | NBL | E | F | 63 | 83 | 0.91 | 1.00 |
| | | NBT | C | D | 35 | 48 | 0.46 | 0.74 |
| | | NBR | C | C | 30 | 35 | 0.12 | 0.11 |
| | | SBL | D | D | 38 | 46 | 0.37 | 0.72 |
| | | SBT | D | D | 49 | 47 | 0.67 | 0.61 |
| | | SBR | D | D | 45 | 49 | 0.34 | 0.53 |
| **Mayfield Road & Torbram Road** | **Signal** | **Overall** | **E** | **E** | **58** | **59** | **1.13** | **1.20** |
| | | EBL | D | F | 43 | 141 | 0.75 | 1.14 |
| | | EBT | E | D | 68 | 37 | 1.03 | 0.74 |
| | | EBR | C | C | 8 | 27 | 0.48 | 0.22 |
| | | WBL | F | E | 270 | 58 | 1.43 | 0.64 |
| | | WBT | C | E | 22 | 70 | 0.59 | 1.04 |
| | | WBR | A | C | 2 | 29 | 0.11 | 0.03 |
| | | NBL | F | F | 106 | 138 | 1.09 | 1.16 |
| | | NBTR | B | D | 16 | 37 | 0.27 | 0.63 |
| | | SBL | C | D | 35 | 48 | 0.25 | 0.37 |
| | | SBT | D | D | 44 | 42 | 0.77 | 0.43 |
| | | SBR | B | D | 20 | 39 | 0.45 | 0.19 |
| | **Signal Opt. #1** | **Overall** | **D** | **E** | **54** | **63** | **1.04** | **1.15** |
| | | EBL | C | F | 25 | 131 | 0.58 | 1.10 |
| | | EBT | D | D | 51 | 38 | 0.94 | 0.72 |
| | | EBR | C | C | 29 | 28 | 0.25 | 0.21 |
| | | WBL | F | E | 117 | 71 | 0.96 | 0.65 |
| | | WBT | D | F | 36 | 80 | 0.57 | 1.04 |
| | | WBR | C | C | 28 | 31 | 0.05 | 0.03 |
| | | NBL | F | F | 126 | 122 | 1.10 | 0.11 |
| | | NBTR | C | D | 29 | 40 | 0.25 | 0.63 |
| | | SBL | D | D | 48 | 53 | 0.30 | 0.38 |

| Intersection | Movement | LOS[1] | | Delay (s)[2] | | v/c ratio[3] | |
|---|---|---|---|---|---|---|---|
| | | A.M. | P.M. | A.M. | P.M. | A.M. | P.M. |
| | SBT | E | D | 71 | 48 | 0.93 | 0.46 |
| | SBR | D | D | 45 | 43 | 0.25 | 0.17 |
| **Torbram Road & Old School Road** | **Overall** | **B** | **B** | **17** | **17** | **0.37** | **0.40** |
| | EBL | C | C | 22 | 22 | 0.17 | 0.32 |
| | EBTR | C | C | 27 | 21 | 0.69 | 0.35 |
| | WBL | C | B | 23 | 20 | 0.24 | 0.09 |
| | WBTR | C | C | 22 | 26 | 0.18 | 0.71 |
| | NBL | A | A | 7 | 8 | 0.03 | 0.07 |
| | NBTR | A | A | 7 | 9 | 0.07 | 0.25 |
| | SBL | A | A | 7 | 7 | 0.01 | 0.00 |
| | SBTR | A | A | 8 | 8 | 0.24 | 0.14 |
| **Airport Road & Street A/12333 Airport Road** | **Overall** | **A** | **B** | **9** | **12** | **0.39** | **0.47** |
| | EBL | D | D | 44 | 41 | 0.14 | 0.47 |
| | EBTR | D | D | 49 | 44 | 0.07 | 0.07 |
| | WBL | D | E | 50 | 60 | 0.38 | 0.52 |
| | WBTR | D | E | 50 | 58 | 0.00 | 0.00 |
| | NBL | A | A | 8 | 8 | 0.41 | 0.23 |
| | NBT | A | A | 4 | 8 | 0.25 | 0.45 |
| | NBR | A | A | 3 | 8 | 0.04 | 0.03 |
| | SBL | A | A | 5 | 6 | 0.02 | 0.01 |
| | SBT | A | A | 6 | 7 | 0.37 | 0.37 |
| | SBR | A | A | 4 | 8 | 0.07 | 0.02 |
| **Airport Road & Perdue Court/Davis Lane** | **Overall** | **A** | **A** | **5** | **8** | **0.40** | **0.48** |
| | EBL | D | D | 54 | 51 | 0.05 | 0.05 |
| | EBTR | D | D | 53 | 51 | 0.03 | 0.04 |
| | WBL | D | D | 52 | 47 | 0.31 | 0.46 |
| | WBTR | D | D | 49 | 43 | 0.00 | 0.01 |
| | NBL | A | A | 3 | 6 | 0.21 | 0.16 |
| | NBT | A | A | 3 | 8 | 0.31 | 0.47 |
| | NBR | A | A | 3 | 5 | 0.03 | 0.06 |
| | SBL | A | A | 3 | 5 | 0.01 | 0.15 |
| | SBT | A | A | 3 | 4 | 0.39 | 0.38 |
| | SBR | A | A | 3 | 5 | 0.00 | 0.01 |
| **Mayfield Road & Street B** | **Overall** | **C** | **B** | **29** | **16** | **0.66** | **0.56** |
| | EBL | C | C | 27 | 26 | 0.52 | 0.36 |
| | EBT | C | B | 33 | 12 | 0.59 | 0.46 |
| | EBR | D | B | 38 | 14 | 0.08 | 0.07 |
| | WBL | B | A | 16 | 9 | 0.14 | 0.22 |
| | WBT | B | B | 17 | 12 | 0.42 | 0.55 |
| | WBR | B | A | 12 | 8 | 0.03 | 0.02 |
| | NBL | D | D | 49 | 53 | 0.72 | 0.58 |
| | NBTR | D | D | 41 | 51 | 0.02 | 0.01 |

| Intersection | Movement | LOS[1] | | Delay (s)[2] | | v/c ratio[3] | |
|---|---|---|---|---|---|---|---|
| | | A.M. | P.M. | A.M. | P.M. | A.M. | P.M. |
| | SBL | D | D | 50 | 53 | 0.19 | 0.23 |
| | SBTR | D | E | 51 | 56 | 0.04 | 0.14 |
| **Torbram Road & Street C** | **Overall** | **B** | **B** | **16** | **18** | **0.39** | **0.74** |
| | EBL | C | D | 30 | 36 | 0.04 | 0.06 |
| | EBTR | C | D | 34 | 37 | 0.47 | 0.14 |
| | WBL | C | C | 28 | 33 | 0.38 | 0.53 |
| | WBTR | C | C | 24 | 28 | 0.00 | 0.03 |
| | NBL | B | C | 11 | 21 | 0.36 | 0.78 |
| | NBTR | A | A | 8 | 8 | 0.12 | 0.24 |
| | SBL | A | A | 7 | 7 | 0.04 | 0.02 |
| | SBTR | A | A | 9 | 7 | 0.27 | 0.12 |

*Note 1: The overall LOS of a signalized intersection is based on the average control delay per vehicle (HCM 2000).*
*Note 2: The overall control delay of a signalized intersection is based on the average control delay per vehicle (HCM 2000).*
*Note 3: All v/c ratios above 0.90 for overall intersections, through movement and shared through/turning movements are in red text. All v/c ratios above 1.00 for exclusive movements are also in red text.*

Mayfield Road & Airport Road is expected to operate with a LOS “D” or better with a maximum control delay and v/c ratio of 49 s and 1.06, respectively. While the intersection is operating above the theoretical capacity, the intersection is still operating efficiently with a moderate LOS and control delay.

The signalized intersection of Mayfield Road & Torbram Road is expected to operate at a LOS “E” with a maximum control delay and v/c ratio of 59 s and 1.20, respectively. As the intersection is expected to operate above the theoretical capacity, the cycle length can be increased to 145 s to improve operations. With the increased cycle length (Signal Optimized #1), the intersection is expected to operate at a LOS “E” or better with a maximum control delay of 63 s and a maximum v/c ratio of 1.15. It is noted that the increased cycle length results in an increase in control delay of 4 s. Despite the increased intersection control delay, the observed control delay of critical movements is significantly decreased. Given the high control delays observed, increasing the cycle length to allocate additional time to the critical movements is appropriate as the corresponding impact to the through movements is not significant.

These conditions expected at Mayfield Road & Airport Road and Mayfield Road & Torbram Road, with v/c ratios above 1.0, are typical in high volume urban areas during the peak periods within the Greater Toronto and Hamilton Area, including the Mayfield Road corridor. Given these findings, it is recommended that the Region monitor traffic operations along the Mayfield Road corridor within the study area, in the future and revise the associated signal timing plans, as required, to maintain safe and efficient traffic operations. The recommended monitoring will also confirm the rate at which projected traffic growth actually materializes, and to confirm if further improvements, including signal optimizations, are required.

The remaining study intersections are operating efficiently at a LOS “C” or better during the weekday a.m. and p.m. peak hours. These intersections are expected to have low to moderate control delays and v/c ratios, with no notable operational concerns anticipated.

### *5.6.2 Roundabout Intersections*

**Table 21** details the 2044 future background traffic operations for the roundabout study intersections.

**Table 21: 2044 Future Background Traffic Operations – Roundabout Intersections**

| Intersection | Approach | LOS[1] | | Delay (s) | | v/c ratio[1] | | 95th %ile Queue[2] | |
|---|---|---|---|---|---|---|---|---|---|
| | | A.M. | P.M. | A.M. | P.M. | A.M. | P.M. | A.M. | P.M. |
| **Airport Road & Old School Road/Healy Road** | **Overall[3]** | **A** | **A** | **4** | **6** | **0.66** | **0.73** | **-** | **-** |
| | EB | A | A | 5 | 2 | 0.38 | 0.19 | 3 | 1 |
| | WB | A | B | 2 | 10 | 0.12 | 0.73 | ~1 | 13 |
| | NB | A | A | 3 | 5 | 0.32 | 0.70 | 2 | 8 |
| | SB | A | A | 4 | 3 | 0.66 | 0.39 | 7 | 3 |

*Note 1: Ratio of flow to capacity (RFC). All RFCs greater than 0.85 are outlined in red.*
*Note 2: Evaluated using Entry Lane Analysis mode. 95th percentile queues are recorded in passenger car equivalents. Rounded to the nearest vehicle.*
*Note 3: The overall RFC ratio is based on the maximum RFC of all movements at the intersection.*

Under 2044 future background conditions, the Airport Road & Old School Road/Healy Road intersection is expected to operate at a LOS "A". The roundabout is anticipated to operate with low control delays and moderate v/c ratios, indicating the intersection is efficiently with reserve capacity for future growth.

## 5.7 Queueing Assessment

Consistent with existing conditions, SimTraffic was used to assess the queues within the study road network. The 95th percentile queues were compared against the available storage length to determine if any queues are expected to extend beyond the auxiliary turn lanes. **Appendix F** contains the detailed queueing analysis worksheets.

For simplicity, the queueing assessment was conducted based on the optimized future total conditions.

**Table 22** outlines the results of the 2044 future background queueing assessment.

### Table 22: 2044 Future Background Queueing Assessment

| Intersection | Movement | $95^{th}$ Percentile Queue Length (m)[1] | | Auxiliary Lane Storage Length (m) |
|---|---|---|---|---|
| | | A.M. | P.M. | |
| **Mayfield Road & Airport Road** | EBL | 310 | 325 | 200 |
| | EBR | 70 | 40 | 60 |
| | WBL | 45 | 80 | 165 |
| | WBR | 20 | 20 | 60 |
| | NBL | 90 | 205 | 95 |
| | NBR | 40 | 90 | 60 |
| | SBL | 35 | 80 | 100 |
| | SBR | 35 | 95 | 105 |
| **Mayfield Road & Torbram Road** | EBL | 195 | 180 | 100 |
| | EBR | 220 | 70 | 125 |
| | WBL | 80 | 40 | 75[2] |
| | | 85 | 185 | |
| | WBR | 20 | 140 | 60 |
| | NBL | 185 | 150 | 80 |
| | SBL | 140 | 45 | 80[3] |
| | SBR | 180 | 50 | 80 |
| **Torbram Road & Old School Road** | EBL | 85 | 25 | 55[3] |
| | WBL | 20 | 15 | 55[3] |
| | NBL | 10 | 15 | 55[3] |
| | SBL | 5 | 5 | 55[3] |
| **Airport Road & Street A/12333 Airport Road** | EBL | 20 | 75 | 55[3] |
| | NBL | 40 | 70 | 120 |
| | NBR | 10 | 45 | 145 |
| | SBL | 10 | 5 | 80[3] |
| | SBR | 10 | 10 | 100 |
| **Airport Road & Perdue Court/Davis Lane** | WBL | 25 | 40 | 30 |
| | NBL | 20 | 25 | 70 |
| | NBR | 5 | 15 | 65 |
| | SBL | 5 | 25 | 70 |
| | SBR | 5 | 5 | 60 |
| **Mayfield Road & Street B** | EBL | 55 | 35 | 160 |
| | EBR | 30 | 30 | 30 |
| | WBL | 15 | 20 | 105 |
| | WBR | 15 | 15 | 130 |
| | NBL | 75 | 45 | 55 |
| | SBL | 20 | 30 | 55[3] |
| **Torbram Road & Street C** | EBL | 10 | 10 | 55 |
| | WBL | 25 | 35 | 55[3] |
| | NBL | 40 | 75 | 55[3] |
| | SBL | 15 | 5 | 55[3] |

*Note 1: $95^{th}$ percentile queue length rounded up to the nearest 5 m.*

*Note 2: Dual westbound left-turn lane.*
*Note 3: Two-way left-turn lane.*

The queues for some movements are expected to extend beyond the storage length. However, these queues for the following movements and intersections can be accommodated within the provided taper length or two-way left-turn lane, accordingly:

- Mayfield Road & Airport Road (EBR)
- Torbram Road & Old School Road (EBL)
- Airport Road & Street A/12333 Airport Road (EBL)
- Airport Road & Perdue Court/Davis Lane (WBL)
- Mayfield Road & Street B (NBL)
- Torbram Road & Street C (NBL)

Based on the operational and queueing analysis, it was determined that the following extended queues are due to traffic starvation, which is further discussed in **Section 5.7.1**:

- Mayfield Road & Airport Road (EBL, NBL NBR)
- Torbram Road & Mayfield Road (EBL, EBR, WBL, WBR, NBL, SBL, SBR)

### *5.7.1 Starvation Impact Analysis*

Several auxiliary turn movements experienced extended queues because of traffic starvation. The through queues extend beyond the auxiliary turn lane length, blocking the turning traffic from entering the auxiliary turn lane. Thus, the queue lengths initially observed extend beyond the provided storage but were not reflective of the actual queue demands associated with the auxiliary turn lane.

The Transportation Association of Canada's Geometric Design Guide for Canadian Roads (June 2017) does not have guidelines for auxiliary left-turn lane storages for signalized intersection. As such, the recommended storage lengths for the movements impacted by traffic starvation are based on the Synchro queues. The following storage length extensions are recommended:

- Mayfield Road & Airport Road (NBL): 135 m
- Mayfield Road & Torbram Road (EBL): 160 m

The 95$^{th}$ percentile Synchro queue of 190 m for the northbound left-turn at Mayfield Road & Torbram Road would require the extension of the auxiliary turn lane into the downstream future intersection. As such, this extension is not feasible within the available cross-section. Nevertheless, while the expected queue may extend into the available through lane, the through movement is operating acceptably and no further operational concerns are expected.

Furthermore, the following existing or planned auxiliary turn lanes storage lengths are sufficient to support the expected volumes:

- Mayfield Road & Airport Road (EBL): 120 m
- Mayfield Road & Airport Road (NBR): 60 m
- Mayfield Road & Torbram Road (EBR): 25 m
- Mayfield Road & Torbram Road (WBL): 75 m
- Mayfield Road & Torbram Road (WBR): 60 m
- Mayfield Road & Torbram Road (SBL): 80 m
- Mayfield Road & Torbram Road (SBR): 80 m

### *5.7.2 Summary*

**Table 23** outlines the recommended auxiliary turn lane geometry based on the results of the queuing analysis above.

**Table 23: Future Background Recommended Auxiliary Turn Lane Geometry**

| Intersection | Movement | Storage Length | |
|---|---|---|---|
| | | Existing/Planned | Recommended |
| Mayfield Road & Airport Road | NBL | 95 m | 135 m<br>(+45 m) |
| Mayfield Road & Torbram Road | EBL | 100 m | 160 m<br>(+60 m) |

## 5.8 Recommendations Summary

**Table 24** summarizes the recommended future background improvements.

**Table 24: Future Background Recommended Improvements**

| Location | Improvement |
|---|---|
| Mayfield Road | Maintain schedule for planned road widening and associated improvements between Airport Road and Coleraine Drive. |
| Airport Road | Maintain schedule for planned road widening and associated improvements between Mayfield Road and King Street. |
| Torbram Road | Maintain schedule for planned road widening and urbanization between Mayfield Road and Old School Road. |
| Highway 413 | Maintain schedule for planned highway between Highway 401 to Highway 400. |
| Street A | Maintain schedule for planned roadway between Mayfield Road and Street B. |
| Street B | Maintain schedule for planned roadway between Tullamore Industrial Business Park northern limits and Mayfield Road. |
| Street C | Maintain schedule for planned roadway between Street B and Torbram Road. |
| Mayfield Road & Airport Road | Extend the NBL auxiliary turn lane (135 m). |
| Mayfield Road & Torbram Road | Extend auxiliary turn lanes for the following movements:<br>• EBL: 160 m<br>• NBL: 190 m |
| Mayfield Road & Torbram Road | Implement auxiliary turn lanes for the following movements per Mayfield-Tullamore Secondary Plan.<br>• WBL (Dual): 75 m<br>• WBR: 60 m |

| Location | Improvement |
|---|---|
| Torbram Road & Old School Road | Implement signal control per Mayfield-Tullamore Secondary Plan. |
| Airport Road & Old School Road/Healy Road | Maintain schedule for planned roundabout, with two lanes on each approach. |
| Airport Road & Street A/12333 Airport Road | Implement planned signal control per Tullamore Industrial Business Park.<br><br>Implement auxiliary turn lanes for the following movements per Tullamore Industrial Business Park.<br>• EBL: 55 m<br>• NBL: 120 m<br>• SBR: 100 m |
| Airport Road & Perdue Court/Davis Lane | Implement signal control. |
| Mayfield Road & Street B | Implement signal control per Tullamore Industrial Business Park.<br><br>Implement auxiliary turn lanes for the following movements per Tullamore Industrial Business Park.<br>• EBL: 55 m<br>• WBR: 130 m<br>• SBL: 55 m<br><br>Implement auxiliary turn lanes for the following movements per Countryside Villages Block 48-2.<br>• EBR: 30 m<br>• WBL: 105 m<br>• NBL: 55 m |
| Torbram Road & Street C | Implement planned one-way stop control per Tullamore Industrial Business Park.<br><br>Implement auxiliary turn lanes for the following movements per Tullamore Industrial Business Park.<br>• EBL: 55 m<br>• WBL: 55 m<br><br>Implement auxiliary turn lanes for the following movements per the Mayfield-Tullamore Secondary Plan.<br>• NBL: 55 m<br>• SBL: 55 m |

# 6.0 Tullamore Northwest Employment Area Transportation Context

## 6.1 Potential Road Network

An internal collector road network will be required to support the Tullamore Northwest Employment Area; however, a comprehensive collector road network has not been prescribed at the time of writing to provide flexibility for future development via site-specific applications and in light of the Town's ongoing TMP Addendum. Thus, the Land Use Schedule does not outline a detailed internal collector road network. Instead, conceptual roadway connections to each of the following roads have been assumed for the purpose of operations analysis:

- Torbram Road
- Old School Road
- Airport Road
- Street B

These conceptual connections demonstrate the potential roadway connectivity to the Tullamore Northwest Employment Area for passenger cars and heavy trucks.
Given the scale of developable land available, and the intent to provide flexibility for future site-specific applications, there is significant opportunity to establish north-south and east-west connectivity throughout the Secondary Plan Area.

The details regarding the internal collector road network, including roadway alignments and external connections will be determined as individual site-specific development applications are advanced.

## 6.2 Future Roadway Connections

For the purpose of the study herein, connections to the Tullamore Northwest Employment Area are assumed off the following external study roadways:

- Torbram Road
- Airport Road
- Old School Road
- Mayfield Road (via Tullamore Industrial Business Park)

It is noted that site generated trips to/from Mayfield Road will access the Subject Lands via the proposed Tullamore Industrial Business Park collector road network. The details of the proposed connection to the Tullamore Industrial Business Park road network will be determined as part of future site-specific applications.

For conservative analysis, only one connection off each abutting study roadway was assumed; therefore, if multiple roadway connections to Torbram Road, Old School Road or Airport Road are proposed as part of future development applications, traffic operations will improve compared to those noted in this report as a result of the dispersion of trips across multiple access points Accordingly, the findings and conclusions outlined herein should be reviewed and confirmed as part of future site-specific applications if additional connections are proposed.

### *6.2.1 Intersection Spacing Considerations*

The section herein reviews the minimum intersection spacing requirements applicable to any future roadway connection.

The Region of Peel's Road Characterization Study (May 2013) outlines minimum requirements for intersection spacing along Regional roadways. Different roadway typologies or "street types" are also defined that have differing intersection spacings requirements. The Region of Peel characterizes Airport Road as a suburban connector.

The Town of Caledon Multi-Modal Transportation Master Plan (June 2024) outlines intersection spacing guidelines for Town roadways. Torbram Road is an arterial roadway, and Old School Road is a collector roadway.

**Table 25** summarizes the applicable intersection spacing requirements.

**Table 25: Intersection Spacing Requirements**

| Roadway | Intersection Spacing Requirements[1] | Source |
|---|---|---|
| Airport Road | 300 m | Region of Peel Road Characterization Study |
| Torbram Road | 250 m to 400 m | Town of Caledon Multi-Modal Transportation Master Plan |
| Old School Road | 150 m to 250 m[2] | |

*Note 1: Minimum intersection spacing between full moves intersections.*
*Note 2: Recommendation for greenfield areas.*

Any future roadway connections should adhere to the intersection requirements outlined in **Table 25**. The proposed intersection spacing will be reviewed once the future roadway connections are confirmed, as part of future site-specific applications.

**Figure 14** outlines the intersection opportunities along Airport Road, Torbram Road and Airport Road based on the applicable intersection spacing requirements.

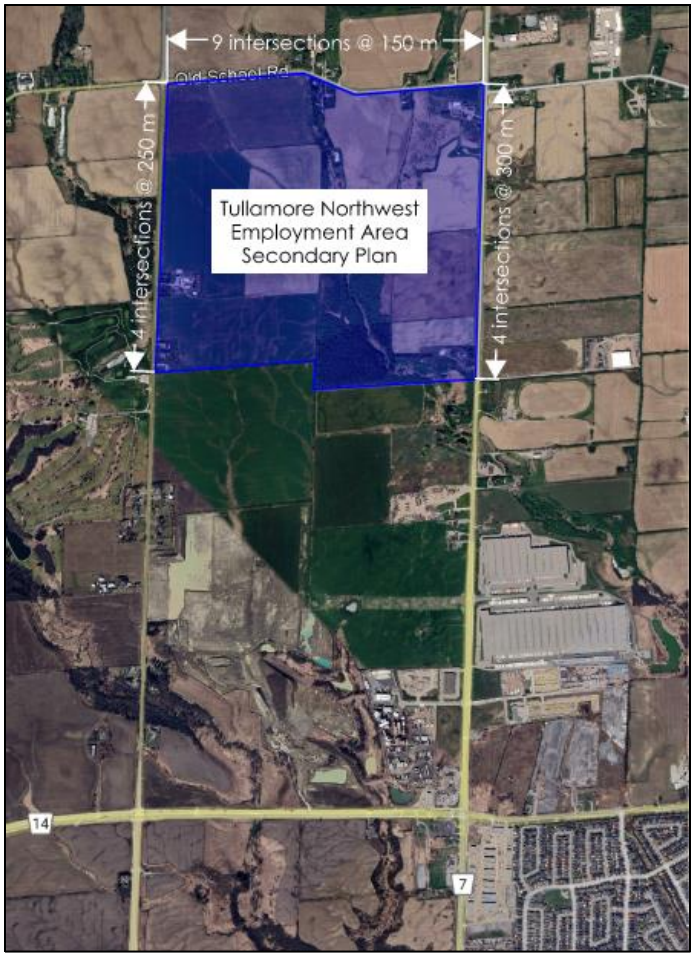



**Figure 14: Intersection Opportunities**

As such, there are significant connection opportunities along Airport Road, Torbram Road and Old School Road to support the Secondary Plan lands.

### *6.2.2 Connection Considerations*

As the internal study network and the corresponding external connections are not outlined herein, the following background developments were reviewed to highlight potential connection opportunities for the Tullamore Northwest Employment Area:

- Tullamore Industrial Business Park
- Countryside Villages Block 48-2
- Mayfield-Tullamore Secondary Plan
- Town of Caledon Secondary Plan Area F2

Tullamore Industrial Business Park abuts the Tullamore Northwest Employment Area to the south. The proposed north-south roadway, Street B, currently terminates at the northern limits of the Tullamore Industrial Business Park. There is an opportunity to extend Street B into the Tullamore Northwest Employment Area Secondary Plan. As Street B is also proposed to connect to the Countryside Villages Secondary Plan, south of Mayfield Road, the extension of Street B will provide the opportunity for connection between all three developments.

The Mayfield-Tullamore Secondary Plan is located west of the Tullamore Northwest Employment Area and fronts Torbram Road. Due to the environmental constraints, there are no proposed intersections with Torbram Road along the Tullamore Northwest Employment Area frontage. Thus, any proposed connection to Torbram Road will be a T-intersection with no continuity into the Mayfield-Tullamore Secondary Plan.

There are currently no plans or schedules for the Town of Caledon Secondary Plan Area F2, which is east of the Subject Lands, fronting Airport Road. Nevertheless, there may be the opportunity for east-west connectivity to be provided between the Tullamore Northwest Employment Area and the Secondary Plan Area F2.

Overall, the potential connection opportunities identified provides the opportunity to implement roadway connectivity with the developments proposed nearby and reduces the number of additional intersections proposed along the external study road network.

**Appendix I** includes the relevant background development excerpts.

# 7.0 Site Generated Traffic

This section herein reviews the trip generation forecasts associated with the proposed Tullamore Northwest Employment Area Secondary Plan. The typical four-stage model approach, consisting of trip generation, trip distribution, mode split adjustment, and trip assignment, was largely followed to forecast vehicle trips associated with the Tullamore Northwest Employment Area.

## 7.1 Development Yield

For the purposes of trip generation, a high-level gross floor area (GFA) estimate of approximately 5,200,000 $ft^2$ was provided by Glen Schnarr & Associates Inc. However, this gross floor area is not intended to provide a limit of development GFA for the Secondary Plan area. Moreover, to support the flexibility of various development scenarios within the Secondary Plan lands, the more conservative "Industrial Park" land use, instead of the typical "Warehousing" land use, was adopted for analysis herein.

## 7.2 Trip Generation

To forecast the trips generated by the Proposed Development, the data provided in the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition (September 2021) were used. The ITE Trip Generation Manual is a publication of the ITE that includes trip generation data that have been voluntarily collected and submitted to ITE from members across the United States and Canada. The data represents recorded trips into and out of various sites associated with different land use codes.

### *7.2.1 Baseline Trip Generation*

The baseline industrial trips were generated based on the Land Use Category (LUC) 130 "Industrial Park". As the exact industrial land use(s) proposed within the Tullamore Northwest Employment Area are not finalized and the Land Use Schedule permits a range of industrial uses, LUC 130 "Industrial Park" was used for a conservative analysis.

Fitted curve estimates and average rates in a general urban/suburban setting are provided in the ITE Trip Generation Manual, 11th Edition (September 2021). Fitted curve estimates were used if available, and deemed accurate (i.e., more than 20 data points and coefficient of determination $R^2 > 0.75$).

**Table 26** outlines the baseline vehicle trip generation for the Proposed Development.

**Table 26: Baseline Vehicle Trip Generation**

| Land Use | Statistic | Peak Hour | Equation | Trips[1] | | |
|---|---|---|---|---|---|---|
| | | | | In | Out | Total |
| **Total Vehicle** | | | | | | |
| LUC 130 "Industrial Park" | ~5,200,000 ft² | A.M. | 0.34/1000 ft² | 1,428 | 335 | 1,763 |
| | | P.M. | 0.34/1000 ft² | 388 | 1,375 | 1,763 |
| **Heavy Truck** | | | | | | |
| LUC 130 "Industrial Park" | ~5,200,000 ft² | A.M. | 0.04/1000 ft² | 93 | 114 | 207 |
| | | P.M. | 0.04/1000 ft² | 79 | 129 | 207 |
| **Passenger Car** | | | | | | |
| LUC 130 "Industrial Park" | ~5,200,000 ft² | A.M. | N/A | 1,334 | 221 | 1,555 |
| | | P.M. | | 309 | 1,246 | 1,555 |

*Note 1: Rounding may cause the appearance of discrepancies.*

The Tullamore Northwest Employment Area is expected to generate 1,763 two-way baseline vehicle trips during both the weekday a.m. and p.m. peak hours.

### *7.2.2 Mode Split Adjustment*

There is an inherent mode split included in the ITE vehicle trip generation rates, that may differ from the Town's mode split targets for new developments. As the ITE trip generation forecast accounts for typical suburban mode splits, an adjustment factor was included in analysis to account for the sustainable mode split targets identified in the Region's Transportation Master Plan (December 2017).

As outlined in Institute of Transportation Engineers (ITE) Trip Generation Handbook, 3rd Edition (September 2017), the trip generation rates for suburban context included an automobile split of 95% or higher for residential trips. For the site generated trips, a target vehicle mode split of 78% was used per the Region's Transportation Master Plan. As such, a mode split adjustment factor of 0.82 was applied.

The mode split adjustment factor was only applied to passenger car trips as heavy truck trips are not generally impacted by reduced automobile mode split targets and the corresponding initiatives to reduce vehicle use.

**Table 27** outlines the mode split adjusted passenger car trip generation.

**Table 27: Mode Split Adjusted Passenger Car Trip Generation**

| Land Use | Statistic | Peak Hour | Equation | Trips[1] | | |
|---|---|---|---|---|---|---|
| | | | | In | Out | Total |
| **Passenger Car** | | | | | | |
| LUC 130 "Industrial Park" | ~5,200,000 ft² | A.M. | 0.82 mode split adjustment factor | 1,096 | 181 | 1,277 |
| | | P.M. | | 254 | 1,023 | 1,277 |

*Note 1: Rounding may cause the appearance of discrepancies.*

The Tullamore Northwest Employment Area is expected to generate 1,277 two-way mode split adjusted passenger car trips during both the weekday a.m. and p.m. peak hours.

### *7.2.3 Summary*

**Table 28** summarizes the Proposed Development's forecasted vehicle trip generation.

**Table 28: Vehicle Trip Generation**

| Land Use | Statistic | Peak Hour | Equation | Trips[1] | | |
|---|---|---|---|---|---|---|
| | | | | In | Out | Total |
| **Total Vehicle** | | | | | | |
| LUC 130 "Industrial Park" | ~5,200,000 ft² | A.M. | N/A | 1,189 | 295 | 1,484 |
| | | P.M. | | 332 | 1,152 | 1,484 |
| **Heavy Truck** | | | | | | |
| LUC 130 "Industrial Park" | ~5,200,000 ft² | A.M. | N/A | 93 | 114 | 207 |
| | | P.M. | | 79 | 129 | 207 |
| **Passenger Car** | | | | | | |
| LUC 130 "Industrial Park" | ~5,200,000 ft² | A.M. | N/A | 1,096 | 181 | 1,277 |
| | | P.M. | | 254 | 1,023 | 1,277 |

*Note 1: Rounding may cause the appearance of discrepancies.*

The Tullamore Northwest Employment Area is expected to generate a total of 1,484 two-way vehicle trips during the weekday a.m. and p.m. peak hours. Of these vehicle trips, 207 and 1,277 two-way heavy truck and passenger car trips, respectively, are expected during the weekday a.m. and p.m. peak hours.

It is noted that the estimated development size is at the higher end of the available ITE data for LUC 130 "Industrial Park", and site generated trips would not increase linearly for larger industrial buildings. As a linear trip generation rate was applied herein, the aforementioned trip generation may also be considered conservative from this perspective.

## 7.3 Land Use Comparison

The exact industrial land use(s) expected for the Subject Lands is unknown at the time of writing, As such, Land Use Code (LUC) 130 “Industrial Park” was used herein, which can encompass a range of industrial uses.

It is noted that the majority of the existing, approved and proposed industrial developments within the study area and southern Caledon are warehouses, which forecasts a significantly lower trip generation in comparison to other industrial uses. For comparative purposes, the trip generation for LUC 150 “Warehousing” was also reviewed herein.

**Table 29** outlines the vehicle trip generation comparison for both LUC 130 “Industrial Park” and LUC 150 “Warehousing”

**Table 29: Total Vehicle Trip Generation (Comparison)**

| Land Use | Statistic | Peak Hour | Equation | Trips[1] | | |
|---|---|---|---|---|---|---|
| | | | | In | Out | Total |
| **Industrial Park** | | | | | | |
| LUC 130 “Industrial Park” | ~5,200,000 $ft^2$ | A.M. | 0.34/1000 $ft^2$ | 1,428 | 335 | 1,763 |
| | | P.M. | 0.34/1000 $ft^2$ | 388 | 1,375 | 1,763 |
| **Warehousing** | | | | | | |
| LUC 150 “Warehousing” | ~5,200,000 $ft^2$ | A.M. | 0.17/1000 $ft^2$ | 679 (-749) | 203 (-132) | 881 (-881) |
| | | P.M. | 0.18/1000 $ft^2$ | 261 (-126) | 672 (-703) | 933 (-829) |

As outlined in **Table 29**, LUC 150 “Warehousing” results in 50% and 53% fewer trips than LUC 130 “Industrial Park”. Should warehousing be pursued for some or all of the Secondary Plan area, a significant reduction in actual trips is expected. Therefore, the subsequent analysis prepared using the trip generation associated with LUC 130 “Industrial Park” can be considered conservative.

## 7.4 Trip Distribution

### *7.4.1 Passenger Car Trips*

The site generated passenger car trips were distributed to the study road network based on 2022 Transportation Tomorrow Survey (TTS) data. TTS is a comprehensive survey consisting of transportation patterns for households in the Greater Toronto and Hamilton Area and surrounding area.

The Subject Property is located in 2006 Greater Toronto Area (GTA) Zone 3014, which primarily consists of greenfield lands and some existing industrial buildings. To increase the sample size of the query, proxy zones were also included. 2006 GTA Zone 3015, 2006 GTA Zone 3440 and 2006 GTA Zone 3441 were used as proxy zones. These zones are adjacent to the subject zone and includes industrial developments, thus these zones are expected to have similar travel patterns to the Subject Lands.

The TTS data was filtered to trips entering and existing the subject and proxy zones for work purposes during the weekday a.m. and p.m. peak hours, respectively, which reflect the peak commuter directions.

**Table 30** summarizes the trip distribution for employment passenger car trips.

**Table 30: Passenger Car Trip Distribution**

| Direction | Inbound | Outbound | External Network Gateway |
|---|---|---|---|
| North | 29% | 18% | Airport Road, Torbram Road |
| South | 13% | 25% | Airport Road, Torbram Road |
| East | 6% | 7% | Mayfield Road, Healy Road |
| West | 29% | 24% | Mayfield Road, Old School Road |
| Highway 413 (via North) | 23% | 26% | Airport Road |
| **Total** | **100%** | **100%** | **-** |

It is noted that the trip distribution was adjusted to capture the more convenient routing options, as a result of the future Highway 413, especially pertaining to heavy truck traffic.

**Appendix B** includes the TTS data.

### *7.4.2 Heavy Truck Trips*

The site generated heavy truck trips were distributed to the study road network based on the expected travel routes for heavy vehicle traffic and roadways where heavy trucks are permitted. Heavy trucks will primarily rely on Highway 413 as well as Airport Road, Mayfield Road and the proposed collector road network within the Tullamore Northwest Employment Area and Tullamore Industrial Business Park. The remaining study roadways are not expected to support heavy vehicle traffic under future conditions.

Due to the proposed Highway 413, a portion of current heavy vehicle traffic along Mayfield Road is expected to instead use Highway 413. As there are currently no details regarding the shift in heavy vehicle distribution, it is assumed that two-thirds of all truck traffic will use Highway 413, with the remaining one-third will use Mayfield Road. It is assumed that heavy vehicle traffic will access the Highway 413 via the planned Airport Road interchange.

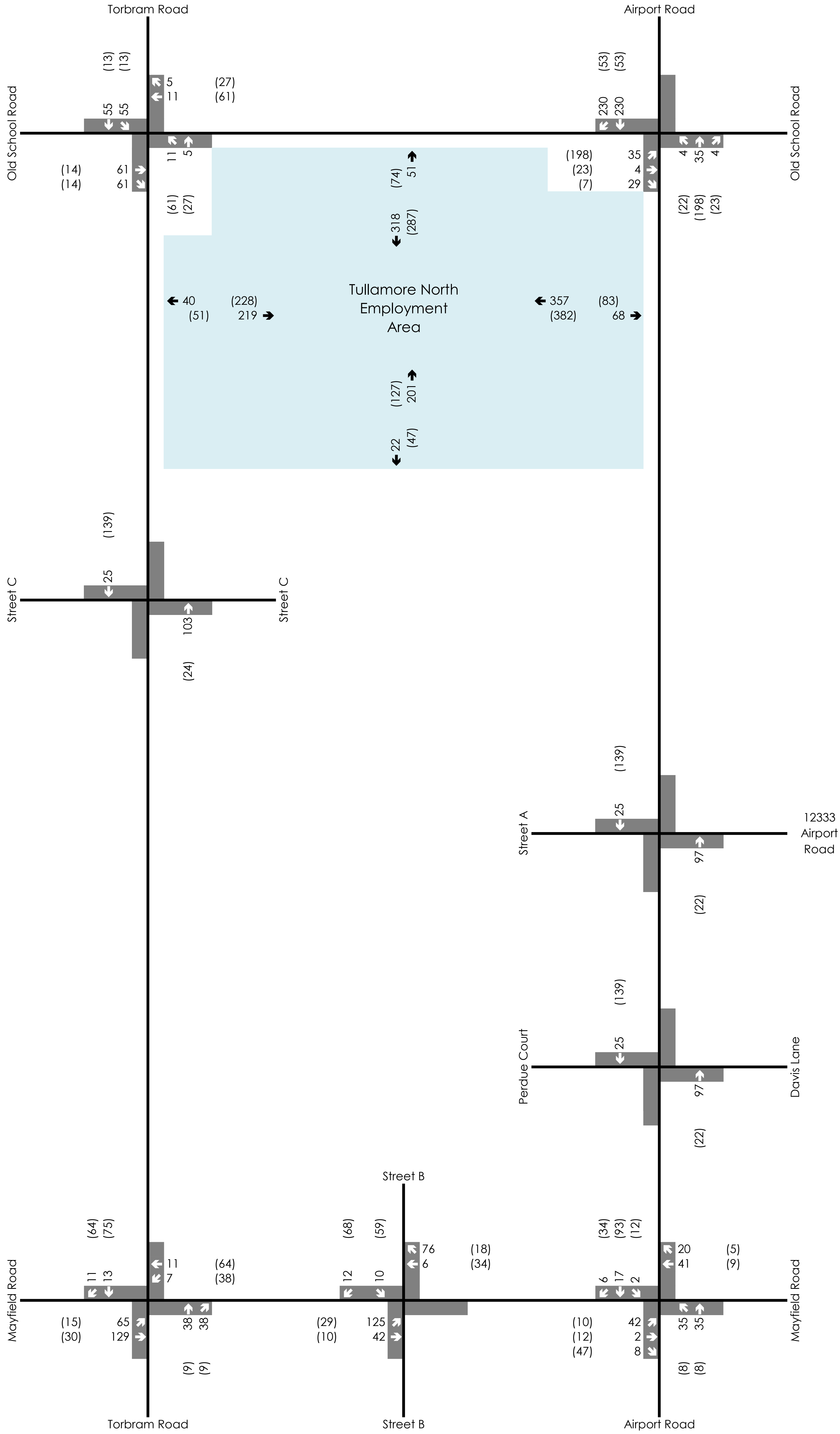
All traffic along Mayfield was then distributed based on existing eastbound and westbound travel patterns observed in the existing turning movement counts.

This estimated shift in truck traffic distribution was based on Mayfield Road being the current primary truck corridor, partly because Highway 410 terminates just north of Mayfield and Highway 427 terminates on McKenzie Drive, approximately 3.4 km south of Mayfield Road. The implementation of Highway 413 will provide more convenient and direct routes to the surrounding highways, with the Airport Road interchange being located 500 m from the Subject Lands.

### 7.5 Trip Assignment

The site generated trips were distributed throughout the external study road network based on the trip distribution outlined above. As outlined in **Section 6.2**, future road connections are assumed off Airport Road, Torbram Road and Old School Road as well as off Mayfield Road via Tullamore Industrial Business Park.

**Figure 15**, **Figure 16** and **Figure 17** outlines the passenger car, heavy truck and total site generated volumes, respectively.




| Legend | |
|---|---|
| xx | A.M. Peak Hour Traffic Volumes |
| (xx) | P.M. Peak Hour Traffic Volumes |
| {xx} | Weekend Peak Hour Traffic Volumes |

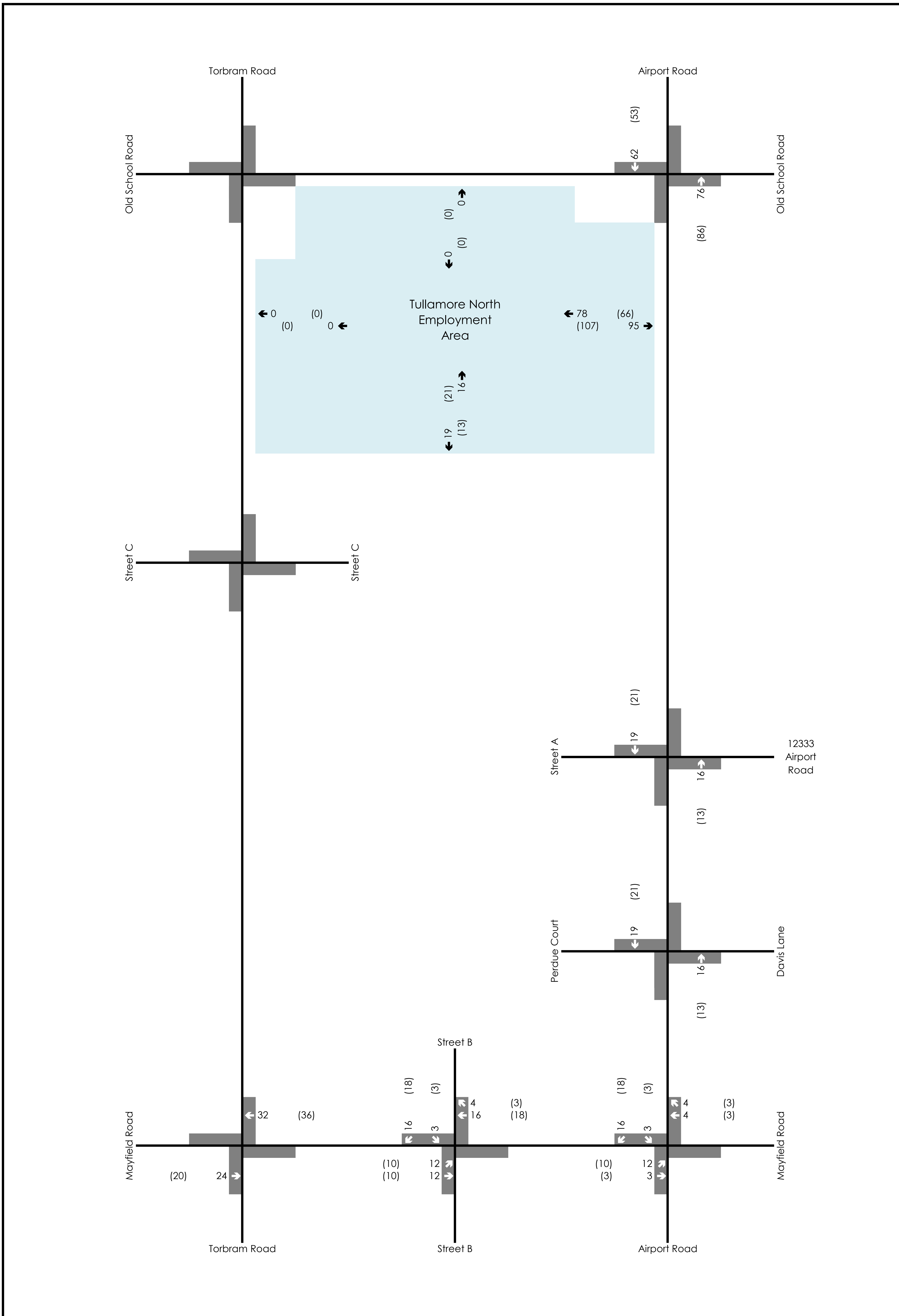
**Tullamore Northwest Employment Area Secondary Plan**

**Passenger Car Site Traffic Volumes**

CROZIER CONSULTING ENGINEERS

**Figure 15**

Project No. 2278-7228
Date: 04/30/25
Analyst. MY




**Legend**

xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes
{xx} Weekend Peak Hour Traffic Volumes

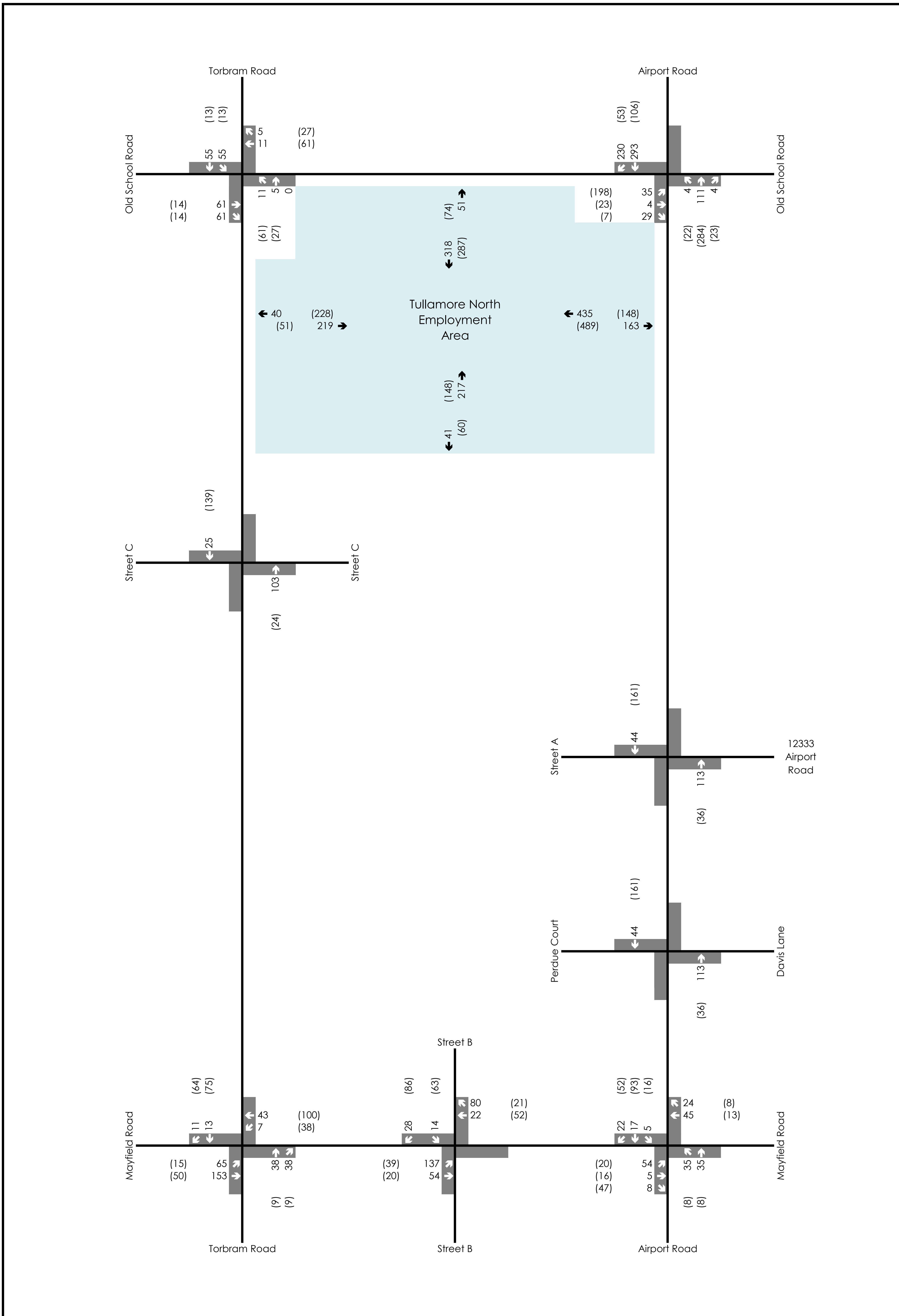
**Tullamore Northwest Employment Area Secondary Plan**

**Heavy Truck Site Traffic Volumes**

CROZIER CONSULTING ENGINEERS

**Figure 16**

Project No. 2278-7228
Date: 04/30/25
Analyst. MY




**Legend**

xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes
{xx} Weekend Peak Hour Traffic Volumes

**Tullamore Northwest Employment Area Secondary Plan**

**Total Site Traffic Volumes**

CROZIER CONSULTING ENGINEERS

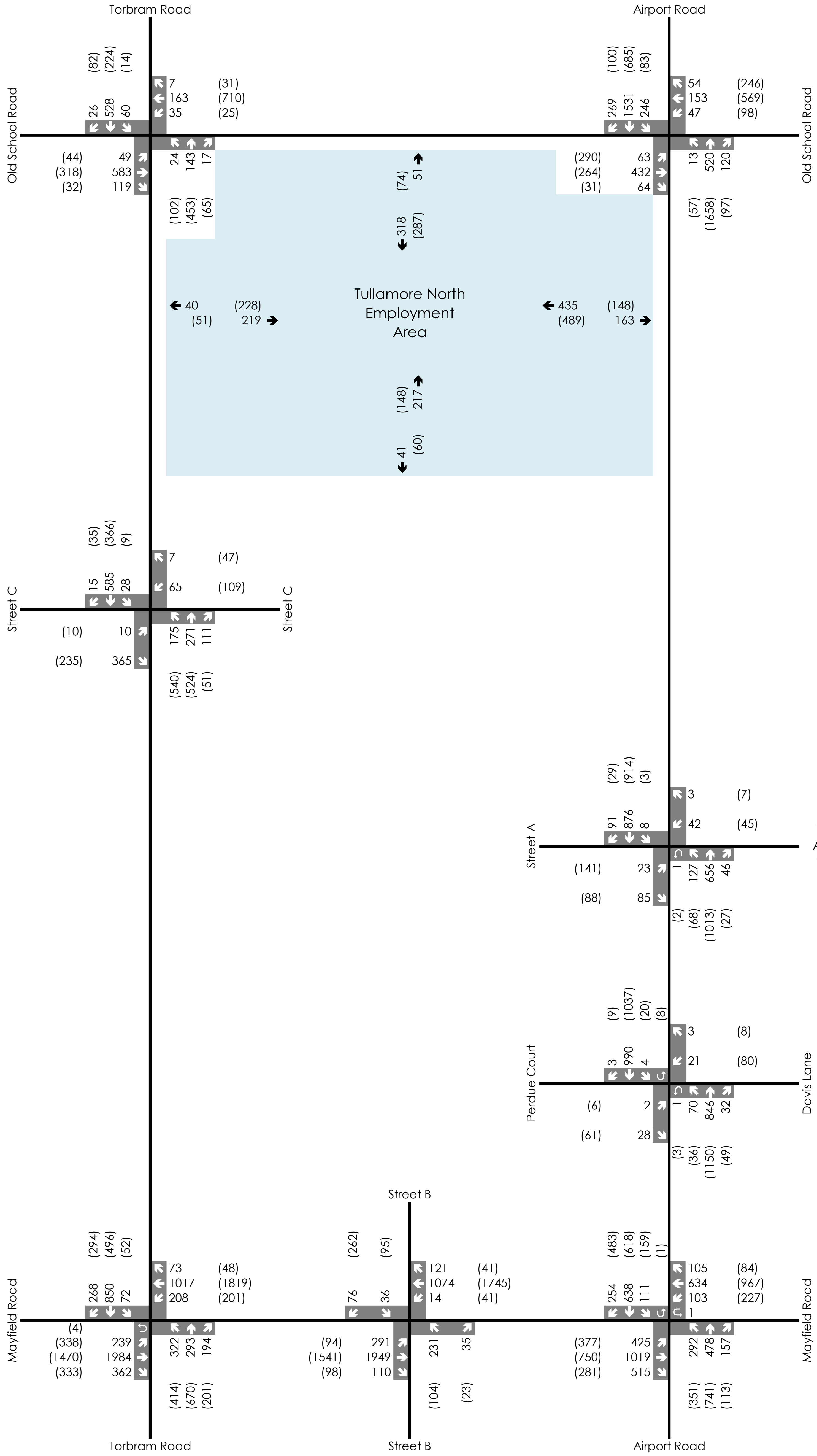
**Figure 17**

Project No. 2278-7228
Date: 04/30/25
Analyst. MY

# 8.0 Future Total Transportation Network Review

The section herein reviews the future total conditions of the study road network for the 2044 horizon year.

The future total traffic volumes were forecasted by adding the site traffic volumes to the future background volumes. **Figure 18** outlines the 2044 future total traffic volumes.




**Legend**
xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes
{xx} Weekend Peak Hour Traffic Volumes

**Tullamore Northwest Employment Area Secondary Plan**

**2044 Future Total Traffic Volumes**

CROZIER CONSULTING ENGINEERS

**Figure 18**
Project No. 2278-7228
Date: 04/30/25
Analyst. MY

### 8.1 Warrants Assessment

Signal warrants were assessed for the unsignalized study intersections under 2044 future total conditions. As previously outlined in **Section 5.4**, the warrants were evaluated based on Justification 7: Projected Volumes per Chapter 4 of the Ontario Traffic Manual Book 12: Traffic Signals (MTO, March 2012).

**Table 31** summarizes the future total signal warrant analysis.

**Table 31: Future Total Signal Warrant Analysis**

| Intersection | Flow Conditions | Lanes on Major Road | Signal Warranted? |
|---|---|---|---|
| Airport Road & Perdue Court/Davis Lane | Free | 2+ Lanes | No |

Signal control is not warranted at Airport Road & Perdue Court/Davis Lane. As outlined in **Section 5.5.1**, signalization is recommended at Airport Road & Perdue Court/Davis Lane, despite not being warranted, to support future background operations.

**Appendix J** includes the warrants assessment reports.

### 8.2 Traffic Modelling and Assumptions

The section herein outlines the traffic modelling and assumptions used in evaluating future total conditions. Unless otherwise noted, future background traffic modelling and assumptions were maintained for future total conditions.

As previously outlined, peak hour factors of 1.00 was used for all Town and Regional intersections.

For comparative purposes, the signal timing plans were also kept consistent with future background conditions.

Consistent with future background conditions, the proposed signal timing plan for Airport Road & Street D was modelled as actuated-coordinated with a cycle length of 120 s during both the weekday a.m. and p.m. peak hours. The splits were also optimized.

The modelling also includes updated heavy vehicle percentages that reflect the increased heavy vehicle traffic associated with the Subject Development.

### 8.3 Intersection Operations

The section herein reviews the intersection operations under 2044 future total conditions. This assessment includes key metrics including level of service (LOS), control delay and volume-to-capacity (v/c) ratio.

**Appendix E** contains the detailed capacity analysis worksheets.

#### *8.3.1 Signalized Intersections*

**Table 32** details the 2044 future total traffic operations for the signalized study intersections.

### Table 32: 2044 Future Total Traffic Operations – Signalized Intersections

| Intersection | | Movement | LOS[1] | | Delay (s)[2] | | v/c ratio[3] | |
|---|---|---|---|---|---|---|---|---|
| | | | A.M. | P.M. | A.M. | P.M. | A.M. | P.M. |
| Mayfield Road & Airport Road | Signal | **Overall** | **D** | **E** | **40** | **55** | **1.14** | **1.18** |
| | | EBL | F | F | 88 | 147 | 1.11 | 1.12 |
| | | EBT | B | C | 17 | 9 | 0.49 | 0.42 |
| | | EBR | C | B | 23 | 13 | 0.59 | 0.29 |
| | | WBL | C | C | 27 | 32 | 0.51 | 0.64 |
| | | WBT | C | D | 32 | 43 | 0.40 | 0.63 |
| | | WBR | C | C | 29 | 35 | 0.09 | 0.08 |
| | | NBL | F | F | 101 | 127 | 1.05 | 1.14 |
| | | NBT | D | D | 36 | 48 | 0.49 | 0.76 |
| | | NBR | C | C | 30 | 35 | 0.12 | 0.11 |
| | | SBL | D | E | 39 | 55 | 0.42 | 0.80 |
| | | SBT | D | D | 49 | 50 | 0.68 | 0.71 |
| | | SBR | D | E | 37 | 57 | 0.42 | 0.71 |
| | Signal Opt. #1 | **Overall** | **D** | **D** | **43** | **54** | **0.99** | **1.10** |
| | | EBL | E | F | 56 | 104 | 0.95 | 1.06 |
| | | EBT | C | C | 31 | 35 | 0.46 | 0.41 |
| | | EBR | C | C | 33 | 20 | 0.47 | 0.28 |
| | | WBL | C | D | 34 | 38 | 0.50 | 0.67 |
| | | WBT | D | D | 43 | 49 | 0.44 | 0.67 |
| | | WBR | D | D | 38 | 40 | 0.09 | 0.08 |
| | | NBL | E | F | 73 | 98 | 0.95 | 1.05 |
| | | NBT | D | D | 44 | 50 | 0.51 | 0.73 |
| | | NBR | D | D | 37 | 37 | 0.12 | 0.12 |
| | | SBL | D | E | 38 | 57 | 0.43 | 0.79 |
| | | SBT | E | E | 61 | 58 | 0.82 | 0.76 |
| | | SBR | C | E | 29 | 60 | 0.42 | 0.66 |
| Mayfield Road & Torbram Road | | **Overall** | **E** | **E** | **61** | **75** | **1.08** | **1.23** |
| | | EBL | C | F | 35 | 150 | 0.76 | 1.16 |
| | | EBT | E | D | 70 | 40 | 1.03 | 0.77 |
| | | EBR | C | C | 29 | 29 | 0.25 | 0.22 |
| | | WBL | F | E | 127 | 76 | 0.99 | 0.74 |
| | | WBT | D | F | 40 | 110 | 0.64 | 1.12 |
| | | WBR | C | C | 30 | 31 | 0.05 | 0.03 |
| | | NBL | F | F | 126 | 162 | 1.10 | 1.22 |
| | | NBTR | C | D | 30 | 39 | 0.30 | 0.64 |
| | | SBL | D | D | 49 | 54 | 0.33 | 0.39 |
| | | SBT | E | D | 73 | 50 | 0.95 | 0.55 |
| | | SBR | D | D | 46 | 47 | 0.27 | 0.34 |

| Intersection | Movement | LOS[1] | | Delay (s)[2] | | v/c ratio[3] | |
|---|---|---|---|---|---|---|---|
| | | A.M. | P.M. | A.M. | P.M. | A.M. | P.M. |
| **Torbram Road & Old School Road** | **Overall** | **B** | **B** | **18** | **18** | **0.43** | **0.43** |
| | EBL | C | C | 21 | 22 | 0.15 | 0.35 |
| | EBTR | C | C | 27 | 20 | 0.73 | 0.34 |
| | WBL | C | B | 23 | 19 | 0.28 | 0.09 |
| | WBTR | C | C | 21 | 26 | 0.17 | 0.73 |
| | NBL | A | A | 8 | 10 | 0.06 | 0.18 |
| | NBTR | A | A | 8 | 10 | 0.08 | 0.27 |
| | SBL | A | A | 8 | 8 | 0.09 | 0.03 |
| | SBTR | A | A | 9 | 9 | 0.28 | 0.16 |
| **Airport Road & Street A/12333 Airport Road** | **Overall** | **A** | **B** | **9** | **13** | **0.41** | **0.48** |
| | EBL | D | D | 44 | 41 | 0.14 | 0.47 |
| | EBTR | D | D | 49 | 44 | 0.07 | 0.07 |
| | WBL | D | E | 50 | 60 | 0.38 | 0.52 |
| | WBTR | D | E | 50 | 58 | 0.00 | 0.00 |
| | NBL | A | A | 9 | 9 | 0.43 | 0.28 |
| | NBT | A | A | 5 | 8 | 0.29 | 0.47 |
| | NBR | A | A | 4 | 8 | 0.04 | 0.03 |
| | SBL | A | A | 5 | 8 | 0.02 | 0.01 |
| | SBT | A | A | 7 | 9 | 0.39 | 0.45 |
| | SBR | A | A | 4 | 8 | 0.07 | 0.02 |
| **Airport Road & Perdue Court/Davis Lane** | **Overall** | **A** | **B** | **5** | **10** | **0.42** | **0.49** |
| | EBL | D | D | 54 | 51 | 0.05 | 0.05 |
| | EBTR | D | D | 53 | 51 | 0.03 | 0.04 |
| | WBL | D | D | 52 | 47 | 0.31 | 0.46 |
| | WBTR | D | D | 49 | 43 | 0.00 | 0.01 |
| | NBL | A | A | 3 | 7 | 0.22 | 0.18 |
| | NBT | A | A | 3 | 8 | 0.36 | 0.49 |
| | NBR | A | A | 3 | 5 | 0.03 | 0.06 |
| | SBL | A | A | 4 | 8 | 0.01 | 0.16 |
| | SBT | A | A | 5 | 8 | 0.42 | 0.45 |
| | SBR | A | A | 3 | 5 | 0.00 | 0.01 |
| **Mayfield Road & Street B** | **Overall** | **C** | **B** | **20** | **18** | **0.80** | **0.60** |
| | EBL | C | B | 21 | 17 | 0.77 | 0.57 |
| | EBT | B | B | 13 | 11 | 0.62 | 0.49 |
| | EBR | A | A | 8 | 8 | 0.08 | 0.07 |
| | WBL | C | B | 21 | 13 | 0.15 | 0.24 |
| | WBT | C | B | 22 | 16 | 0.49 | 0.62 |
| | WBR | D | B | 40 | 14 | 0.09 | 0.03 |
| | NBL | D | E | 49 | 58 | 0.72 | 0.60 |
| | NBTR | D | E | 41 | 57 | 0.02 | 0.01 |
| | SBL | D | D | 51 | 45 | 0.31 | 0.35 |
| | SBTR | D | D | 51 | 55 | 0.07 | 0.36 |

| Intersection | Movement | LOS[1] | | Delay (s)[2] | | v/c ratio[3] | |
|---|---|---|---|---|---|---|---|
| | | A.M. | P.M. | A.M. | P.M. | A.M. | P.M. |
| **Torbram Road & Street C** | **Overall** | **B** | **C** | **16** | **21** | **0.41** | **0.82** |
| | EBL | C | D | 30 | 36 | 0.04 | 0.06 |
| | EBTR | C | D | 34 | 37 | 0.51 | 0.14 |
| | WBL | C | C | 28 | 33 | 0.38 | 0.53 |
| | WBTR | C | C | 24 | 28 | 0.00 | 0.03 |
| | NBL | B | C | 12 | 33 | 0.38 | 0.89 |
| | NBTR | A | A | 8 | 8 | 0.17 | 0.26 |
| | SBL | A | A | 8 | 7 | 0.05 | 0.02 |
| | SBTR | A | A | 9 | 8 | 0.28 | 0.18 |

*Note 1: The overall LOS of a signalized intersection is based on the average control delay per vehicle (HCM 2000).*
*Note 2: The overall control delay of a signalized intersection is based on the average control delay per vehicle (HCM 2000).*
*Note 3: All v/c ratios above 0.90 for overall intersections, through movement and shared through/turning movements are in red text. All v/c ratios above 1.00 for exclusive movements are also in red text.*

The signalized intersection of Mayfield Road & Airport Road is expected to operate with a LOS "E" or better with a maximum control delay and v/c ratio of 55 s and 1.18, respectively. While the intersection is expected to operate above the theoretical capacity, in comparison to future background conditions, this represents an increase of 7 s and 0.12 in control delay and v/c ratio, respectively. Nevertheless, the cycle length can be increased to 145 s to improve operations. With a cycle length of 145 s (Signal Optimized #1), Mayfield Road & Airport Road is expected to operate at a LOS "D" and improved control delay of 54 s and v/c ratio of 1.10.

Consistent with future background conditions, Mayfield Road & Torbram Road is expected to operate above theoretical capacity. The intersection expected to operate at a LOS "E" with a maximum increase in control delay and v/c ratio of 12 s and 0.08, respectively, in comparison to future background conditions.

While Mayfield Road & Airport Road and Mayfield Road & Torbram Road are forecasted to operate above the theoretical capacity, these conditions are typical at the intersection of arterial roadways during peak hours and the intersection operations are expected to return to below capacity outside of the peak periods. While these results also indicate that vehicles at these movements may require more than one signal cycle to clear the intersection, this is not uncommon during peak hours on heavily travelled arterial corridors. In addition, as outlined in **Section 0**, a more conservative trip generation was assumed herein to provide flexibility for future development applications beyond the Broccolini lands. Should industrial warehouses be pursued, the actual trip generation expected would be at least 50% lower%. Therefore, the operations outlined herein may be overstated.

The remaining study intersections are expected to continue operating efficiently at a LOS "C" or better as well as low-to-moderate control delays and v/c ratios, with reserve capacity to accommodate future traffic growth.

#### *8.3.2 Roundabout Intersections*

**Table 33** details the 2044 future total traffic operations for the roundabout study intersections.

**Table 33: 2044 Future Total Traffic Operations – Roundabout Intersection**

| Intersection | Approach | LOS[1] | | Delay (s) | | v/c ratio[1] | | 95th %ile Queue[2] | |
|---|---|---|---|---|---|---|---|---|---|
| | | A.M. | P.M. | A.M. | P.M. | A.M. | P.M. | A.M. | P.M. |
| **Airport Road & Old School Road/Healy Road** | **Overall[3]** | **A** | **D** | **9** | **28** | **0.89** | **1.14** | **-** | **-** |
| | EB | A | A | 8 | 2 | 0.57 | 0.32 | 7 | 2 |
| | WB | A | F | 2 | 89 | 0.13 | 1.14 | 0 | 76 |
| | NB | A | C | 4 | 20 | 0.42 | 0.95 | 4 | 46 |
| | SB | B | A | 12 | 4 | 0.89 | 0.48 | 28 | 4 |

*Note 1: Ratio of flow to capacity (RFC). All RFCs greater than 0.85 are outlined in red.*
*Note 2: Evaluated using Entry Lane Analysis mode. 95th percentile queues are recorded in passenger car equivalents. Rounded to the nearest vehicle.*
*Note 3: The overall RFC ratio is based on the maximum RFC of all movements at the intersection.*

Airport Road & Old School Road/Healy Road is expected to operate at a LOS "D" or better during weekday a.m. and p.m. peak hours. While some approaches are operating above the Region's critical threshold of 0.85, the intersection is still operating efficiently with moderate control delays. Furthermore, these metrics are not uncommon during peak hours on heavily travelled arterial corridors, such as Airport Road, especially given the planned Highway 413 interchange north of the intersection.

It is noted that the westbound approach is expected to operate above capacity with an extended 95th percentile queue under weekday p.m. peak hours. The implementation of a westbound right-turn by-pass is expected to improve the overall operations and queueing of the intersection under future total conditions.

Westbound Right-Turn By-Pass Considerations

**Table 34** details the 2044 future total traffic operations for the Airport Road & Old School Road/Healy Road with a westbound right-turn by-pass.

**Table 34: 2044 Future Total Traffic Operations – Roundabout Intersections (Westbound By-Pass)**

| Intersection | Approach | LOS[1] | | Delay (s) | | v/c ratio[1] | | 95th %ile Queue[2] | |
|---|---|---|---|---|---|---|---|---|---|
| | | A.M. | P.M. | A.M. | P.M. | A.M. | P.M. | A.M. | P.M. |
| **Airport Road & Old School Road/Healy Road** | **Overall[3]** | **A** | **B** | **9** | **14** | **0.89** | **0.95** | **-** | **-** |
| | EB | A | A | 8 | 3 | 0.56 | 0.32 | | ~1 |
| | WB | A | C | 2 | 22 | 0.11 | 0.83 | ~1 | 12 |
| | NB | A | C | 4 | 20 | 0.42 | 0.95 | ~1 | 49 |
| | SB | B | A | 12 | 4 | 0.89 | 0.49 | 28 | 1 |

*Note 1: Ratio of flow to capacity (RFC). All RFCs greater than 0.85 are outlined in red.*
*Note 2: 95th percentile queues are recorded in passenger car equivalents. Rounded to the nearest vehicle.*
*Note 3: The overall RFC ratio is based on the maximum RFC of all movements at the intersection.*

As outlined in **Table 34**, a westbound right-turn by-pass at Airport Road & Old School Road/Healy Road results in improved roundabout operations, with the intersection operating under capacity, at a LOS "B" or better. However, it should be noted that the trip generation assumptions used herein can be considered conservative, as outlined in **Section 0**. The trip generation for warehousing is at least 50% lower than that expected for industrial parks. As such, the operations outlined herein may be overstated and a westbound right-turn by-pass may not be required. Nevertheless, a potential westbound right-turn by-pass as part of the Healy Road widening should be protected for, should the need arise for future implementation.

The need for a westbound right-turn by-pass and any subsequent details will be reviewed and confirmed as part of future site-specific application(s) as well as the detailed design for the Old School Road and Healy Road widenings, once the internal collector road network and exact industrial land use details are finalized.

#### *8.3.3 Summary*

Overall, these metrics indicate that the site generated traffic is not expected to significantly impact the study road network, and with the recommended improvements and signal optimizations, the proposed future intersections are expected to operate acceptably. Accordingly, the study road network can support full buildout of the Secondary Plan lands, with the above noted recommendations.

The intersection operations outlined herein can be considered conservative, due to the trip generation assumptions applied herein. As outlined in **Section 0**, the higher trip generation rate associated with Land Use Category 130 “Industrial Park” was assumed as the exact industrial land use(s) for the Subject Site is not confirmed at the time of writing. The trip generation estimates may overstate the actual trip generation for the Proposed Development Therefore, the trip generation, and resulting future total traffic operations can be considered conservative. Nevertheless, there are no major operational concerns associated with the Proposed Development.

### 8.4 Queueing Assessment

Consistent with existing conditions, SimTraffic was used to assess the queues within the study road network. The 95$^{th}$ percentile queues were compared against the available storage length to determine if any queues are expected to extend beyond the auxiliary turn lanes. **Appendix F** contains the detailed queueing analysis worksheets.

**Table 35** outlines the results of the 2044 future background queueing assessment.

**Table 35: 2044 Future Total Queueing Assessment**

| Intersection | Movement | 95th Percentile Queue Length (m)[1] | | Auxiliary Lane Storage Length (m) |
|---|---|---|---|---|
| | | A.M. | P.M. | |
| Mayfield Road & Airport Road | EBL | 150 | 315 | 200 |
| | EBR | 70 | 50 | 60 |
| | WBL | 45 | 85 | 165 |
| | WBR | 15 | 30 | 60 |
| | NBL | 180 | 200 | 95 |
| | NBR | 40 | 85 | 60 |
| | SBL | 50 | 70 | 100 |
| | SBR | 40 | 85 | 105 |
| Mayfield Road & Torbram Road | EBL | 195 | 175 | 100 |
| | EBR | 260 | 95 | 125 |
| | WBL | 105 | 50 | 75[2] |
| | | 110 | 205 | |
| | WBR | 65 | 150 | 60 |
| | NBL | 175 | 155 | 80 |
| | SBL | 220 | 45 | 80[3] |
| | SBR | 195 | 70 | 80 |
| Torbram Road & Old School Road | EBL | 20 | 20 | 55[3] |
| | WBL | 15 | 15 | 55[3] |
| | NBL | 15 | 25 | 55[3] |
| | SBL | 20 | 10 | 55[3] |
| Airport Road & Street A/12333 Airport Road | EBL | 25 | 75 | 55[3] |
| | NBL | 40 | 175 | 120 |
| | NBR | 10 | 145 | 145 |
| | SBL | 5 | 5 | 80[3] |
| | SBR | 10 | 10 | 100 |
| Airport Road & Perdue Court/Davis Lane | WBL | 30 | 35 | 30 |
| | NBL | 25 | 75 | 70 |
| | NBR | 10 | 70 | 65 |
| | SBL | 5 | 75 | 70 |
| | SBR | - | 10 | 60 |
| Mayfield Road & Street B | EBL | 80 | 80 | 160 |
| | EBR | 35 | 30 | 30 |
| | WBL | 15 | 25 | 105 |
| | WBR | 20 | 15 | 130 |
| | NBL | 75 | 50 | 55 |
| | SBL | 25 | 60 | 55[3] |
| Torbram Road & Street C | EBL | 10 | 10 | 55 |
| | WBL | 25 | 35 | 55[3] |
| | NBL | 45 | 80 | 55[3] |
| | SBL | 10 | 10 | 55[3] |

*Note 1: 95th percentile queue length rounded up to the nearest 5 m.*

*Note 2: Dual westbound left-turn lane.*
*Note 3: Two-way left-turn lane.*

The following queues are expected to extend beyond the provided storage, however, the exceedance can be accommodated within the provided or recommended effective storage length, or two-way left-turn lane, as applicable:

- Mayfield Road & Airport Road (EBR, NBR)
- Mayfield Road & Torbram Road (SBL)
- Airport Road & Street A/12333 Airport Road (EBL, NBL)
- Airport Road & Perdue Court/Davis Lane (WBL, NBL, NBR)
- Mayfield Road & Street B (EBR, NBL, SBL)
- Torbram Road & Street C (NBL)

Based on the operational and queueing analysis, it was determined that the following extended queues are due to traffic starvation, which is further discussed in **Section 8.4.1**:

- Mayfield Road & Airport Road (EBL, NBL NBR)
- Torbram Road & Mayfield Road (EBL, EBR, WBL, WBR, NBL, SBL, SBR)

### *8.4.1 Starvation Impacts Analysis*

Consistent with future background conditions, several auxiliary turn movements experienced extended queues because of traffic starvation. The through queues extend beyond the auxiliary turn lane length, blocking the turning traffic from entering the auxiliary turn lane. Thus, the queue lengths initially observed extend beyond the provided storage but were not reflective of the actual queue demands associated with the auxiliary turn lane.

The Transportation Association of Canada's Geometric Design Guide for Canadian Roads (June 2017) does not have guidelines for auxiliary left-turn lane storages for signalized intersection. As such, the recommended storage lengths for the movements impacted by traffic starvation are based on the Synchro queues. The following storage length extensions, beyond those recommended to support future background conditions, are recommended:

- Mayfield Road & Airport Road (NBL): 150 m
- Mayfield Road & Torbram Road (EBL): 170 m

Consistent with future background conditions, the Mayfield Road & Torbram Road northbound left-turn 95$^{th}$ percentile Synchro queue would require the extension of the auxiliary turn lane into the downstream future intersection. Nevertheless, while the expected queue may extend into the available through lane, the through movement is operating acceptably and no further operational concerns are expected without an extension of the storage length.

Furthermore, consistent with future background conditions, the following existing or planned auxiliary turn lanes storage lengths are sufficient to support the expected volumes:

- Mayfield Road & Airport Road (EBL): 200 m
- Mayfield Road & Airport Road (NBR): 60 m
- Mayfield Road & Torbram Road (EBR): 125 m
- Mayfield Road & Torbram Road (WBL): 75 m
- Mayfield Road & Torbram Road (WBR): 60 m
- Mayfield Road & Torbram Road (SBL): 80 m
- Mayfield Road & Torbram Road (SBR): 80 m

#### *8.4.2 Summary*

**Table 36** outlines the recommended auxiliary turn lane geometry and type of improvement based on the results of the queuing analysis above, as well as the preceding future total automobile network review analyses

**Table 36: Future Total Recommended Auxiliary Turn Lane Geometry**

| Intersection | Movement | Storage Length | |
|---|---|---|---|
| | | Existing/Planned | Recommended |
| Mayfield Road & Airport Road | NBL | 135 m[1] | 150 m (+15 m) |
| Mayfield Road & Torbram Road | EBL | 160 m[1] | 170 m (+10 m) |

*Note 1: Recommended storage length as outlined in **Table 23**.*

### 8.5 Recommendations Summary

**Table 37** summarizes the recommended future total improvements, which should be implemented in addition to the future background improvements outlined in **Table 24.**

**Table 37: Future Total Recommended Improvements**

| Location | Improvements |
|---|---|
| Mayfield Road & Airport Road | Extend the NBL auxiliary turn lane (150 m). |
| Mayfield Road & Torbram Road | Extend auxiliary turn lanes for the following movements:<br>• EBL: 170 m<br>• NBL: 205 m |
| Airport Road & Old School Road/Healy Road | Protect for a potential westbound right-turn by-pass as part of the Healy Road widening. |

## 9.0 Roadway Connection Opportunities Review

As previously mentioned, the Secondary Plan does not prescribe an internal collector network alignment, nor does it propose specific accesses or collector road intersection configurations to provide flexibility for future, site specific applications. However, it is expected that as the Secondary Plans develop, as well as the ongoing update to the TMP, one or several site accesses to Torbram Road, Old School Road and Airport Road will be provided to support connectivity and access to the external study road network. These future accesses will also provide connectivity opportunities to the adjacent Secondary Plan Area F2. We also note that these connections may provide site access to individual parcels, or provide connections for potential public streets, both of which would be confirmed through future site-specific development applications. The detailed locations and alignments of collector roads will be refined through more detailed, site-specific applications in consultation with the Town as well as the Town's ongoing TMP Addendum.

In lieu of being prescriptive on access connections to the study road network, for the purposes of traffic modelling a single consolidated access to each abutting roadway (Airport Road, Torbram Road, Old School Road and Street B was assumed. These assumed connections are generally in accordance with the collector road network proposed in the Town's Multi-Modal Transportation Master Plan (June 2024), recognizing that an update to this TMP is ongoing due to the most recent version being considered out-of-date by the Town. The section herein reviews the operations for the consolidated connections to the external study road network. We recognize that additional intersections, if pursued, would result in the improved operations and thus the noted operations may be considered conservative.

It is noted that the Airport Road Connection is assumed to be a four-legged intersection, providing connectivity to both the Tullamore Northwest Employment Area and the Secondary Plan F2 background development, outlined in **Section 5.3**.

## 9.1 Warrants Assessment

Signal warrants were assessed for the future roadway connections under 2044 future total conditions. As previously outlined in **Section 5.4** and **Section 8.1**, the warrants were evaluated based on Justification 7: Projected Volumes per Chapter 4 of the Ontario Traffic Manual Book 12: Traffic Signals (MTO, March 2012).

**Table 38** summarizes the future total signal warrant analysis.

**Table 38: Future Roadway Connections Signal Warrant Analysis**

| Intersection | Flow Conditions | Lanes on Major Road | Signal Warranted? |
|---|---|---|---|
| Torbram Road Connection | Free | 2+ Lanes | No |
| Airport Road Connection | Free | 2+ Lanes | **Yes** |
| Old School Road Connection | Free | 2+ Lanes | No |

As outlined in **Table 38**, signal control is warranted at the Airport Road Connection. It is noted that the only one connection to Airport Road is assumed.

**Appendix J** includes the warrants assessment reports.

## 9.2 Traffic Modelling and Assumptions

The section herein outlines the traffic modelling assumptions used in evaluating the future roadway connections. Unless otherwise noted, future total traffic modelling and assumptions were maintained.

Consistent with existing signal timing plans along Airport Road, a 120 s cycle length was assumed for the Airport Road Connection during the weekday a.m. and p.m. peak hours.

### 9.3 Intersection Operations

The section herein reviews the intersection operations for the future road connections, under 2044 future total conditions. This assessment includes key metrics including level of service (LOS), control delay and volume-to-capacity (v/c) ratio.

**Appendix E** contains the detailed capacity analysis worksheets.

**Table 39** details the future road connections traffic operations.

**Table 39: Future Road Connections Traffic Operations**

| Intersection | Movement | LOS[1] | | Delay (s)[2] | | v/c ratio[3] | |
|---|---|---|---|---|---|---|---|
| | | A.M. | P.M. | A.M. | P.M. | A.M. | P.M. |
| **Torbram Road Connection** | **Overall** | **B** | **B** | **11** | **13** | **0.16** | **0.26** |
| | WBL | B | B | 13 | 14 | 0.05 | 0.26 |
| | WBR | A | B | 9 | 10 | 0.02 | 0.12 |
| | NBTR | A | A | 0 | 0 | 0.07 | 0.19 |
| | SBL | A | A | 8 | 8 | 0.09 | 0.03 |
| | SBT | A | A | 0 | 0 | 0.16 | 0.07 |
| **Airport Road Connection** | **Overall** | **C** | **D** | **25** | **39** | **0.86** | **0.77** |
| | EBL | E | E | 67 | 59 | 0.77 | 0.88 |
| | EBTR | D | D | 46 | 39 | 0.04 | 0.11 |
| | WBL | D | D | 53 | 40 | 0.58 | 0.63 |
| | WBT | A | A | 0 | 0 | 0.00 | 0.00 |
| | WBR | D | E | 50 | 65 | 0.16 | 0.82 |
| | NBL | D | C | 44 | 26 | 0.54 | 0.14 |
| | NBTR | C | C | 34 | 35 | 0.35 | 0.63 |
| | SBL | B | C | 19 | 23 | 0.83 | 0.65 |
| | SBTR | A | B | 10 | 16 | 0.48 | 0.34 |
| **Old School Road Connection** | **Overall** | **B** | **B** | **11** | **11** | **0.21** | **0.26** |
| | EBTR | A | A | 0 | 0 | 0.15 | 0.12 |
| | WBL | A | A | 9 | 8 | 0.21 | 0.04 |
| | WBT | A | A | 0 | 0 | 0.05 | 0.15 |
| | NBL | B | B | 15 | 12 | 0.03 | 0.12 |
| | NBR | A | B | 10 | 11 | 0.05 | 0.26 |

*Note 1: The overall LOS of a signalized intersection is based on the average control delay per vehicle (HCM 2000). The overall LOS of a two-way stop-controlled intersection is based on the delay associated with the critical minor road approach (HCM 2000).*
*Note 2: The overall control delay of a signalized intersection is based on the average control delay per vehicle (HCM 2000). The overall control delay of a stop-controlled intersection is based on the delay associated with the critical minor road approach (HCM 2000).*
*Note 3: The overall v/c ratio for unsignalized intersections is the maximum movement v/c ratio. All v/c ratios above 0.90 for overall intersections, through movement and shared through/turning movements are in red text. All v/c ratios above 1.00 for exclusive movements are also in red text.*

The future road connections off Torbram Road, Airport Road and Old School Road are expected to operate at a LOS "D" or better with low to moderate control delays and v/c ratios. As such, these intersections are anticipated to operate efficiently with reserve capacity to accommodate for future growth.

Furthermore, should additional connections be proposed off of Torbram Road, Airport Road and Old School Road in the future, improved intersection operations are expected. Therefore, the future road connections are supportable from a transportation operations perspective.

### 9.4 Queueing Assessment

Consistent with existing and future conditions, SimTraffic was used to assess the queues within the study road network. The 95th percentile queues were compared against the available storage length to determine if any queues are expected to extend beyond the auxiliary turn lanes. **Appendix F** contains the detailed queueing analysis worksheets.

Consistent with future background conditions, the queueing assessment was conducted based on the optimized future total conditions.

**Table 40** outlines the results of the future roadway connections queueing assessment.

**Table 40: Future Roadway Connections Queueing Assessment**

| Intersection | Movement | 95th Percentile Queue Length (m)[1] | | Auxiliary Lane Storage Length (m) |
|---|---|---|---|---|
| | | A.M. | P.M. | |
| Torbram Road Connection | WBL | - | - | 55 |
| | SBL | - | - | 55[2] |
| Airport Road Connection | EBL | - | - | 55 |
| | WBL | 55 | 40 | 55 |
| | WBR | 40 | 65 | 55 |
| | NBL | - | - | 80[2] |
| | SBL | 40 | 55 | 80[2] |
| Old School Road Connection | WBL | - | - | 55 |
| | NBL | - | - | 55[2] |

*Note 1: 95th percentile queue length rounded up to the nearest 5 m.*
*Note 2: Two-way left-turn lane.*

The westbound right-turn queue at the Airport Road Connection is expected to extend beyond the modelled storage length of 55 m. The Airport Road Connection's westbound approach is the assumed connection to the Town of Caledon's Secondary Plan Area F2. No details are publicly available regarding a proposed road network nor intersection geometry to support Secondary Plan Area F2. As such, the expected queues and corresponding storage length requirements should be confirmed in future studies in support of Secondary Plan Area F2.

No further queueing concerns are expected for the future roadway connections. Nevertheless, these findings will need to be reviewed and confirmed once the internal road network to support the Tullamore Northwest Employment Area is finalized and proposed in a subsequent development application(s).

### 9.5 Recommendations Summary

**Table 41** summarizes the improvements that should be considered, and protected for, to support future roadway connection opportunities.

**Table 41: Future Roadway Connections Improvement Considerations**

| Location | Improvement Considerations |
|---|---|
| Potential Torbram Road Connection | Implement the following two-way turn lane storage for the following movements:<br>• WBL: 55 m<br>• SBL: 55 m |
| Potential Airport Road Connection | Implement signal control.<br><br>Implement the following two-way turn lane storage for the following movements:<br>• EBL: 55 m<br>• NBL: 55 m<br><br>Confirm the need for and implement a 65 m WBR auxiliary turn lane. |
| Potential Old School Road Connection | Implement the following two-way turn lane storage for the following movements:<br>• WBL: 55 m<br>• NBL: 55 m |

As previously noted, these recommendations will be reviewed and confirmed in future site-specific development application(s), once the internal collector road network and specific land use proposals are confirmed. Nevertheless, the conservative analysis outlined herein illustrates that potential improvements required to support the Secondary Plan can be implemented within the planned cross-sections associated with the Airport Road, Old School Road and Torbram Road widening and urbanization. Accordingly, the study road network and any potential connections to/from the Secondary Plan lands can adequately support full buildout of the Secondary Plan Area.

## 10.0 Transportation Framework

A multi-modal transportation framework for the Tullamore Northwest Employment Area Secondary Plan will comprise the approach and implementation of multi-modal transportation facilities and elements for the Tullamore Northwest Employment Area. The following considerations are outlined herein:

- Active Transportation Strategy
- Transit Strategy
- Transportation Demand Management Strategy
- Multi-Modal Safety

### 10.1 Active Transportation Strategy

Active transportation infrastructure can be provided within the Subject Lands as part of a future internal collector road network, which connects to the external active transportation facilities planned as part of future road widenings. Given the potential connection to the Tullamore Industrial Business Park via Street B, it is expected that future public roadways would provide continuity with the approved cross-section. This cross-section has a 26 m right-of-way and includes a 3.0 m multi-use path on one-side of the road and a 1.8 m sidewalk on the other.

**Figure 19** illustrates the proposed 26 m cross-section for Ionic Drive, as outlined in the Tullamore Industrial Business Park Transportation Impact Study Update (Crozier, April 2025).

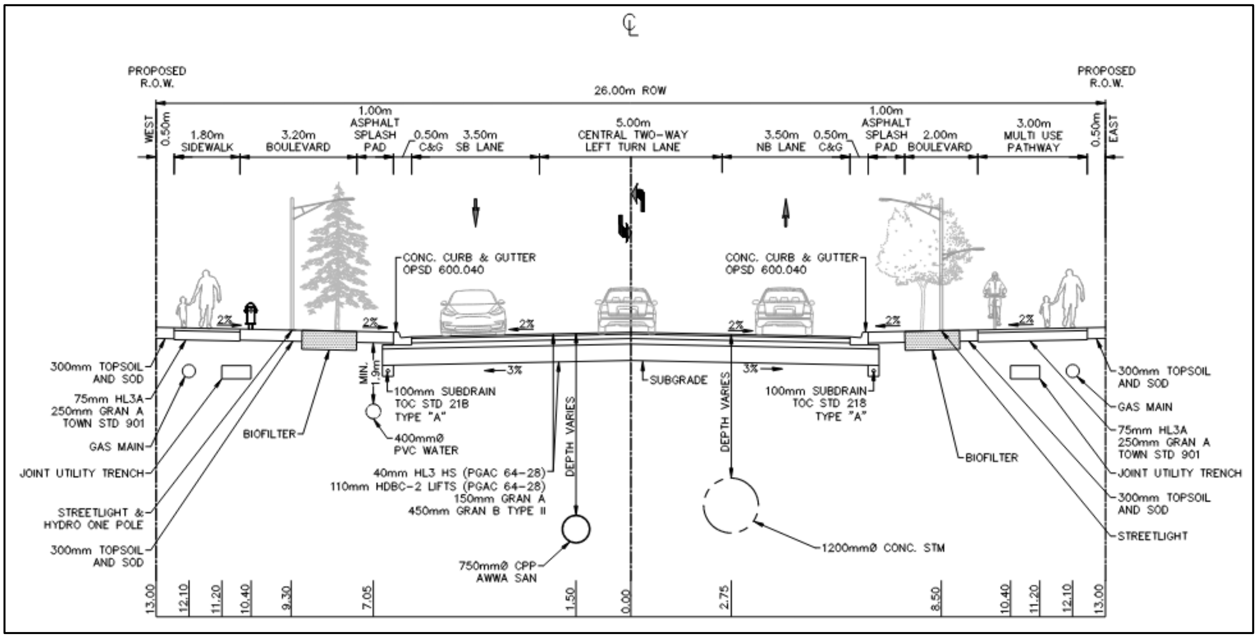


**Figure 19: Proposed 26 m Cross-Section – Street B**

It is also expected that multi-use trails within the Natural Heritage System will be explored as part of future site-specific applications. The details regarding the proposed internal active transportation network will be included as part of future site-specific applications, with a focus on increased walkability as well as active transportation connections to transit stops and the Town's wider trail system.

## 10.2 Transit Strategy

The Town of Caledon currently provides transit service within its municipal limits through a contract with Brampton Transit. As such, there is the opportunity to provide future transit connectivity to the Proposed Development through extensions of existing and planned Brampton Transit service. The existing Brampton Transit Route 30 and planned Brampton Transit Route 14 operate near the Subject Lands. Modifications to this route are being explored through the adjacent Tullamore Industrial Business Park development applications. Further extension of local bus routes through the Secondary Plan area are recommended to support transit access for future employees.

The Subject Lands are also located within 500 m of the Highway 413 interchange off Airport Road, and the associated transit stop. The establishment of new routes along corridors such as Airport Road and Old School Road to serve the new communities also presents an opportunity to integrate routes and transit infrastructure within the Secondary Plan lands where possible.

As plans advance for site specific applications, future bus stop locations within the Secondary Plan area should aim to be located within 400 m of building accesses to increase accessibility and promote transit use as primary transportation mode. Further discussions with the Town and Brampton Transit should occur in conjunction with site-specific applications, to establish potential transit route extensions, modifications and peak hour headways once shift change times have been confirmed.

### 10.3 Transportation Demand Management Strategy

As outlined in **Section 4.1.2** and **Section 4.1.5**, the Region of Peel and Town of Caledon outlines a 32% sustainable mode share target within the Town of Caledon for 2041. In order to realize these sustainable mode share targets, future development within the Tullamore Northwest Employment Area should implement and follow a transportation demand management (TDM) strategy that enhances the viability of alternate modes to the automobile.

TDM considerations for the Secondary Plan area include:

- Off-Peak Shift Changes
- Real-Time Transit Information Screens
- Wayfinding Signage
- Cycling Supportive Infrastructure
- Electric Vehicle Infrastructure
- Carpooling Opportunities
- Smart Commute Opportunities
- Priority Rideshare and Pick-Up/Drop-Off Areas

Further details regarding a comprehensive TDM strategy will be reviewed and prepared as part future site-specific application(s).

### 10.4 Multi-Modal Safety

A comprehensive multi-modal safety review will be prepared as part of future site-specific application(s), once the internal collector road network is confirmed. This will include a review of the proposed internal collector road network geometry. Furthermore, the following considerations may be implemented as part of future work to support multi-modal safety within the Subject Lands:

- Traffic Calming Measures
- Controlled Active Transportation Crossings
- Dedicated Active Transportation Facilities
- External Active Transportation Connectivity

### 10.5 Summary

The comprehensive development of lands within the Secondary Plan can continue to advance through future site-specific development applications. At such time, additional details regarding an area-wide active transportation, transit and collector road network consistent with the Town's policy objectives will be refined.

## 11.0 Truck Route and Circulation Considerations

Airport Road and Mayfield Road serve as the primary trucking corridors within the study area. As outlined in the Town's Traffic By-Law 2024-048 heavy trucks are currently prohibited from using local roads as throughfares but may be permitted in some instances to support local deliveries.

Currently, the segments of Old School Road and Torbram Road fronting the Secondary Plan lands are also subject to spring load restrictions to a maximum of 5 tonnes per axle from March 1st to April 30th annually.
Torbram Road and Old School Road have been identified for widening to four-lanes by 2031 and 2041, respectively. It is expected that once reconstructed, these roads will no longer require half load season restrictions during spring. However, as these areas abut lands planned for industrial employment, of which truck traffic is essential to their operations, the Town should ensure that the post-widened roadways, particularly Old School Road can adequately support truck traffic year-round.

This is also an important consideration from the perspective of future development phasing. As developments proceed at varying timelines, lands without direct connections to Airport Road or Street B would be unable to effectively develop as industrial sites with respective heavy truck demands that exceed these load thresholds. As parcel ownership west of the Natural Heritage System is not consolidated, the Town should consider Old School Road between Airport Road and Torbram Road as an alternate truck circulation corridor given the potential for roadway connections off Old School Road.

Given the proximity of the Subject Lands to the future Highway 413 interchange at Airport Road, opportunities for more direct heavy truck circulation should be considered to support efficient truck routes, preserve site-specific opportunities, and reduce required circuity for trucks, if truck access is limited to future connections off Airport Road. This consideration would also support redundancy for future industrial development in individual parcels, that may otherwise be land-locked or require land use changes if heavy truck circulation options weren't available via Old School Road. In addition, while the development of an internal collector road network with connections to Airport Road and Ionic Drive can address some of these concerns, optimal alignments will be impacted by Natural Heritage System limits and property ownership such that final alignments may not preclude potential truck route inefficiencies that would otherwise be addressed by this segment of Old School Road being designed to accommodate trucks.

**Figure 20** illustrates the heavy truck circulation considerations.

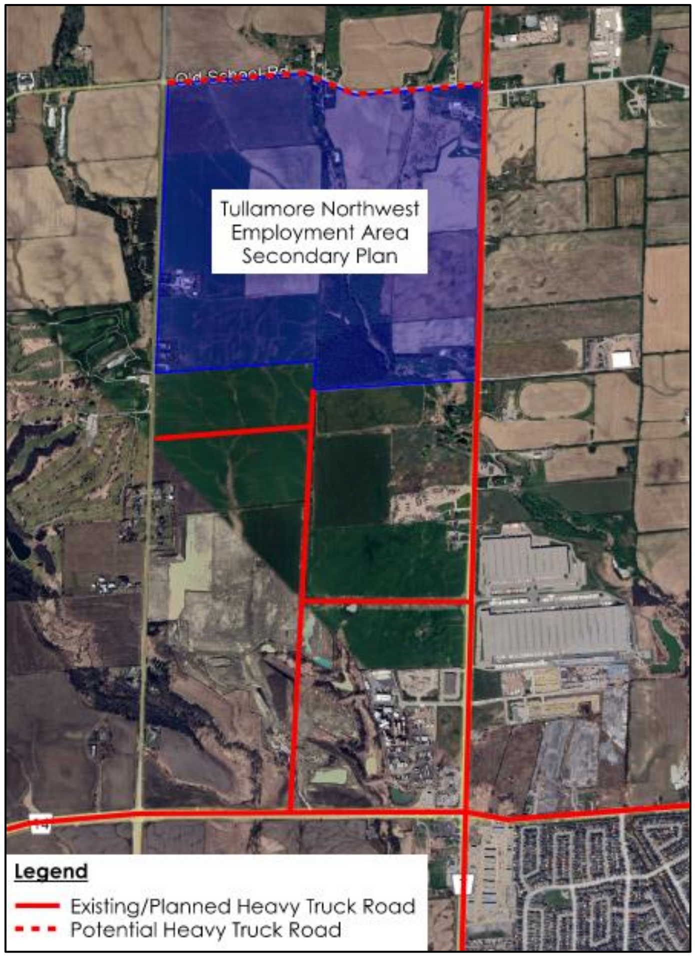



**Figure 20: Heavy Truck Restriction Considerations**

We note that should the Town elect to maintain existing truck permissions even after the widening of Old School Road to four lanes, full buildout of Secondary Plan lands can still be supported; however, truck circulation for specific sites may potentially be less efficient. Accordingly, we recommend the Town consider year-round truck accommodation for the future design of this segment of Old School Road as noted in **Figure 20**.

# 12.0 Conclusions & Recommendations

The Transportation Study has reviewed the transportation impacts associated with and outlines a framework for the Tullamore Northwest Employment Area Secondary Plan. The Tullamore Northwest Employment Area covers an area of 165.7 ha and will consist of various industrial employment uses.

To provide flexibility for future site-specific applications, a detailed internal collector road network was not prescribed as part of this study; however, future site-specific applications will be required to detail access, road alignment and active transportation connections. Accordingly, the Land Use Schedule does not outline a detailed collector road network. Instead, conceptual roadway connections to the abutting road network have been assumed for the purposes of operations analysis. These conceptual roadway connections assumed herein are generally in accordance with the collector road network outlined in the Town of Caledon's Multi-Modal Transportation Master Plan (June 2024), recognizing that the Town has recently commenced an update to the TMP given that it is considered to be out of date resulting from growth across South Caledon. The updated TMP is expected to be completed later this year (2025). The details regarding the internal collector road network, including road alignments and external connections, will be determined as individual site-specific development applications are advanced.

## 12.1 Conclusions

The analyses contained within this report has resulted in the following key findings:

**2025 Existing Conditions**

- The study road network is operating at a LOS "E" or better with lower to moderate control delays and volume-to-capacity (v/c) ratios. As such, these metrics indicate that the intersections are operating efficiently with reserve capacity for future growth.
- There are no major queueing concerns that are expected to cause significant impacts within the study area.

**2044 Future Background Conditions**

- Future background traffic volumes were forecasted by application of corridor growth rates and inclusion of background development trip assignments as confirmed with the Region and Town during the terms of reference.
- While a traffic signal is not warranted for Airport Road & Perdue Court/Davis Lane, it is recommended that the intersection be signalized to support future background traffic operations.
- The signalized intersection of Mayfield Road & Airport Road is expected to operate with a LOS "D" or better with a maximum control delay and v/c ratio of 49 s and 1.06, respectively. While the intersection is expected to operate above the theoretical capacity, the intersection is still expected to operate efficiently with a moderate LOS and control delay.
- Mayfield Road & Torbram Road is expected to operate at a LOS "E" with a maximum control delay and v/c ratio of 59 s and 1.20, respectively.

- As the intersection is expected to operate above the theoretical capacity, the cycle length can be increased to 145 s to improve operations. With the increased cycle length, the intersection is expected to operate at a LOS “E” or better with a maximum control delay of 63 s and a maximum v/c ratio of 1.15. Despite the minor increase in intersection control delay, a significant decrease in control delay for the critical movements is expected. Thus, increasing the cycle length to allocate additional time to the critical movements is appropriate.

- It is recommended that the Region monitors traffic operations along Mayfield Road to determine if signal timing plan improvements are required as well as confirm if the projected traffic growth materializes.

- The remaining study intersections are expected to operate efficiently at a LOS “C” or better with low to moderate control delays and v/c ratios.

- The queues for the following movements are expected to exceed the effective storage length:

  - Mayfield Road & Airport Road (NBL)

  - Mayfield Road & Torbram Road (EBL, NBL)

**2044 Future Total Conditions**

- The Secondary Plan area is expected to generate 1,484 and 1,484 two-way vehicle trips during the weekday a.m. and p.m. peak hours, respectively assuming the conservative Industrial Park land use. This is expected to consist of 207 and 207 two-way heavy truck trips during the weekday a.m. and p.m. peak hours, respectively, as well as 1,277 and 1,277 two-way mode split adjusted passenger car trips during the weekday a.m. and p.m. peak hours, respectively.

  - The trip generation can be considered conservative as Land Use Category (LUC) 130 “Industrial Park” was assumed, as the exact mix of industrial uses are unknown, and most industrial uses have a lower trip generation rate. For comparison purposes, if LUC 150 “Warehousing” was assumed, 881 and 933 two-way vehicle trips are expected for the weekday a.m. and p.m. peak hours, respectively. This represents a reduction in at least 50% in comparison to LUC 130 “Industrial Park”. Since the trip generation associated with LUC 130 “Industrial Park” was used herein, the analysis can be considered conservative.

- The Mayfield Road & Airport Road intersection is expected to operate at a LOS “E” or better with a maximum control delay and v/c ratio of 55 s and 1.18 respectively. While the intersection is expected to operate above theoretical capacity, this represents a minor increase of 7 s and 0.12 in control delay and v/c ratio, respectively, in comparison to future background conditions.

  - Nevertheless, the cycle length can be increased to 145 s to improve operations. With the increased cycle length, the intersection is expected to operate with a LOS “D” and improved control delay of 54 s and v/c ratio of 1.10.

- Under future total conditions, Mayfield Road & Torbram Road is expected to operate at a LOS “E” with a maximum increase in control delay and v/c ratio of 12 s and 0.08, respectively.

- Airport Road & Old School Road/Healy Road is expected to operate at a LOS "D" or better. While some approaches are operating above the Region's critical threshold of 0.85, the intersection is still anticipated to operate efficiently with moderate control delays. These metrics are not uncommon during peak hours on heavily travelled arterial corridors, such as Airport Road.
    - Should a westbound right-turn by-pass be implemented, the roundabout operations are expected to improve to a LOS "B" or better and with v/c ratios under 1.0. It is noted that given the trip generation assumptions can be considered conservative, with warehousing trip generation representing at least a 50% reduction in comparison to the assumed industrial park, the operations outlined herein may be overstated, and the by-pass may not be required. Nevertheless, a potential westbound right-turn by-pass as part of the Healy Road widening should be protected for, should the need arise for future implementation.
- The remaining study intersections are expected to continue operating efficiently at a LOS "C" or better as well as low-to-moderate control delays and v/c ratios, with reserve capacity to accommodate future traffic growth.
- Overall, the intersection operations indicate that the site generated traffic is not expected to significantly impact the study road network, and with the recommended improvements and signal optimizations, the proposed future intersections are expected to operate acceptably. Therefore, the Secondary Plan site-generated traffic can be supported.

**Roadway Connection Opportunities Review**

- An internal collector road network will be required to support the Tullamore Northwest Employment Area; however, a comprehensive collector road network has not been prescribed at the time of writing to provide flexibility for future development via site-specific applications. Instead, to demonstrate potential roadway connectivity to the Subject Lands and the adequacy of potential intersections, operations conservatively assumed consolidated, conceptual roadway connections with one each to Torbram Road, Airport Road, Old School Road and Mayfield Road (via Street B).
    - Based on the applicable intersection spacing requirements, along the site frontage, there is the potential to accommodate 4 full-moves accesses to Airport Road and Torbram Road as well as 9 full-moves accesses to Old School Road. Therefore, significant connection opportunities exist to support the Secondary Plan lands.
- Signal warrants were assessed for the potential roadway connections, under 2044 future total conditions, and a signal would be warranted at the potential consolidated Airport Road Connection.
- The future potential road connections to Torbram Road, Airport Road and Old School Road are expected to operate at a LOS "D" or better with low to moderate control delays and v/c ratios. In addition, no queues concerns are expected at the future roadway connections.
    - Should additional connections be proposed off the external road network, improved operations are expected. Thus, the future road connections are

supportable from a transportation perspective.

- These findings will need to be reviewed and confirmed once the internal road network is finalized and proposed in a subsequent development application(s).

**Transportation Framework**

- Active transportation infrastructure can be provided within the Subject Lands as part of a future internal collector road network, which connects to external active transportation facilities planned as part of road widening and urbanization of Old School Road and Torbram Road.
  - Given the potential connection to Tullamore Industrial Business Park via Ionic Drive, it is expected that continuity with the approved cross-section will be provided by future public roadways. The approved 26 m cross-section includes a multi-use path on one side of the road and a sidewalk on the other side.
  - Multi-use trail connections to the Natural Heritage System should also be explored as part of future site-specific development applications.
- Transit service via extensions of existing and planned routes should be accounted for in the development of an internal collector road network as part of future site-specific development applications. Where feasible, development should be located within 400 m from a transit stop
- To support the Town and Region's sustainable mode share targets, the Tullamore Northwest Employment Area should implement a transportation demand management strategy that enhances the viability of sustainable transportation modes. The following measures should be considered as part of future site-specific applications:
  - Off-Peak Shift Changes
  - Real-Time Transit Information Screens
  - Wayfinding Signage
  - Cycling Supportive Infrastructure
  - Electric Vehicle Infrastructure
  - Carpooling Opportunities
  - Smart Commute Opportunities
  - Priority Rideshare and Pick-Up/Drop-Off Areas
- The comprehensive development of lands within the Secondary Plan can continue to advance, as desired through future site-specific development applications. At such time, additional details regarding an area-wide active transportation, transit and collector road network consistent with the Town's policy objectives will be refined.
- We recommend the Town consider permitting an alternate year-round truck routes for the segment of Old School Road between Airport Road and Torbram Road given the

proximity to the Highway 413 Interchange with Airport Road, potential for accesses on Old School Road and to support increased truck route efficiency and reduce circuity. These improvements can be coordinated as part of the planned widening to four lanes by 2041.

### 12.2 Recommendations

**Table C1** summarizes the recommended improvements.

**Table C1: Recommended Improvements**

| Location | Improvement |
|---|---|
| **2044 Future Background** | |
| Mayfield Road | Maintain schedule for planned road widening and associated improvements between Airport Road and Coleraine Drive. |
| Airport Road | Maintain schedule for planned road widening and associated improvements between Mayfield Road and King Street. |
| Torbram Road | Maintain schedule for planned road widening and urbanization between Mayfield Road and Old School Road. |
| Highway 413 | Maintain schedule for planned highway between Highway 401 to Highway 400. |
| Street A | Maintain schedule for planned roadway between Mayfield Road and Street B. |
| Street B | Maintain schedule for planned roadway between Tullamore Industrial Business Park northern limits and Mayfield Road. |
| Street C | Maintain schedule for planned roadway between Street B and Torbram Road. |
| Mayfield Road & Airport Road | Extend the NBL auxiliary turn lane (135 m). |
| Mayfield Road & Torbram Road | Extend auxiliary turn lanes for the following movements:<br>• EBL: 160 m<br>• NBL: 190 m |
| Mayfield Road & Torbram Road | Implement auxiliary turn lanes for the following movements per Mayfield-Tullamore Secondary Plan.<br>• WBL (Dual): 75 m<br>• WBR: 60 m |
| Torbram Road & Old School Road | Implement signal control per Mayfield-Tullamore Secondary Plan. |
| Airport Road & Old School Road/Healy Road | Maintain schedule for planned roundabout, with two lanes on each approach. |

| Location | Improvement |
|---|---|
| Airport Road & Street A/12333 Airport Road | Implement planned signal control per Tullamore Industrial Business Park.<br><br>Implement auxiliary turn lanes for the following movements per Tullamore Industrial Business Park.<br>• EBL: 55 m<br>• NBL: 120 m<br>• SBR: 100 m |
| Airport Road & Perdue Court/Davis Lane | Implement signal control. |
| Mayfield Road & Street B | Implement signal control per Tullamore Industrial Business Park.<br><br>Implement auxiliary turn lanes for the following movements per Tullamore Industrial Business Park.<br>• EBL: 55 m<br>• WBR: 130 m<br>• SBL: 55 m<br><br>Implement auxiliary turn lanes for the following movements per Countryside Villages Block 48-2.<br>• EBR: 30 m<br>• WBL: 105 m<br>• NBL: 55 m |
| Torbram Road & Street C | Implement planned one-way stop control per Tullamore Industrial Business Park.<br><br>Implement auxiliary turn lanes for the following movements per Tullamore Industrial Business Park.<br>• EBL: 55 m<br>• WBL: 55 m<br><br>Implement auxiliary turn lanes for the following movements per the Mayfield-Tullamore Secondary Plan.<br>• NBL: 55 m<br>• SBL: 55 m |
| **2044 Future Total Considerations** | |
| Mayfield Road & Airport Road | Extend the NBL auxiliary turn lane (150 m). |
| Mayfield Road & Torbram Road | Extend auxiliary turn lanes for the following movements:<br>• EBL: 170 m<br>• NBL: 205 m |
| Airport Road & Old School Road/Healy Road | Protect for a potential westbound right-turn by-pass as part of the Healy Road widening. |
| **Future Roadway Connection Considerations** | |

| Location | Improvement |
|---|---|
| Potential Torbram Road Connection | Implement the following two-way turn lane storage for the following movements:<br>• WBL: 55 m<br>• SBL: 55 m |
| Potential Airport Road Connection | Implement signal control.<br><br>Implement the following two-way turn lane storage for the following movements:<br>• EBL: 55 m<br>• NBL: 55 m<br><br>Confirm the need for and implement a 65 m WBR auxiliary turn lane. |
| Potential Old School Road Connection | Implement the following two-way turn lane storage for the following movements:<br>• WBL: 55 m<br>• NBL: 55 m |

We note that the 2044 future total considerations illustrate improvements required to support full buildout of the secondary plan with conservative trip generation. However, these improvements are highlighted to demonstrate that they can be feasibly implemented on the study road network and therefore the Secondary Plan can be supported. As the trip generation can potentially be significantly lower depending on the ultimate land uses implemented, as site specific applications advance network improvements should be confirmed.

In summary, the study road network can support the full buildout of the Secondary Plan area with the improvement considerations noted, recognizing that as land uses are confirmed with future site-specific applications, significant reductions in trip generation may result. Further development of a connected mobility framework consistent with the Town's policy objectives will also be refined as part of site-specific applications. Moreover, given the site's frontage on Airport Road, Torbram Road and Old School Road, several connection opportunities to the study road network exist to effectively support multimodal circulation.

We trust that this review addresses any transportation-related concerns with the project. Should you have any questions or require any further information, please do not hesitate to contact the undersigned.

Respectfully submitted by,

**C.F. CROZIER & ASSOCIATES INC.**

My-Linh Yee, EIT
Engineering Intern, Transportation

**C.F. CROZIER & ASSOCIATES INC.**

Michael A. Linton, MASc., P.Eng., Associate
Senior Project Manager, Transportation

/MY

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# APPENDIX A:

## Correspondence

Outlook

## RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference

**From** Barnes, Catherine <catherine.barnes@peelregion.ca>
**Date** Tue 1/14/2025 1:26 PM
**To** My-Linh Yee <myee@cfcrozier.ca>; Kavleen Younan <Kavleen.Younan@caledon.ca>
**Cc** Emma Howlett <Emma.Howlett@caledon.ca>; Michael Linton <mlinton@cfcrozier.ca>; Rani Kol <Rani.Kol@peelregion.ca>; Hamdani, Hashim <Hashim.Hamdani@peelregion.ca>; Amaral, Patrick <patrick.amaral@peelregion.ca>

Hi My-Linh,

The Region did not have any further comments, as noted in the meeting, we will support the Town's approach.

Thank you,

**Catherine Barnes**
**Region of Peel**
**Specialist, Transportation Development**
Transportation Division, Public Works.
10 Peel Centre Drive, Suite B, 4th Floor
Brampton, ON , L6T 4B9
**During this Health Emergency please contact me via email as I am out of the office working remotely.**

Region of Peel
working with you

**Please consider the environment before printing this email.**
Our working hours may be different. Please do not feel obligated to reply outside of your working hours.

The Region of Peel is situated on the Treaty Lands and Territory of the Mississaugas of the Credit First Nation as well as the traditional territory of the Anishinabeg, Huron-Wendat and Haudenosaunee peoples.



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**From:** My-Linh Yee <myee@cfcrozier.ca>
**Sent:** Tuesday, January 14, 2025 9:20 AM
**To:** Kavleen Younan <Kavleen.Younan@caledon.ca>; Barnes, Catherine <catherine.barnes@peelregion.ca>
**Cc:** Emma Howlett <Emma.Howlett@caledon.ca>; Michael Linton <mlinton@cfcrozier.ca>; Kol, Rani <rani.kol@peelregion.ca>; Hamdani, Hashim <Hashim.Hamdani@peelregion.ca>; Amaral, Patrick <patrick.amaral@peelregion.ca>
**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference



Hi Kavleen and Catherine,

I hope you are doing well and having a good start to the new year. I just wanted to follow up regarding on the details provided below. Please let me know if the Town or Region has any additional comments or want to hop on another call to discuss further.

Thanks,
My-Linh

**My-Linh Yee**, EIT
Engineering Intern, Transportation
Office: 905.876.7159
Collingwood | Milton | Toronto | Bradford | Guelph

**From:** My-Linh Yee <myee@cfcrozier.ca>
**Sent:** December 12, 2024 2:20 PM
**To:** Kavleen Younan <Kavleen.Younan@caledon.ca>; Barnes, Catherine <catherine.barnes@peelregion.ca>
**Cc:** Emma Howlett <Emma.Howlett@caledon.ca>; Michael Linton <mlinton@cfcrozier.ca>; Rani Kol <Rani.Kol@peelregion.ca>; Hamdani, Hashim <Hashim.Hamdani@peelregion.ca>; Amaral, Patrick <patrick.amaral@peelregion.ca>
**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference

Hi Kavleen and Catherine,

Thanks for meeting with us earlier this week. As promised, we are following up with a couple of details for your information.

Study Intersections

As discussed, given the proximity to the Highway 413 Airport Road interchange and the Subject Land's location, we propose for the study area to be generally bound by Torbram Road to the west, Airport Road to the east, Old School Road to the north and Mayfield Road to the south, including the additional intersection of Airport Road & Perdue Court/Davis Lane. The intersections along Bramlea Road and Innis Lake Road would only carry through movements and anyone travelling from the Highway 413 would enter/exit at the more convenient Airport Road interchange.

Study Horizon

Given the uncertainty of when other lands will development, we propose that the study horizons will consist of the existing (2024) and ultimate (2044 (10 years from 2034 buildout)) horizons. The ultimate horizon will confirm the external road improvements required to support the full buildout of the Secondary Plan as well as confirm the internal road network needs. As lands come forward, more intermediate horizons would be required as part of their individual development applications to confirm if interim improvements are needed. We expect when Site Plan Application for the Broccolini Lands is advanced, the terms of reference may contain interim horizons.

We thought this approach would be appropriate given that planned capital improvements within the area are all scheduled by 2031, so the 2044 horizon would represent the worst case scenario for analysis.

Background Development – Caleon Secondary Plan Area F2

Can you provide any information for Secondary Plan Area F2. If no information is available, we propose to assume the following:

- Trip generation:
  - Using the developable area (less natural heritage constraints), estimate of warehouse GFA will be estimated by the percent building coverage of existing warehouses in the area. We've calculated this to be ~44% based on the existing industrial developments at 12347, 12333, and 12203 Airport Road.
- Trip distribution:
  - Based on TTS data, assuming the collector network per Schedule C1 of the Town's Official Plan.

Please let me know if you have any further questions or want to hop on another call.

Thanks,
My-Linh

Please note that our offices will be closed for the holidays from noon on December 24, reopening on January 2.

**My-Linh Yee**, EIT
Engineering Intern, Transportation
Office: 905.876.7159
Collingwood | Milton | Toronto | Bradford | Guelph

**From:** My-Linh Yee <myee@cfcrozier.ca>
**Sent:** December 4, 2024 10:02 AM
**To:** Kavleen Younan <Kavleen.Younan@caledon.ca>; Barnes, Catherine <catherine.barnes@peelregion.ca>
**Cc:** Emma Howlett <Emma.Howlett@caledon.ca>; Michael Linton <mlinton@cfcrozier.ca>; Rani Kol <Rani.Kol@peelregion.ca>; Hamdani, Hashim <Hashim.Hamdani@peelregion.ca>; Amaral, Patrick <patrick.amaral@peelregion.ca>
**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference

Hi Kavleen,

Thanks for the confirmation. I just sent out a Teams invite, please let me know if you did not get it.

Cheers,
My-Linh

**My-Linh Yee**, EIT
Engineering Intern, Transportation
Office: 905.876.7159

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This email was sent on behalf of C.F. Crozier & Associates Inc. and may contain confidential and/or privileged information for the sole use of the intended recipient. If you have received this email in error, please contact the sender and delete all copies. Any review or distribution by anyone other than the intended recipient is strictly prohibited.

**From:** Kavleen Younan <Kavleen.Younan@caledon.ca>
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**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference

Hi My-Linh,

December 9 from 1pm-2pm works for the Town as well.

**Kavleen S. Younan, P.Eng.**
Transportation Engineer
Engineering, Public Works & Transportation Department

Email: kavleen.younan@caledon.ca
Town of Caledon | www.caledon.ca | www.visitcaledon.ca | Follow us @TownofCaledon

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**From:** My-Linh Yee <myee@cfcrozier.ca>
**Sent:** Wednesday, December 4, 2024 9:47 AM
**To:** Barnes, Catherine <catherine.barnes@peelregion.ca>; Kavleen Younan <Kavleen.Younan@caledon.ca>
**Cc:** Emma Howlett <Emma.Howlett@caledon.ca>; Michael Linton <mlinton@cfcrozier.ca>; Rani Kol <Rani.Kol@peelregion.ca>; Hamdani, Hashim

<Hashim.Hamdani@peelregion.ca>; Amaral, Patrick <patrick.amaral@peelregion.ca>
**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference



Hi Catherine,

I can send out an invite for Monday December 9th from 1 p.m. to 2 p.m. We don't think it'll take the full hour but we'll block it off just in case.

@Kavleen Younan – does this time work for the Town as well?

Thanks,
My-Linh

**My-Linh Yee**, EIT
Engineering Intern, Transportation
Office: 905.876.7159

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**From:** Barnes, Catherine <catherine.barnes@peelregion.ca>
**Sent:** December 4, 2024 9:41 AM
**To:** My-Linh Yee <myee@cfcrozier.ca>; Kavleen Younan <Kavleen.Younan@caledon.ca>; Rani Kol <Rani.Kol@peelregion.ca>
**Cc:** Emma Howlett <Emma.Howlett@caledon.ca>; Michael Linton <mlinton@cfcrozier.ca>; Hamdani, Hashim <Hashim.Hamdani@peelregion.ca>; Amaral, Patrick <patrick.amaral@peelregion.ca>
**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference

Hi My-Linh,

Thank you for reaching out. We can definitely set up a meeting to chat. In terms of the Region and Town having differing requirements for TIS, it would be best practice to implement the 'higher' ask. But we can review and chat for sure. We have some availability Monday afternoon between 1-3:30 pm, if that works, feel free to send an invite.

Thank you,

**Catherine Barnes**
**Region of Peel**
**Specialist, Transportation Development**
Transportation Division, Public Works.
10 Peel Centre Drive, Suite B, 4th Floor
Brampton, ON , L6T 4B9
**During this Health Emergency please contact me via email as I am out of the office working remotely.**

**From:** My-Linh Yee <myee@cfcrozier.ca>
**Sent:** Monday, December 2, 2024 4:02 PM
**To:** Kavleen Younan <Kavleen.Younan@caledon.ca>; Kol, Rani <rani.kol@peelregion.ca>
**Cc:** Emma Howlett <Emma.Howlett@caledon.ca>; Michael Linton <mlinton@cfcrozier.ca>; Barnes, Catherine <catherine.barnes@peelregion.ca>; Hamdani, Hashim <Hashim.Hamdani@peelregion.ca>; Amaral, Patrick <patrick.amaral@peelregion.ca>
**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference



Hi Kavleen and Rani,

I hope you are doing well. We are wondering if the Town and Region are available to meet to discuss a couple of the comments received regarding our proposed Terms of Reference for the Tullamore North Employment Area. We just wanted to confirm a couple of items regarding the following:

- Study Horizon (we note the Town and Region had different comments on this)
- Study Area
- Background Developments (approach for Secondary Plan Area F2 of Map F3 and confirmation of Tullamore Secondary Plan assumptions)

We don't think this will take too long, likely only a half hour. Can you provide your availability later this week or early next week to connect?

Thanks,
My-Linh

**My-Linh Yee**, EIT
Engineering Intern, Transportation
Office: 905.876.7159
Collingwood | Milton | Toronto | Bradford | Guelph

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**From:** Kavleen Younan <Kavleen.Younan@caledon.ca>
**Sent:** November 28, 2024 1:57 PM
**To:** Michael Linton <mlinton@cfcrozier.ca>; My-Linh Yee <myee@cfcrozier.ca>
**Cc:** Emma Howlett <Emma.Howlett@caledon.ca>
**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference

Hi Michael,

I appreciate your patience on this. Please find our comments attached. Let me know if you have any questions/concerns.

**Kavleen S. Younan, P.Eng.**
Transportation Engineer
Engineering, Public Works & Transportation Department

Email: kavleen.younan@caledon.ca
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**From:** Michael Linton <mlinton@cfcrozier.ca>
**Sent:** Friday, November 22, 2024 10:41 AM
**To:** Kavleen Younan <Kavleen.Younan@caledon.ca>; My-Linh Yee <myee@cfcrozier.ca>
**Cc:** Emma Howlett <Emma.Howlett@caledon.ca>
**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference



Good Morning Kavleen and Emma,

Hope you both are doing well. Would you happen to have an update on when you may be able to share your comments on the TOR?

Thanks,

Mike

**Michael Linton**, M.A.Sc., P.Eng. | Associate
Senior Project Manager, Transportation
Office: 905.693.7849

Collingwood | Milton | Toronto | Bradford | Guelph

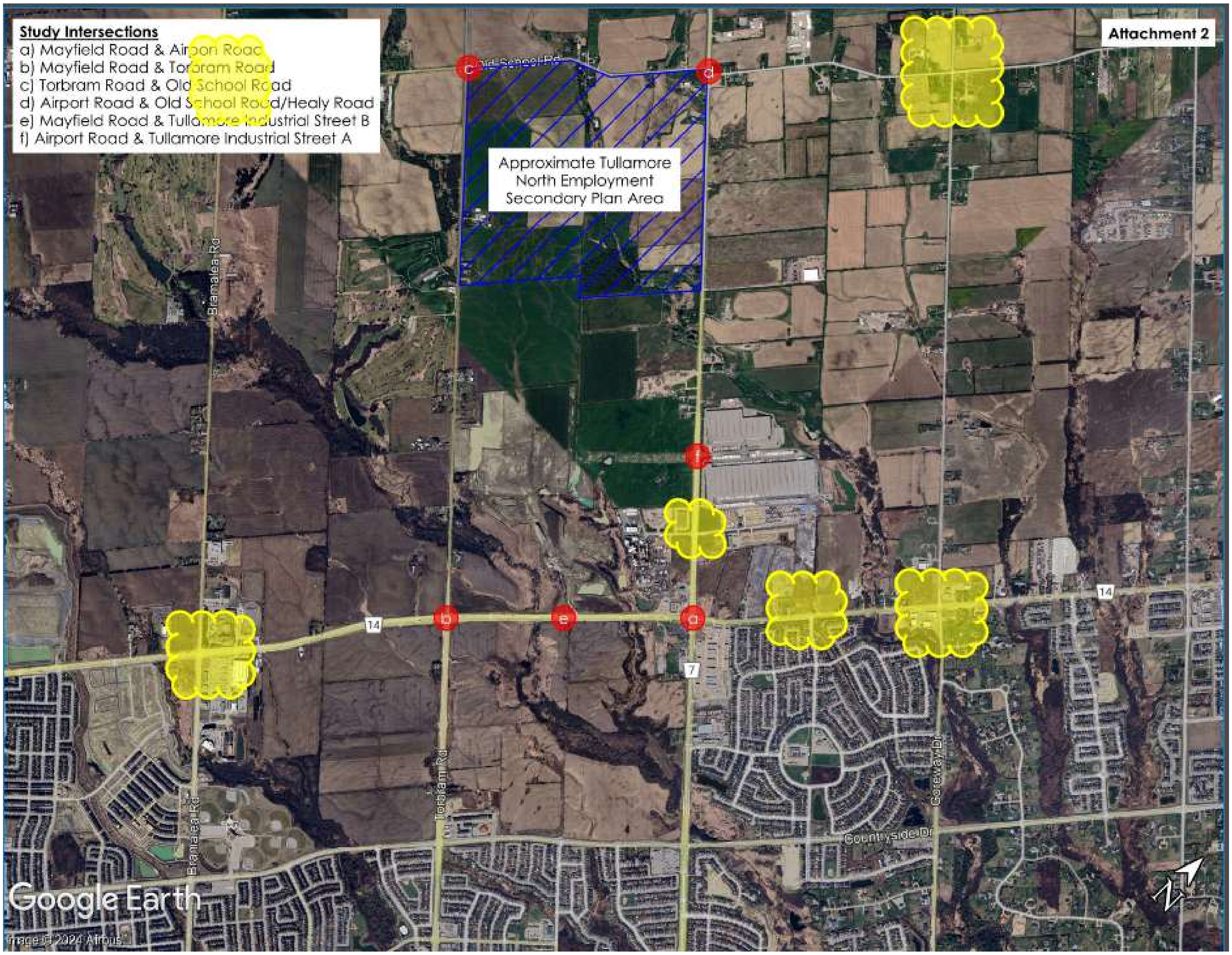


**From:** Kavleen Younan <Kavleen.Younan@caledon.ca>
**Sent:** November 14, 2024 12:55 PM
**To:** My-Linh Yee <myee@cfcrozier.ca>
**Cc:** Michael Linton <mlinton@cfcrozier.ca>; Emma Howlett <Emma.Howlett@caledon.ca>
**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference

Hi My-Linh,

Please see the below photo for additional existing intersections that we'd like included in the analysis. Detailed comments on the ToR to be followed shortly.

Additionally, please ensure that MTO and Peel Region have also been consulted for the ToR.




**Kavleen S. Younan, P.Eng.**
Transportation Engineer
Engineering, Public Works & Transportation Department

Email: kavleen.younan@caledon.ca
Town of Caledon | www.caledon.ca | www.visitcaledon.ca | Follow us @TownofCaledon


**From:** My-Linh Yee <myee@cfcrozier.ca>
**Sent:** Thursday, November 14, 2024 11:40 AM
**To:** Kavleen Younan <Kavleen.Younan@caledon.ca>
**Cc:** Michael Linton <mlinton@cfcrozier.ca>; Emma Howlett <Emma.Howlett@caledon.ca>
**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference

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Hi Kavleen,

I just wanted to follow up again about the Town's TOR response. If you don't expect we'll get it in the coming days, are you able to confirm the study intersections so we can get the TMCs conducted?

Thanks,
My-Linh

**My-Linh Yee**, EIT
Engineering Intern, Transportation
Office: 905.876.7159

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**From:** My-Linh Yee
**Sent:** November 5, 2024 2:27 PM
**To:** Kavleen Younan <Kavleen.Younan@caledon.ca>
**Cc:** Michael Linton <mlinton@cfcrozier.ca>; Emma Howlett <Emma.Howlett@caledon.ca>
**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference

Hi Kavleen,

I just wanted to follow up regarding the Town's TOR response.

Thanks,
My-Linh

**From:** My-Linh Yee <myee@cfcrozier.ca>
**Sent:** October 31, 2024 1:34 PM
**To:** Kavleen Younan <Kavleen.Younan@caledon.ca>
**Cc:** Michael Linton <mlinton@cfcrozier.ca>; Emma Howlett <Emma.Howlett@caledon.ca>
**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference

Hi Kavleen,

Getting all the Town's responses tomorrow works great, as we will have to wait to get the counts until mid-next week anyways.

Thanks,
My-Linh

**My-Linh Yee**, EIT
Engineering Intern, Transportation
Office: 905.876.7159

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**From:** Kavleen Younan <Kavleen.Younan@caledon.ca>
**Sent:** October 31, 2024 1:02 PM
**To:** My-Linh Yee <myee@cfcrozier.ca>
**Cc:** Michael Linton <mlinton@cfcrozier.ca>; Emma Howlett <Emma.Howlett@caledon.ca>
**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference

Hi My-Linh,

We're hoping to have all our comments to you by tomorrow (EOD). Does this timing work for you to coordinate the TMC or would you prefer an earlier confirmation for the intersections?

**Kavleen S. Younan, P.Eng.**
Transportation Engineer
Engineering, Public Works & Transportation Department

Email: kavleen.younan@caledon.ca
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---

**From:** My-Linh Yee <myee@cfcrozier.ca>
**Sent:** Thursday, October 31, 2024 10:49 AM
**To:** Kavleen Younan <Kavleen.Younan@caledon.ca>
**Cc:** Michael Linton <mlinton@cfcrozier.ca>; Emma Howlett <Emma.Howlett@caledon.ca>
**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference



Hi Kavleen,

As we await your TOR response, are you able to confirm the proposed study intersections (listed below) are sufficient? We are hoping to coordinate TMCs in the interim.

Study Intersections

- Mayfield Road & Airport Road
- Mayfield Road & Torbram Road
- Torbram Road & Old School Road
- Airport Road & Old School Road/Healy Road
- Mayfield Road & Tullamore Industrial Street B
- Airport Road & Tullamore Industrial Street A

Thanks,
My-Linh

**My-Linh Yee**, EIT
Engineering Intern, Transportation
Office: 905.876.7159

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---

**From:** Kavleen Younan <Kavleen.Younan@caledon.ca>
**Sent:** October 18, 2024 1:47 PM
**To:** My-Linh Yee <myee@cfcrozier.ca>; Emma Howlett <Emma.Howlett@caledon.ca>; Rani Kol <Rani.Kol@peelregion.ca>; Amaral, Patrick <patrick.amaral@peelregion.ca>
**Cc:** Michael Linton <mlinton@cfcrozier.ca>
**Subject:** Re: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference

Hi My-Linh,

Thanks for the follow up. We're still reviewing and hope to have a response to you by next week. If a meeting is warranted at that time, we'd be happy to set something up!

Have a great weekend!

Get Outlook for iOS

---

**From:** My-Linh Yee <myee@cfcrozier.ca>
**Sent:** Friday, October 18, 2024 1:36:55 PM
**To:** Kavleen Younan <Kavleen.Younan@caledon.ca>; Emma Howlett <Emma.Howlett@caledon.ca>; Rani Kol <Rani.Kol@peelregion.ca>; Amaral, Patrick <patrick.amaral@peelregion.ca>
**Cc:** Michael Linton <mlinton@cfcrozier.ca>
**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference



Good afternoon everyone,

I just wanted to follow up regarding our Terms of Reference for the Tullamore North Employment Area Secondary Plan (reattached herein). We are happy to connect for a short meeting to discuss the proposed scope.

Thanks,
My-Linh

**My-Linh Yee**, EIT
Engineering Intern, Transportation
Office: 905.876.7159

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**Celebrating 20 years and another year as one of Canada's Top Growing Companies.**

CROZIER



**From:** My-Linh Yee
**Sent:** Thursday, October 3, 2024 3:58 PM
**To:** Kavleen Younan <Kavleen.Younan@caledon.ca>; Emma Howlett <Emma.Howlett@caledon.ca>; Rani Kol <Rani.Kol@peelregion.ca>; Amaral, Patrick <patrick.amaral@peelregion.ca>
**Cc:** Michael Linton <mlinton@cfcrozier.ca>
**Subject:** Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference

Good afternoon,

I hope you all are doing well. Crozier is retained by Broccolini Airport Road Limited Partnership in support of the Tullamore North Employment Area. We have prepared a Terms of Reference in support of the Tullamore North Employment Area Secondary Plan application, which is attached herein. Prior to your fulsome review, we would welcome the opportunity to have a brief call (less than 30 min) sometime next week to walk you through our Terms of Reference and the proposed scope. Please let us know your availability to meet next week.

@Amaral, Patrick I have included Rani in this chain, however, please let me know if the Terms of Reference should be forwarded to someone else from the Region for review.

Thanks,
My-Linh


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“This message (and any associated files) is intended only for the use of the individual or entity to which it is addressed. The content of the message is the property of the Corporation of the Town of Caledon. The message may contain information that is privileged, confidential, subject to copyright and exempt from disclosure under applicable law. If the reader of this message is not the intended recipient, you are notified that any dissemination, distribution, copying, or modification of this message is strictly prohibited. If you have received this message in error, please notify the sender immediately, advising of the error and delete this

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**Michael Linton**

| | |
|---|---|
| **From:** | Kavleen Younan <Kavleen.Younan@caledon.ca> |
| **Sent:** | January 30, 2025 1:17 PM |
| **To:** | My-Linh Yee |
| **Cc:** | Emma Howlett; Michael Linton; Lesley GillWoods |
| **Subject:** | FW: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference |
| **Attachments:** | TIS SPA 22-11 13846 & 13940 Airport Rd.pdf |

Hi My-Linh,

Thank you for your patience, please see our responses below.

**Kavleen S. Younan, P.Eng.**
Transportation Engineer
Engineering, Public Works & Transportation Department

Email: kavleen.younan@caledon.ca
Town of Caledon | www.caledon.ca | www.visitcaledon.ca | Follow us @TownofCaledon

**From:** My-Linh Yee <myee@cfcrozier.ca>
**Sent:** December 12, 2024 2:20 PM
**To:** Kavleen Younan <Kavleen.Younan@caledon.ca>; Barnes, Catherine <catherine.barnes@peelregion.ca>
**Cc:** Emma Howlett <Emma.Howlett@caledon.ca>; Michael Linton <mlinton@cfcrozier.ca>; Rani Kol <Rani.Kol@peelregion.ca>; Hamdani, Hashim <Hashim.Hamdani@peelregion.ca>; Amaral, Patrick <patrick.amaral@peelregion.ca>
**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference

Hi Kavleen and Catherine,

Thanks for meeting with us earlier this week. As promised, we are following up with a couple of details for your information.

Study Intersections

As discussed, given the proximity to the Highway 413 Airport Road interchange and the Subject Land's location, we propose for the study area to be generally bound by Torbram Road to the west, Airport Road to the east, Old School Road to the north and Mayfield Road to the south, including the additional intersection of Airport Road & Perdue Court/Davis Lane. The intersections along Bramlea Road and Innis Lake Road would only carry through movements and anyone travelling from the Highway 413 would enter/exit at the more convenient Airport Road interchange.

Acceptable, please ensure that travel patterns will change after Hwy 413 is built out (access on Healy). These changes in traffic flow should be accounted in the study.

Study Horizon

Given the uncertainty of when other lands will development, we propose that the study horizons will consist of the existing (2024) and ultimate (2044 (10 years from 2034 buildout)) horizons. The ultimate horizon will confirm the external road improvements required to support the full buildout of the Secondary Plan as well as confirm the internal road network needs. As lands come forward, more intermediate horizons would be required as part of their individual development applications to confirm if interim improvements are needed. We expect when Site Plan Application for the Broccolini Lands is advanced, the terms of reference may contain interim horizons.

We thought this approach would be appropriate given that planned capital improvements within the area are all scheduled by 2031, so the 2044 horizon would represent the worst case scenario for analysis.

Acceptable. However please make a note that additional horizon years will need to be completed as part of future applications (Draft plans, zoning applications, site plans, etc)

Background Development – Caleon Secondary Plan Area F2

Can you provide any information for Secondary Plan Area F2. If no information is available, we propose to assume the following:

- Trip generation:
    - Using the developable area (less natural heritage constraints), estimate of warehouse GFA will be estimated by the percent building coverage of existing warehouses in the area. We've calculated this to be ~44% based on the existing industrial developments at 12347, 12333, and 12203 Airport Road. Acceptable.
- Trip distribution:
    - Based on TTS data, assuming the collector network per Schedule C1 of the Town's Official Plan. Changes in traffic flow to account for Hwy 413 should also be considered.

Please note that we had missed the development at 13846 Airport Road (attached) as part of our original list of background developments, please ensure this development is included in the analysis.

Please let me know if you have any further questions or want to hop on another call.

Thanks,
My-Linh

Please note that our offices will be closed for the holidays from noon on December 24, reopening on January 2.

**My-Linh Yee**, EIT
Engineering Intern, Transportation
Office: 905.876.7159
Collingwood | Milton | Toronto | Bradford | Guelph

**Celebrating 20 years and another year as one of Canada's Top Growing Companies.**

**From:** My-Linh Yee <myee@cfcrozier.ca>
**Sent:** December 4, 2024 10:02 AM
**To:** Kavleen Younan <Kavleen.Younan@caledon.ca>; Barnes, Catherine <catherine.barnes@peelregion.ca>
**Cc:** Emma Howlett <Emma.Howlett@caledon.ca>; Michael Linton <mlinton@cfcrozier.ca>; Rani Kol <Rani.Kol@peelregion.ca>; Hamdani, Hashim <Hashim.Hamdani@peelregion.ca>; Amaral, Patrick <patrick.amaral@peelregion.ca>
**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference

Hi Kavleen,

Thanks for the confirmation. I just sent out a Teams invite, please let me know if you did not get it.

Cheers,
My-Linh

**My-Linh Yee**, EIT
Engineering Intern, Transportation
Office: 905.876.7159
Collingwood | Milton | Toronto | Bradford | Guelph



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**Sent:** December 4, 2024 9:55 AM
**To:** My-Linh Yee <myee@cfcrozier.ca>; Barnes, Catherine <catherine.barnes@peelregion.ca>
**Cc:** Emma Howlett <Emma.Howlett@caledon.ca>; Michael Linton <mlinton@cfcrozier.ca>; Rani Kol <Rani.Kol@peelregion.ca>; Hamdani, Hashim <Hashim.Hamdani@peelregion.ca>; Amaral, Patrick <patrick.amaral@peelregion.ca>
**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference

Hi My-Linh,

December 9 from 1pm-2pm works for the Town as well.

**Kavleen S. Younan, P.Eng.**
Transportation Engineer
Engineering, Public Works & Transportation Department

Email: kavleen.younan@caledon.ca

Town of Caledon | www.caledon.ca | www.visitcaledon.ca | Follow us @TownofCaledon

**From:** My-Linh Yee <myee@cfcrozier.ca>
**Sent:** Wednesday, December 4, 2024 9:47 AM
**To:** Barnes, Catherine <catherine.barnes@peelregion.ca>; Kavleen Younan <Kavleen.Younan@caledon.ca>
**Cc:** Emma Howlett <Emma.Howlett@caledon.ca>; Michael Linton <mlinton@cfcrozier.ca>; Rani Kol <Rani.Kol@peelregion.ca>; Hamdani, Hashim <Hashim.Hamdani@peelregion.ca>; Amaral, Patrick <patrick.amaral@peelregion.ca>
**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference

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Hi Catherine,

I can send out an invite for Monday December 9th from 1 p.m. to 2 p.m. We don't think it'll take the full hour but we'll block it off just in case.

@Kavleen Younan – does this time work for the Town as well?

Thanks,
My-Linh

**My-Linh Yee**, EIT
Engineering Intern, Transportation
Office: 905.876.7159
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**From:** Barnes, Catherine <catherine.barnes@peelregion.ca>
**Sent:** December 4, 2024 9:41 AM
**To:** My-Linh Yee <myee@cfcrozier.ca>; Kavleen Younan <Kavleen.Younan@caledon.ca>; Rani Kol <Rani.Kol@peelregion.ca>
**Cc:** Emma Howlett <Emma.Howlett@caledon.ca>; Michael Linton <mlinton@cfcrozier.ca>; Hamdani, Hashim <Hashim.Hamdani@peelregion.ca>; Amaral, Patrick <patrick.amaral@peelregion.ca>
**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference

Hi My-Linh,

Thank you for reaching out. We can definitely set up a meeting to chat. In terms of the Region and Town having differing requirements for TIS, it would be best practice to implement the 'higher' ask. But we can review and chat for sure. We have some availability Monday afternoon between 1-3:30 pm, if that works, feel free to send an invite.

Thank you,

**Catherine Barnes**
**Region of Peel**
**Specialist, Transportation Development**
Transportation Division, Public Works.
10 Peel Centre Drive, Suite B, 4th Floor
Brampton, ON , L6T 4B9
**During this Health Emergency please contact me via email as I am out of the office working remotely.**

Region of Peel
working with you

P **Please consider the environment before printing this email.**

Our working hours may be different. Please do not feel obligated to reply outside of your working hours.

The Region of Peel is situated on the Treaty Lands and Territory of the Mississaugas of the Credit First Nation as well as the traditional territory of the Anishinabeg, Huron-Wendat and Haudenosaunee peoples.



---

**From:** My-Linh Yee <myee@cfcrozier.ca>
**Sent:** Monday, December 2, 2024 4:02 PM
**To:** Kavleen Younan <Kavleen.Younan@caledon.ca>; Kol, Rani <rani.kol@peelregion.ca>
**Cc:** Emma Howlett <Emma.Howlett@caledon.ca>; Michael Linton <mlinton@cfcrozier.ca>; Barnes, Catherine <catherine.barnes@peelregion.ca>; Hamdani, Hashim <Hashim.Hamdani@peelregion.ca>; Amaral, Patrick <patrick.amaral@peelregion.ca>
**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference



Hi Kavleen and Rani,

I hope you are doing well. We are wondering if the Town and Region are available to meet to discuss a couple of the comments received regarding our proposed Terms of Reference for the Tullamore North Employment Area. We just wanted to confirm a couple of items regarding the following:

- Study Horizon (we note the Town and Region had different comments on this)
- Study Area
- Background Developments (approach for Secondary Plan Area F2 of Map F3 and confirmation of Tullamore Secondary Plan assumptions)

We don't think this will take too long, likely only a half hour. Can you provide your availability later this week or early next week to connect?

Thanks,
My-Linh

**My-Linh Yee**, EIT
Engineering Intern, Transportation
Office: 905.876.7159
Collingwood | Milton | Toronto | Bradford | Guelph

**Celebrating 20 years and another year as one of Canada's Top Growing Companies.**

CROZIER



**From:** Kavleen Younan <Kavleen.Younan@caledon.ca>
**Sent:** November 28, 2024 1:57 PM
**To:** Michael Linton <mlinton@cfcrozier.ca>; My-Linh Yee <myee@cfcrozier.ca>
**Cc:** Emma Howlett <Emma.Howlett@caledon.ca>
**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference

Hi Michael,

I appreciate your patience on this. Please find our comments attached. Let me know if you have any questions/concerns.

**Kavleen S. Younan, P.Eng.**
Transportation Engineer
Engineering, Public Works & Transportation Department

Email: kavleen.younan@caledon.ca
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STRATEGIC PLAN 2023–2035

**From:** Michael Linton <mlinton@cfcrozier.ca>
**Sent:** Friday, November 22, 2024 10:41 AM
**To:** Kavleen Younan <Kavleen.Younan@caledon.ca>; My-Linh Yee <myee@cfcrozier.ca>
**Cc:** Emma Howlett <Emma.Howlett@caledon.ca>
**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference



Good Morning Kavleen and Emma,

Hope you both are doing well. Would you happen to have an update on when you may be able to share your comments on the TOR?

Thanks,

Mike

**Michael Linton**, M.A.Sc., P.Eng. | Associate
Senior Project Manager, Transportation
Office: 905.693.7849
Collingwood | Milton | Toronto | Bradford | Guelph

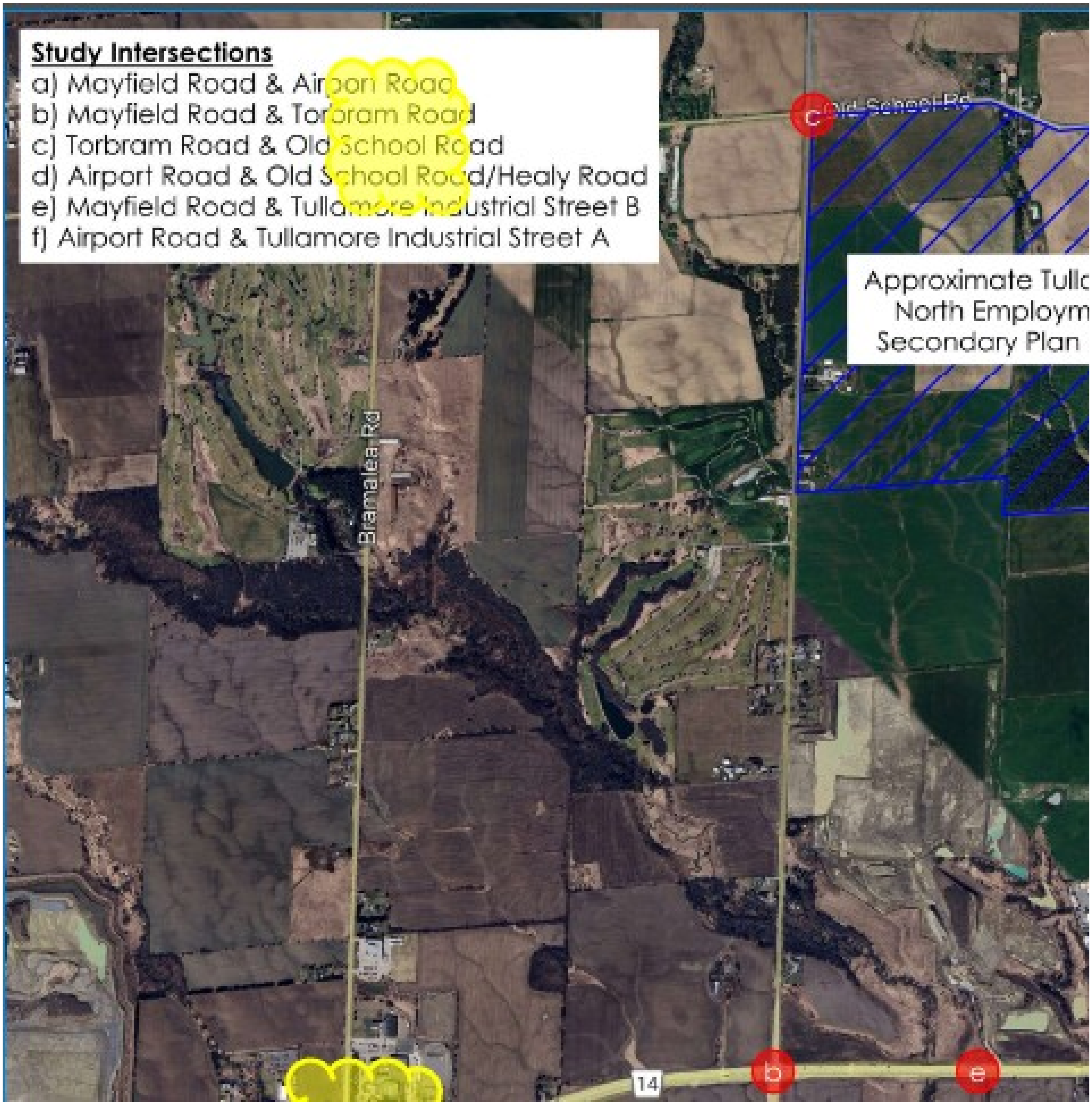


**From:** Kavleen Younan <Kavleen.Younan@caledon.ca>
**Sent:** November 14, 2024 12:55 PM
**To:** My-Linh Yee <myee@cfcrozier.ca>
**Cc:** Michael Linton <mlinton@cfcrozier.ca>; Emma Howlett <Emma.Howlett@caledon.ca>
**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference

Hi My-Linh,

Please see the below photo for additional existing intersections that we'd like included in the analysis. Detailed comments on the ToR to be followed shortly.

Additionally, please ensure that MTO and Peel Region have also been consulted for the ToR.




**Kavleen S. Younan, P.Eng.**
Transportation Engineer
Engineering, Public Works & Transportation Department

Email: kavleen.younan@caledon.ca
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STRATEGIC PLAN

**From:** My-Linh Yee <myee@cfcrozier.ca>
**Sent:** Thursday, November 14, 2024 11:40 AM
**To:** Kavleen Younan <Kavleen.Younan@caledon.ca>
**Cc:** Michael Linton <mlinton@cfcrozier.ca>; Emma Howlett <Emma.Howlett@caledon.ca>
**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference



Hi Kavleen,

I just wanted to follow up again about the Town's TOR response. If you don't expect we'll get it in the coming days, are you able to confirm the study intersections so we can get the TMCs conducted?

Thanks,
My-Linh

**My-Linh Yee**, EIT
Engineering Intern, Transportation
Office: 905.876.7159
Collingwood | Milton | Toronto | Bradford | Guelph



**From:** My-Linh Yee
**Sent:** November 5, 2024 2:27 PM
**To:** Kavleen Younan <Kavleen.Younan@caledon.ca>
**Cc:** Michael Linton <mlinton@cfcrozier.ca>; Emma Howlett <Emma.Howlett@caledon.ca>
**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference

Hi Kavleen,

I just wanted to follow up regarding the Town's TOR response.

Thanks,
My-Linh

**From:** My-Linh Yee <myee@cfcrozier.ca>
**Sent:** October 31, 2024 1:34 PM
**To:** Kavleen Younan <Kavleen.Younan@caledon.ca>
**Cc:** Michael Linton <mlinton@cfcrozier.ca>; Emma Howlett <Emma.Howlett@caledon.ca>
**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference

Hi Kavleen,

Getting all the Town's responses tomorrow works great, as we will have to wait to get the counts until mid-next week anyways.

Thanks,
My-Linh

**My-Linh Yee**, EIT
Engineering Intern, Transportation
Office: 905.876.7159
Collingwood | Milton | Toronto | Bradford | Guelph



**From:** Kavleen Younan <Kavleen.Younan@caledon.ca>
**Sent:** October 31, 2024 1:02 PM
**To:** My-Linh Yee <myee@cfcrozier.ca>
**Cc:** Michael Linton <mlinton@cfcrozier.ca>; Emma Howlett <Emma.Howlett@caledon.ca>
**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference

Hi My-Linh,

We're hoping to have all our comments to you by tomorrow (EOD). Does this timing work for you to coordinate the TMC or would you prefer an earlier confirmation for the intersections?

**Kavleen S. Younan, P.Eng.**
Transportation Engineer
Engineering, Public Works & Transportation Department

Email: kavleen.younan@caledon.ca
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STRATEGIC PLAN

**From:** My-Linh Yee <myee@cfcrozier.ca>
**Sent:** Thursday, October 31, 2024 10:49 AM
**To:** Kavleen Younan <Kavleen.Younan@caledon.ca>
**Cc:** Michael Linton <mlinton@cfcrozier.ca>; Emma Howlett <Emma.Howlett@caledon.ca>
**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference



Hi Kavleen,

As we await your TOR response, are you able to confirm the proposed study intersections (listed below) are sufficient? We are hoping to coordinate TMCs in the interim.

Study Intersections

- Mayfield Road & Airport Road
- Mayfield Road & Torbram Road
- Torbram Road & Old School Road
- Airport Road & Old School Road/Healy Road
- Mayfield Road & Tullamore Industrial Street B
- Airport Road & Tullamore Industrial Street A

Thanks,
My-Linh

**My-Linh Yee**, EIT
Engineering Intern, Transportation
Office: 905.876.7159
Collingwood | Milton | Toronto | Bradford | Guelph

**Celebrating 20 years and another year as one of Canada's Top Growing Companies.**



**From:** Kavleen Younan <Kavleen.Younan@caledon.ca>
**Sent:** October 18, 2024 1:47 PM
**To:** My-Linh Yee <myee@cfcrozier.ca>; Emma Howlett <Emma.Howlett@caledon.ca>; Rani Kol

<Rani.Kol@peelregion.ca>; Amaral, Patrick <patrick.amaral@peelregion.ca>
**Cc:** Michael Linton <mlinton@cfcrozier.ca>
**Subject:** Re: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference

Hi My-Linh,

Thanks for the follow up. We're still reviewing and hope to have a response to you by next week. If a meeting is warranted at that time, we'd be happy to set something up!

Have a great weekend!

Get Outlook for iOS

---

**From:** My-Linh Yee <myee@cfcrozier.ca>
**Sent:** Friday, October 18, 2024 1:36:55 PM
**To:** Kavleen Younan <Kavleen.Younan@caledon.ca>; Emma Howlett <Emma.Howlett@caledon.ca>; Rani Kol <Rani.Kol@peelregion.ca>; Amaral, Patrick <patrick.amaral@peelregion.ca>
**Cc:** Michael Linton <mlinton@cfcrozier.ca>
**Subject:** RE: Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference



Good afternoon everyone,

I just wanted to follow up regarding our Terms of Reference for the Tullamore North Employment Area Secondary Plan (reattached herein). We are happy to connect for a short meeting to discuss the proposed scope.

Thanks,
My-Linh

**My-Linh Yee**, EIT
Engineering Intern, Transportation
Office: 905.876.7159
Collingwood | Milton | Toronto | Bradford | Guelph



---

**From:** My-Linh Yee
**Sent:** Thursday, October 3, 2024 3:58 PM
**To:** Kavleen Younan <Kavleen.Younan@caledon.ca>; Emma Howlett <Emma.Howlett@caledon.ca>; Rani Kol <Rani.Kol@peelregion.ca>; Amaral, Patrick <patrick.amaral@peelregion.ca>
**Cc:** Michael Linton <mlinton@cfcrozier.ca>
**Subject:** Tullamore North Employment Area Secondary Plan - Transportation Terms of Reference

Good afternoon,

I hope you all are doing well. Crozier is retained by Broccolini Airport Road Limited Partnership in support of the Tullamore North Employment Area. We have prepared a Terms of Reference in support of the Tullamore North Employment Area Secondary Plan application, which is attached herein. Prior to your fulsome review, we would welcome the opportunity to have a brief call (less than 30 min) sometime next week to walk you through our Terms of Reference and the proposed scope. Please let us know your availability to meet next week.

@Amaral, Patrick I have included Rani in this chain, however, please let me know if the Terms of Reference should be forwarded to someone else from the Region for review.

Thanks,
My-Linh


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# APPENDIX B:

## Transportation Tomorrow Survey Data

Tue Feb 11 2025 14:23:20 GMT-0500 (Eastern Standard Time) - Run Time: 2690ms

Cross Tabulation Query Form - Trip - 2022

Row: Planning district of employment - pd_emp
Column: Primary travel mode of trip - mode_prime

Filters:
Planning district of employment - pd_emp In 34,

Trip 2022
Table:

,Transit excluding GO rail,Cycle,Auto driver,GO rail only,Joint GO rail and local transit,Motorcycle,Other,Auto passer
Caledon,442,382,50240,75,44,74,128,5976,576,62,336,948

ıger,School bus,Taxi passenger,Paid rideshare,Walk

Fri Feb 14 2025 14:31:20 GMT-0500 (Eastern Standard Time) - Run Time: 3162ms

Cross Tabulation Query Form - Trip - 2022

Row: Planning district of origin - pd_orig

Column: 2006 GTA zone of destination - gta06_dest

Filters:

Trip Purpose of Destination - purp_dest In W,

and

2006 GTA zone of destination - gta06_dest In 3014,3015,3440,3441

and

Start time of trip - start_time In 0630-0930

Trip 2022

Table:

,3014,3015,3440

Newmarket,14,0,0

Aurora,9,0,0

Vaughan,0,37,0

Caledon,146,104,29

Brampton,106,77,129

Mississauga,43,0,0

Halton Hills,4,0,0

Flamborough,16,0,0

Erin,10,0,0

Orangeville,0,9,0

New Tecumseth,116,0,0

Mulmur ,6,0,0

Fri Feb 14 2025 14:35:57 GMT-0500 (Eastern Standard Time) - Run Time: 3327ms

Cross Tabulation Query Form - Trip - 2022

Row: 2006 GTA zone of origin - gta06_orig

Column: 2006 GTA zone of destination - gta06_dest

Filters:

Trip Purpose of Destination - purp_dest In W,

and

2006 GTA zone of destination - gta06_dest In 3014,3015,3440,3441

and

Start time of trip - start_time In 0630-0930

and

Planning district of origin - pd_orig In 34, 35, 36,

Trip 2022

Table:

,3014,3015,3440

3005,0,0,29

3008,33,0,0

3010,113,0,0

3198,0,104,0

3337,67,0,0

3360,5,0,0

3371,6,0,0

3373,5,0,0

3376,5,0,0

3384,0,0,106

3420,0,48,0

3434,0,26,0

3459,0,0,23

3460,0,3,0

3464,18,0,0

3716,33,0,0

3810,10,0,0

Fri Feb 14 2025 15:13:26 GMT-0500 (Eastern Standard Time) - Run Time: 3434ms

Cross Tabulation Query Form - Trip - 2022

Row: Planning district of destination - pd_dest

Column: 2006 GTA zone of origin - gta06_orig

Filters:

Trip Purpose of Origin - purp_orig In W,

and

2006 GTA zone of origin - gta06_orig In 3014,3015,3440,3441

and

Start time of trip - start_time In 1530-1830

Trip 2022

Table:

,3014,3015,3440,3441

PD 9 of Toronto,0,52,0,0

PD 16 of Toronto,0,6,0,0

Aurora,9,0,0,0

Vaughan,0,24,0,0

Caledon,181,52,0,0

Brampton,38,77,23,35

Mississauga,10,0,0,0

Flamborough,16,0,0,0

Orangeville,0,9,0,0

New Tecumseth,81,0,0,0

Fri Feb 14 2025 15:32:33 GMT-0500 (Eastern Standard Time) - Run Time: 3474ms

Cross Tabulation Query Form - Trip - 2022

Row: 2006 GTA zone of destination - gta06_dest

Column: 2006 GTA zone of origin - gta06_orig

Filters:

Trip Purpose of Origin - purp_orig In W,

and

2006 GTA zone of origin - gta06_orig In 3014,3015,3440,3441

and

Start time of trip - start_time In 1530-1830

and

Planning district of destination - pd_dest In 34, 35, 36,

Trip 2022

Table:

,3014,3015,3440,3441

3008,33,0,0,0

3010,113,0,0,0

3107,35,0,0,0

3198,0,52,0,0

3373,5,0,0,0

3375,0,26,0,0

3376,5,0,0,0

3377,0,0,23,0

3417,0,3,0,0

3420,0,48,0,0

3440,6,0,0,0

3462,4,0,0,0

3464,18,0,0,0

3468,0,0,0,35

3810,10,0,0,0

# APPENDIX C:

## Traffic Data

Spectrum

Turning Movement Count
Location Name: AIRPORT ROAD & 12333 AIRPORT ROAD SITE ACCESS
Date: Wed, Nov 20, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

**Turning Movement Count (5 . AIRPORT ROAD & 12333 AIRPORT ROAD SITE ACCESS) CustID: 00718361 MioID: 1250791**

| Start Time | N Approach AIRPORT ROAD | | | | | | E Approach 12333 AIRPORT ROAD SITE ACCESS | | | | | | S Approach AIRPORT ROAD | | | | | | W Approach 12333 AIRPORT ROAD SITE ACCESS | | | | | | Int. Total (15 min) | Int. Total (1 hr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right N:W | Thru N:S | Left N:E | U-Turn N:N | Peds N: | Approach Total | Right E:N | Thru E:W | Left E:S | U-Turn E:E | Peds E: | Approach Total | Right S:E | Thru S:N | Left S:W | U-Turn S:S | Peds S: | Approach Total | Right W:S | Thru W:E | Left W:N | U-Turn W:W | Peds W: | Approach Total | | |
| 2024-11-20 07:00:00 | 0 | 84 | 2 | 0 | 0 | 86 | 1 | 0 | 11 | 0 | 1 | 12 | 8 | 70 | 0 | 2 | 0 | 80 | 0 | 0 | 0 | 0 | 0 | 0 | 178 | |
| 2024-11-20 07:15:00 | 0 | 126 | 1 | 0 | 0 | 127 | 1 | 0 | 8 | 0 | 1 | 9 | 8 | 65 | 0 | 0 | 0 | 73 | 0 | 0 | 0 | 0 | 0 | 0 | 209 | |
| 2024-11-20 07:30:00 | 0 | 167 | 2 | 0 | 0 | 169 | 0 | 0 | 6 | 0 | 5 | 6 | 5 | 58 | 0 | 1 | 0 | 64 | 0 | 0 | 0 | 0 | 0 | 0 | 239 | |
| 2024-11-20 07:45:00 | 0 | 122 | 4 | 0 | 0 | 126 | 0 | 0 | 9 | 0 | 2 | 9 | 15 | 75 | 0 | 0 | 0 | 90 | 0 | 0 | 0 | 0 | 0 | 0 | 225 | 851 |
| 2024-11-20 08:00:00 | 0 | 115 | 1 | 0 | 0 | 116 | 2 | 0 | 19 | 0 | 1 | 21 | 18 | 53 | 0 | 0 | 0 | 71 | 0 | 0 | 0 | 0 | 0 | 0 | 208 | 881 |
| 2024-11-20 08:15:00 | 0 | 130 | 0 | 0 | 0 | 130 | 0 | 0 | 10 | 0 | 0 | 10 | 12 | 56 | 0 | 0 | 0 | 68 | 0 | 0 | 0 | 0 | 0 | 0 | 208 | 880 |
| 2024-11-20 08:30:00 | 0 | 137 | 0 | 0 | 0 | 137 | 2 | 0 | 8 | 0 | 1 | 10 | 12 | 56 | 2 | 0 | 1 | 70 | 0 | 0 | 0 | 0 | 1 | 0 | 217 | 858 |
| 2024-11-20 08:45:00 | 0 | 102 | 0 | 0 | 0 | 102 | 0 | 0 | 10 | 0 | 0 | 10 | 7 | 54 | 0 | 0 | 0 | 61 | 0 | 0 | 0 | 0 | 0 | 0 | 173 | 806 |
| 2024-11-20 09:00:00 | 0 | 126 | 1 | 0 | 0 | 127 | 2 | 0 | 4 | 0 | 0 | 6 | 12 | 63 | 0 | 0 | 0 | 75 | 1 | 0 | 0 | 0 | 0 | 1 | 209 | 807 |
| 2024-11-20 09:15:00 | 0 | 105 | 0 | 0 | 0 | 105 | 0 | 0 | 6 | 0 | 0 | 6 | 8 | 27 | 0 | 0 | 0 | 35 | 0 | 0 | 0 | 1 | 0 | 1 | 147 | 746 |
| 2024-11-20 09:30:00 | 0 | 81 | 0 | 0 | 0 | 81 | 1 | 0 | 5 | 0 | 0 | 6 | 6 | 30 | 0 | 0 | 0 | 36 | 0 | 0 | 0 | 0 | 0 | 0 | 123 | 652 |
| 2024-11-20 09:45:00 | 0 | 69 | 0 | 0 | 0 | 69 | 0 | 0 | 4 | 0 | 0 | 4 | 10 | 48 | 0 | 2 | 0 | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 133 | 612 |
| ***BREAK*** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2024-11-20 16:00:00 | 0 | 89 | 1 | 0 | 0 | 90 | 0 | 0 | 11 | 0 | 0 | 11 | 2 | 126 | 0 | 0 | 0 | 128 | 0 | 0 | 0 | 0 | 1 | 0 | 229 | |
| 2024-11-20 16:15:00 | 0 | 88 | 0 | 0 | 0 | 88 | 1 | 0 | 9 | 0 | 1 | 10 | 8 | 153 | 0 | 0 | 0 | 161 | 0 | 0 | 0 | 0 | 0 | 0 | 259 | |
| 2024-11-20 16:30:00 | 0 | 90 | 1 | 0 | 0 | 91 | 4 | 0 | 18 | 0 | 0 | 22 | 8 | 117 | 0 | 1 | 0 | 126 | 0 | 0 | 0 | 0 | 0 | 0 | 239 | |
| 2024-11-20 16:45:00 | 0 | 84 | 1 | 0 | 0 | 85 | 2 | 0 | 7 | 0 | 2 | 9 | 9 | 154 | 0 | 1 | 0 | 164 | 0 | 0 | 0 | 0 | 0 | 0 | 258 | 985 |
| 2024-11-20 17:00:00 | 0 | 75 | 0 | 0 | 0 | 75 | 0 | 0 | 3 | 0 | 0 | 3 | 5 | 133 | 0 | 0 | 0 | 138 | 0 | 0 | 0 | 0 | 0 | 0 | 216 | 972 |
| 2024-11-20 17:15:00 | 0 | 94 | 0 | 0 | 0 | 94 | 0 | 0 | 15 | 0 | 0 | 15 | 3 | 117 | 0 | 0 | 0 | 120 | 0 | 0 | 0 | 0 | 0 | 0 | 229 | 942 |
| 2024-11-20 17:30:00 | 0 | 82 | 1 | 0 | 0 | 83 | 1 | 0 | 8 | 0 | 0 | 9 | 6 | 137 | 0 | 0 | 0 | 143 | 0 | 0 | 0 | 0 | 0 | 0 | 235 | 938 |
| 2024-11-20 17:45:00 | 0 | 95 | 2 | 0 | 0 | 97 | 0 | 0 | 12 | 0 | 0 | 12 | 1 | 87 | 0 | 0 | 0 | 88 | 0 | 0 | 0 | 0 | 0 | 0 | 197 | 877 |
| 2024-11-20 18:00:00 | 0 | 95 | 1 | 0 | 0 | 96 | 2 | 0 | 4 | 0 | 0 | 6 | 3 | 95 | 0 | 2 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 202 | 863 |
| 2024-11-20 18:15:00 | 0 | 64 | 0 | 0 | 0 | 64 | 0 | 0 | 7 | 0 | 0 | 7 | 1 | 99 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 171 | 805 |
| 2024-11-20 18:30:00 | 0 | 69 | 0 | 0 | 0 | 69 | 0 | 0 | 5 | 0 | 0 | 5 | 6 | 103 | 0 | 0 | 0 | 109 | 0 | 0 | 0 | 0 | 0 | 0 | 183 | 753 |
| 2024-11-20 18:45:00 | 0 | 50 | 0 | 0 | 0 | 50 | 1 | 0 | 4 | 0 | 0 | 5 | 6 | 77 | 0 | 1 | 0 | 84 | 0 | 0 | 0 | 0 | 0 | 0 | 139 | 695 |
| **Grand Total** | 0 | 2339 | 18 | 0 | 0 | 2357 | 20 | 0 | 203 | 0 | 14 | 223 | 179 | 2053 | 2 | 10 | 1 | 2244 | 1 | 0 | 0 | 1 | 2 | 2 | **4826** | - |
| **Approach%** | 0% | 99.2% | 0.8% | 0% | | - | 9% | 0% | 91% | 0% | | - | 8% | 91.5% | 0.1% | 0.4% | | - | 50% | 0% | 0% | 50% | | - | - | - |
| **Totals %** | 0% | 48.5% | 0.4% | 0% | | 48.8% | 0.4% | 0% | 4.2% | 0% | | 4.6% | 3.7% | 42.5% | 0% | 0.2% | | 46.5% | 0% | 0% | 0% | 0% | | 0% | - | - |
| **Heavy** | 0 | 301 | 8 | 0 | | - | 6 | 0 | 95 | 0 | | - | 81 | 221 | 2 | 0 | | - | 1 | 0 | 0 | 0 | | - | - | - |
| **Heavy %** | 0% | 12.9% | 44.4% | 0% | | - | 30% | 0% | 46.8% | 0% | | - | 45.3% | 10.8% | 100% | 0% | | - | 100% | 0% | 0% | 0% | | - | - | - |
| **Bicycles** | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - |
| **Bicycle %** | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - |

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

**Peak Hour: 07:15 AM - 08:15 AM Weather: Overcast Clouds (7.52 °C)**

| Start Time | N Approach AIRPORT ROAD | | | | | | E Approach 12333 AIRPORT ROAD SITE ACCESS | | | | | | S Approach AIRPORT ROAD | | | | | | W Approach 12333 AIRPORT ROAD SITE ACCESS | | | | | | Int. Total (15 min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | |
| 2024-11-20 07:15:00 | 0 | 126 | 1 | 0 | 0 | 127 | 1 | 0 | 8 | 0 | 1 | 9 | 8 | 65 | 0 | 0 | 0 | 73 | 0 | 0 | 0 | 0 | 0 | 0 | 209 |
| 2024-11-20 07:30:00 | 0 | 167 | 2 | 0 | 0 | 169 | 0 | 0 | 6 | 0 | 5 | 6 | 5 | 58 | 0 | 1 | 0 | 64 | 0 | 0 | 0 | 0 | 0 | 0 | 239 |
| 2024-11-20 07:45:00 | 0 | 122 | 4 | 0 | 0 | 126 | 0 | 0 | 9 | 0 | 2 | 9 | 15 | 75 | 0 | 0 | 0 | 90 | 0 | 0 | 0 | 0 | 0 | 0 | 225 |
| 2024-11-20 08:00:00 | 0 | 115 | 1 | 0 | 0 | 116 | 2 | 0 | 19 | 0 | 1 | 21 | 18 | 53 | 0 | 0 | 0 | 71 | 0 | 0 | 0 | 0 | 0 | 0 | 208 |
| **Grand Total** | 0 | 530 | 8 | 0 | 0 | 538 | 3 | 0 | 42 | 0 | 9 | 45 | 46 | 251 | 0 | 1 | 0 | 298 | 0 | 0 | 0 | 0 | 0 | 0 | **881** |
| **Approach%** | 0% | 98.5% | 1.5% | 0% | | - | 6.7% | 0% | 93.3% | 0% | | - | 15.4% | 84.2% | 0% | 0.3% | | - | 0% | 0% | 0% | 0% | | - | - |
| **Totals %** | 0% | 60.2% | 0.9% | 0% | | 61.1% | 0.3% | 0% | 4.8% | 0% | | 5.1% | 5.2% | 28.5% | 0% | 0.1% | | 33.8% | 0% | 0% | 0% | 0% | | 0% | - |
| **PHF** | 0 | 0.79 | 0.5 | 0 | | 0.8 | 0.38 | 0 | 0.55 | 0 | | 0.54 | 0.64 | 0.84 | 0 | 0.25 | | 0.83 | 0 | 0 | 0 | 0 | | 0 | 0.92 |
| **Heavy** | 0 | 58 | 3 | 0 | | 61 | 1 | 0 | 23 | 0 | | 24 | 12 | 43 | 0 | 0 | | 55 | 0 | 0 | 0 | 0 | | 0 | 140 |
| **Heavy %** | 0% | 10.9% | 37.5% | 0% | | 11.3% | 33.3% | 0% | 54.8% | 0% | | 53.3% | 26.1% | 17.1% | 0% | 0% | | 18.5% | 0% | 0% | 0% | 0% | | 0% | 15.9% |
| **Lights** | 0 | 472 | 5 | 0 | | 477 | 2 | 0 | 19 | 0 | | 21 | 34 | 208 | 0 | 1 | | 243 | 0 | 0 | 0 | 0 | | 0 | 741 |
| **Lights %** | 0% | 89.1% | 62.5% | 0% | | 88.7% | 66.7% | 0% | 45.2% | 0% | | 46.7% | 73.9% | 82.9% | 0% | 100% | | 81.5% | 0% | 0% | 0% | 0% | | 0% | 84.1% |
| **Single-Unit Trucks** | 0 | 23 | 2 | 0 | | 25 | 0 | 0 | 10 | 0 | | 10 | 6 | 14 | 0 | 0 | | 20 | 0 | 0 | 0 | 0 | | 0 | 55 |
| **Single-Unit Trucks %** | 0% | 4.3% | 25% | 0% | | 4.6% | 0% | 0% | 23.8% | 0% | | 22.2% | 13% | 5.6% | 0% | 0% | | 6.7% | 0% | 0% | 0% | 0% | | 0% | 6.2% |
| **Buses** | 0 | 6 | 0 | 0 | | 6 | 0 | 0 | 1 | 0 | | 1 | 0 | 11 | 0 | 0 | | 11 | 0 | 0 | 0 | 0 | | 0 | 18 |
| **Buses %** | 0% | 1.1% | 0% | 0% | | 1.1% | 0% | 0% | 2.4% | 0% | | 2.2% | 0% | 4.4% | 0% | 0% | | 3.7% | 0% | 0% | 0% | 0% | | 0% | 2% |
| **Articulated Trucks** | 0 | 29 | 1 | 0 | | 30 | 1 | 0 | 12 | 0 | | 13 | 6 | 18 | 0 | 0 | | 24 | 0 | 0 | 0 | 0 | | 0 | 67 |
| **Articulated Trucks %** | 0% | 5.5% | 12.5% | 0% | | 5.6% | 33.3% | 0% | 28.6% | 0% | | 28.9% | 13% | 7.2% | 0% | 0% | | 8.1% | 0% | 0% | 0% | 0% | | 0% | 7.6% |
| **Pedestrians** | - | - | - | - | 0 | - | - | - | - | - | 9 | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - |
| **Pedestrians%** | - | - | - | - | 0% | | - | - | - | - | 100% | | - | - | - | - | 0% | | - | - | - | - | 0% | | - |

Spectrum

Turning Movement Count
Location Name: AIRPORT ROAD & 12333 AIRPORT ROAD SITE ACCESS
Date: Wed, Nov 20, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

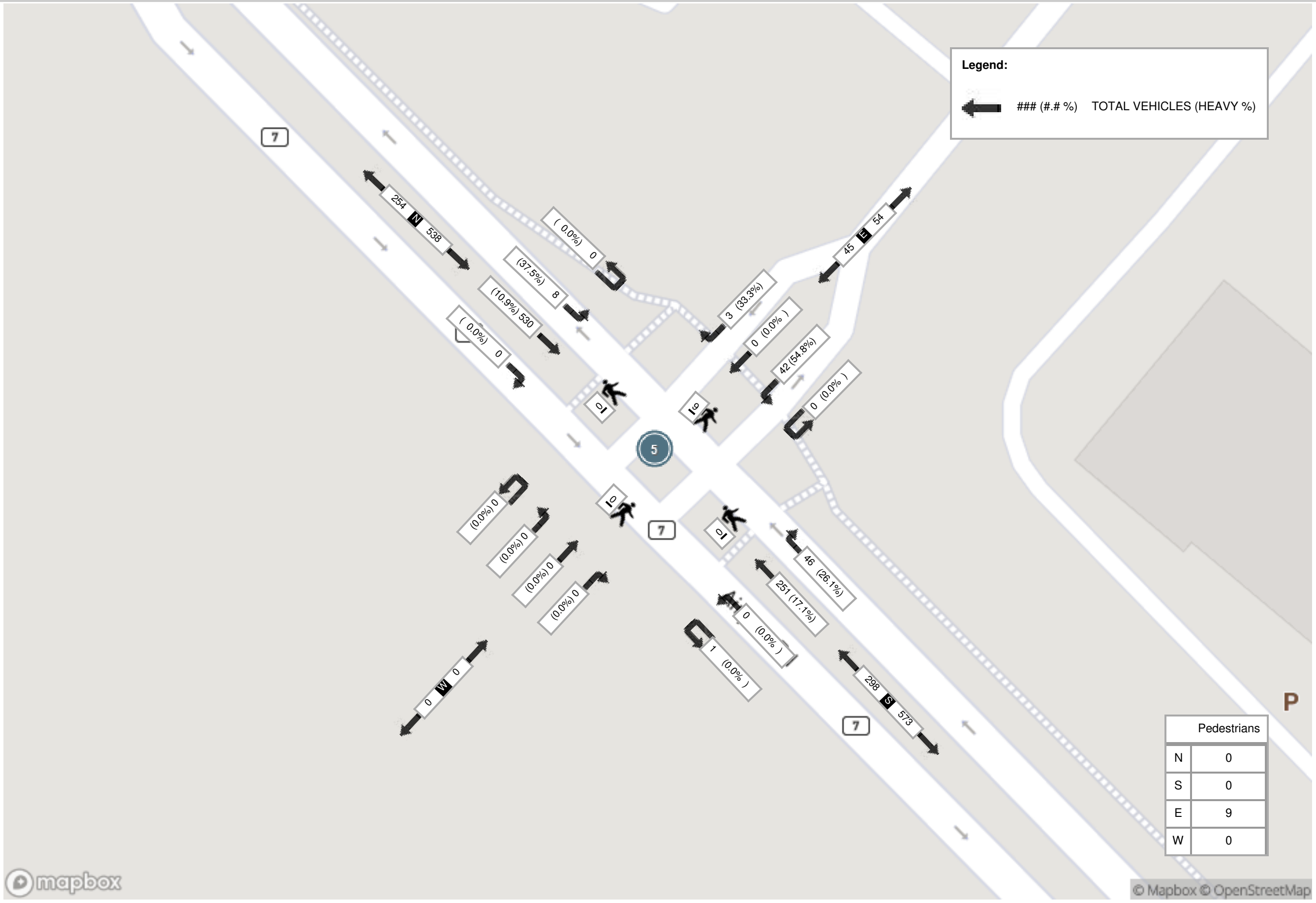
**Peak Hour: 04:00 PM - 05:00 PM Weather: Mist (8.21 °C)**

| Start Time | N Approach AIRPORT ROAD | | | | | | E Approach 12333 AIRPORT ROAD SITE ACCESS | | | | | | S Approach AIRPORT ROAD | | | | | | W Approach 12333 AIRPORT ROAD SITE ACCESS | | | | | | Int. Total (15 min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | |
| 2024-11-20 16:00:00 | 0 | 89 | 1 | 0 | 0 | 90 | 0 | 0 | 11 | 0 | 0 | 11 | 2 | 126 | 0 | 0 | 0 | 128 | 0 | 0 | 0 | 0 | 1 | 0 | 229 |
| 2024-11-20 16:15:00 | 0 | 88 | 0 | 0 | 0 | 88 | 1 | 0 | 9 | 0 | 1 | 10 | 8 | 153 | 0 | 0 | 0 | 161 | 0 | 0 | 0 | 0 | 0 | 0 | 259 |
| 2024-11-20 16:30:00 | 0 | 90 | 1 | 0 | 0 | 91 | 4 | 0 | 18 | 0 | 0 | 22 | 8 | 117 | 0 | 1 | 0 | 126 | 0 | 0 | 0 | 0 | 0 | 0 | 239 |
| 2024-11-20 16:45:00 | 0 | 84 | 1 | 0 | 0 | 85 | 2 | 0 | 7 | 0 | 2 | 9 | 9 | 154 | 0 | 1 | 0 | 164 | 0 | 0 | 0 | 0 | 0 | 0 | 258 |
| **Grand Total** | 0 | 351 | 3 | 0 | 0 | 354 | 7 | 0 | 45 | 0 | 3 | 52 | 27 | 550 | 0 | 2 | 0 | 579 | 0 | 0 | 0 | 0 | 1 | 0 | **985** |
| **Approach%** | 0% | 99.2% | 0.8% | 0% | | - | 13.5% | 0% | 86.5% | 0% | | - | 4.7% | 95% | 0% | 0.3% | | - | 0% | 0% | 0% | 0% | | - | - |
| **Totals %** | 0% | 35.6% | 0.3% | 0% | | 35.9% | 0.7% | 0% | 4.6% | 0% | | 5.3% | 2.7% | 55.8% | 0% | 0.2% | | 58.8% | 0% | 0% | 0% | 0% | | 0% | - |
| **PHF** | 0 | 0.98 | 0.75 | 0 | | 0.97 | 0.44 | 0 | 0.63 | 0 | | 0.59 | 0.75 | 0.89 | 0 | 0.5 | | 0.88 | 0 | 0 | 0 | 0 | | 0 | 0.95 |
| **Heavy** | 0 | 52 | 1 | 0 | | 53 | 0 | 0 | 18 | 0 | | 18 | 13 | 37 | 0 | 0 | | 50 | 0 | 0 | 0 | 0 | | 0 | 121 |
| **Heavy %** | 0% | 14.8% | 33.3% | 0% | | 15% | 0% | 0% | 40% | 0% | | 34.6% | 48.1% | 6.7% | 0% | 0% | | 8.6% | 0% | 0% | 0% | 0% | | 0% | 12.3% |
| **Lights** | 0 | 299 | 2 | 0 | | 301 | 7 | 0 | 27 | 0 | | 34 | 14 | 513 | 0 | 2 | | 529 | 0 | 0 | 0 | 0 | | 0 | 864 |
| **Lights %** | 0% | 85.2% | 66.7% | 0% | | 85% | 100% | 0% | 60% | 0% | | 65.4% | 51.9% | 93.3% | 0% | 100% | | 91.4% | 0% | 0% | 0% | 0% | | 0% | 87.7% |
| **Single-Unit Trucks** | 0 | 17 | 1 | 0 | | 18 | 0 | 0 | 8 | 0 | | 8 | 4 | 12 | 0 | 0 | | 16 | 0 | 0 | 0 | 0 | | 0 | 42 |
| **Single-Unit Trucks %** | 0% | 4.8% | 33.3% | 0% | | 5.1% | 0% | 0% | 17.8% | 0% | | 15.4% | 14.8% | 2.2% | 0% | 0% | | 2.8% | 0% | 0% | 0% | 0% | | 0% | 4.3% |
| **Buses** | 0 | 18 | 0 | 0 | | 18 | 0 | 0 | 0 | 0 | | 0 | 0 | 1 | 0 | 0 | | 1 | 0 | 0 | 0 | 0 | | 0 | 19 |
| **Buses %** | 0% | 5.1% | 0% | 0% | | 5.1% | 0% | 0% | 0% | 0% | | 0% | 0% | 0.2% | 0% | 0% | | 0.2% | 0% | 0% | 0% | 0% | | 0% | 1.9% |
| **Articulated Trucks** | 0 | 17 | 0 | 0 | | 17 | 0 | 0 | 10 | 0 | | 10 | 9 | 24 | 0 | 0 | | 33 | 0 | 0 | 0 | 0 | | 0 | 60 |
| **Articulated Trucks %** | 0% | 4.8% | 0% | 0% | | 4.8% | 0% | 0% | 22.2% | 0% | | 19.2% | 33.3% | 4.4% | 0% | 0% | | 5.7% | 0% | 0% | 0% | 0% | | 0% | 6.1% |
| **Pedestrians** | - | - | - | - | 0 | - | - | - | - | - | 3 | - | - | - | - | - | 0 | - | - | - | - | - | 1 | - | - |
| **Pedestrians%** | - | - | - | - | 0% | | - | - | - | - | 75% | | - | - | - | - | 0% | | - | - | - | - | 25% | | - |

Turning Movement Count
Location Name: AIRPORT ROAD & 12333 AIRPORT ROAD SITE ACCESS
Date: Wed, Nov 20, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

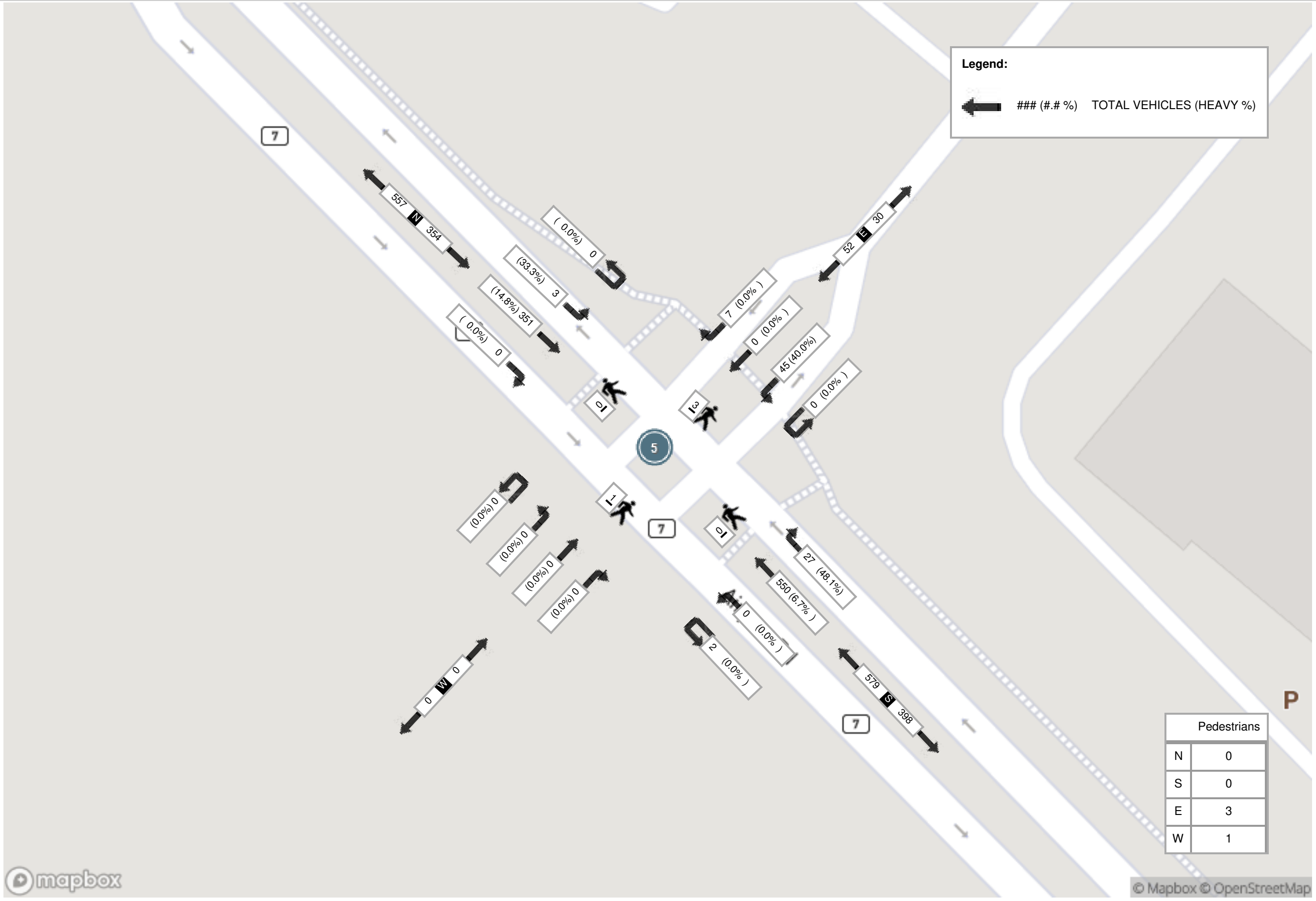
**Peak Hour: 07:15 AM - 08:15 AM Weather: Overcast Clouds (7.52 °C)**



Turning Movement Count
Location Name: AIRPORT ROAD & 12333 AIRPORT ROAD SITE ACCESS
Date: Wed, Nov 20, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

**Peak Hour: 04:00 PM - 05:00 PM Weather: Mist (8.21 °C)**



Spectrum

Turning Movement Count
Location Name: AIRPORT ROAD & OLD SCHOOL ROAD / HEALY ROAD
Date: Wed, Nov 20, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

## Turning Movement Count (4 . AIRPORT ROAD & OLD SCHOOL ROAD / HEALY ROAD) MioID: 1250780

| Start Time | N Approach AIRPORT ROAD | | | | | | E Approach HEALY ROAD | | | | | | S Approach AIRPORT ROAD | | | | | | W Approach OLD SCHOOL ROAD | | | | | | Int. Total (15 min) | Int. Total (1 hr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right N:W | Thru N:S | Left N:E | U-Turn N:N | Peds N: | Approach Total | Right E:N | Thru E:W | Left E:S | U-Turn E:E | Peds E: | Approach Total | Right S:E | Thru S:N | Left S:W | U-Turn S:S | Peds S: | Approach Total | Right W:S | Thru W:E | Left W:N | U-Turn W:W | Peds W: | Approach Total | | |
| 2024-11-20 07:00:00 | 1 | 92 | 1 | 0 | 0 | 94 | 1 | 16 | 7 | 0 | 0 | 24 | 33 | 37 | 2 | 0 | 0 | 72 | 1 | 31 | 6 | 0 | 0 | 38 | 228 | |
| 2024-11-20 07:15:00 | 3 | 129 | 3 | 0 | 0 | 135 | 1 | 25 | 11 | 0 | 0 | 37 | 27 | 33 | 1 | 0 | 0 | 61 | 7 | 32 | 2 | 0 | 0 | 41 | 274 | |
| 2024-11-20 07:30:00 | 1 | 118 | 5 | 0 | 0 | 124 | 1 | 18 | 13 | 0 | 0 | 32 | 31 | 30 | 1 | 0 | 0 | 62 | 12 | 50 | 1 | 0 | 0 | 63 | 281 | |
| 2024-11-20 07:45:00 | 1 | 100 | 3 | 0 | 0 | 104 | 1 | 20 | 13 | 0 | 0 | 34 | 22 | 48 | 3 | 0 | 0 | 73 | 9 | 45 | 5 | 0 | 0 | 59 | 270 | 1053 |
| 2024-11-20 08:00:00 | 6 | 90 | 1 | 0 | 0 | 97 | 0 | 16 | 13 | 0 | 0 | 29 | 19 | 25 | 3 | 0 | 0 | 47 | 11 | 40 | 2 | 0 | 0 | 53 | 226 | 1051 |
| 2024-11-20 08:15:00 | 2 | 118 | 2 | 0 | 0 | 122 | 3 | 15 | 11 | 0 | 0 | 29 | 13 | 37 | 0 | 0 | 0 | 50 | 8 | 38 | 6 | 0 | 0 | 52 | 253 | 1030 |
| 2024-11-20 08:30:00 | 1 | 99 | 4 | 0 | 0 | 104 | 1 | 13 | 16 | 0 | 0 | 30 | 11 | 48 | 2 | 0 | 0 | 61 | 11 | 47 | 4 | 0 | 0 | 62 | 257 | 1006 |
| 2024-11-20 08:45:00 | 0 | 75 | 4 | 0 | 0 | 79 | 1 | 11 | 12 | 0 | 0 | 24 | 13 | 36 | 0 | 0 | 0 | 49 | 10 | 38 | 2 | 0 | 0 | 50 | 202 | 938 |
| 2024-11-20 09:00:00 | 4 | 90 | 1 | 0 | 0 | 95 | 2 | 14 | 19 | 0 | 0 | 35 | 18 | 36 | 0 | 0 | 0 | 54 | 12 | 30 | 3 | 0 | 0 | 45 | 229 | 941 |
| 2024-11-20 09:15:00 | 7 | 78 | 2 | 0 | 0 | 87 | 1 | 7 | 12 | 0 | 0 | 20 | 4 | 33 | 1 | 0 | 0 | 38 | 4 | 20 | 2 | 0 | 0 | 26 | 171 | 859 |
| 2024-11-20 09:30:00 | 3 | 80 | 0 | 0 | 0 | 83 | 1 | 9 | 9 | 0 | 0 | 19 | 9 | 14 | 2 | 0 | 0 | 25 | 3 | 28 | 4 | 0 | 0 | 35 | 162 | 764 |
| 2024-11-20 09:45:00 | 4 | 49 | 1 | 0 | 0 | 54 | 0 | 8 | 11 | 0 | 0 | 19 | 10 | 35 | 3 | 0 | 0 | 48 | 6 | 18 | 3 | 0 | 0 | 27 | 148 | 710 |
| ***BREAK*** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2024-11-20 16:00:00 | 6 | 50 | 0 | 0 | 0 | 56 | 4 | 62 | 30 | 0 | 0 | 96 | 21 | 99 | 5 | 0 | 0 | 125 | 5 | 32 | 5 | 0 | 0 | 42 | 319 | |
| 2024-11-20 16:15:00 | 5 | 52 | 3 | 0 | 0 | 60 | 2 | 64 | 28 | 0 | 0 | 94 | 16 | 108 | 7 | 0 | 0 | 131 | 4 | 20 | 3 | 0 | 0 | 27 | 312 | |
| 2024-11-20 16:30:00 | 4 | 57 | 3 | 0 | 0 | 64 | 1 | 69 | 23 | 0 | 0 | 93 | 16 | 102 | 4 | 0 | 0 | 122 | 6 | 38 | 8 | 0 | 0 | 52 | 331 | |
| 2024-11-20 16:45:00 | 6 | 58 | 2 | 0 | 0 | 66 | 4 | 56 | 27 | 0 | 0 | 87 | 22 | 112 | 9 | 0 | 0 | 143 | 6 | 32 | 4 | 0 | 0 | 42 | 338 | 1300 |
| 2024-11-20 17:00:00 | 5 | 47 | 2 | 0 | 0 | 54 | 2 | 65 | 20 | 0 | 0 | 87 | 17 | 105 | 7 | 0 | 0 | 129 | 6 | 41 | 6 | 0 | 0 | 53 | 323 | 1304 |
| 2024-11-20 17:15:00 | 7 | 51 | 2 | 0 | 0 | 60 | 2 | 56 | 28 | 0 | 0 | 86 | 11 | 104 | 4 | 0 | 0 | 119 | 2 | 16 | 9 | 0 | 0 | 27 | 292 | 1284 |
| 2024-11-20 17:30:00 | 5 | 49 | 1 | 0 | 0 | 55 | 4 | 73 | 31 | 0 | 0 | 108 | 20 | 114 | 11 | 0 | 0 | 145 | 2 | 32 | 1 | 0 | 0 | 35 | 343 | 1296 |
| 2024-11-20 17:45:00 | 7 | 57 | 1 | 0 | 0 | 65 | 3 | 54 | 33 | 0 | 0 | 90 | 13 | 69 | 4 | 0 | 0 | 86 | 3 | 26 | 3 | 0 | 0 | 32 | 273 | 1231 |
| 2024-11-20 18:00:00 | 4 | 53 | 0 | 0 | 0 | 57 | 0 | 56 | 24 | 0 | 0 | 80 | 21 | 94 | 3 | 0 | 0 | 118 | 3 | 24 | 1 | 0 | 0 | 28 | 283 | 1191 |
| 2024-11-20 18:15:00 | 5 | 30 | 1 | 0 | 0 | 36 | 2 | 65 | 27 | 0 | 0 | 94 | 16 | 65 | 3 | 0 | 0 | 84 | 3 | 31 | 2 | 0 | 0 | 36 | 250 | 1149 |
| 2024-11-20 18:30:00 | 2 | 42 | 3 | 0 | 0 | 47 | 10 | 53 | 23 | 0 | 0 | 86 | 21 | 79 | 4 | 0 | 0 | 104 | 2 | 13 | 0 | 0 | 0 | 15 | 252 | 1058 |
| 2024-11-20 18:45:00 | 8 | 33 | 2 | 0 | 0 | 43 | 0 | 34 | 19 | 0 | 0 | 53 | 6 | 72 | 4 | 0 | 0 | 82 | 4 | 15 | 1 | 0 | 0 | 20 | 198 | 983 |
| **Grand Total** | 97 | 1697 | 47 | 0 | 0 | 1841 | 47 | 879 | 460 | 0 | 0 | 1386 | 410 | 1535 | 83 | 0 | 0 | 2028 | 140 | 737 | 83 | 0 | 0 | 960 | **6215** | - |
| **Approach%** | 5.3% | 92.2% | 2.6% | 0% | | - | 3.4% | 63.4% | 33.2% | 0% | | - | 20.2% | 75.7% | 4.1% | 0% | | - | 14.6% | 76.8% | 8.6% | 0% | | - | - | - |
| **Totals %** | 1.6% | 27.3% | 0.8% | 0% | | 29.6% | 0.8% | 14.1% | 7.4% | 0% | | 22.3% | 6.6% | 24.7% | 1.3% | 0% | | 32.6% | 2.3% | 11.9% | 1.3% | 0% | | 15.4% | - | - |
| **Heavy** | 2 | 262 | 9 | 0 | | - | 6 | 15 | 35 | 0 | | - | 29 | 158 | 7 | 0 | | - | 10 | 11 | 7 | 0 | | - | - | - |
| **Heavy %** | 2.1% | 15.4% | 19.1% | 0% | | - | 12.8% | 1.7% | 7.6% | 0% | | - | 7.1% | 10.3% | 8.4% | 0% | | - | 7.1% | 1.5% | 8.4% | 0% | | - | - | - |
| **Bicycles** | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - |
| **Bicycle %** | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - |

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

**Peak Hour: 07:00 AM - 08:00 AM Weather: Overcast Clouds (7.52 °C)**

| Start Time | N Approach AIRPORT ROAD | | | | | | E Approach HEALY ROAD | | | | | | S Approach AIRPORT ROAD | | | | | | W Approach OLD SCHOOL ROAD | | | | | | Int. Total (15 min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | |
| 2024-11-20 07:00:00 | 1 | 92 | 1 | 0 | 0 | 94 | 1 | 16 | 7 | 0 | 0 | 24 | 33 | 37 | 2 | 0 | 0 | 72 | 1 | 31 | 6 | 0 | 0 | 38 | 228 |
| 2024-11-20 07:15:00 | 3 | 129 | 3 | 0 | 0 | 135 | 1 | 25 | 11 | 0 | 0 | 37 | 27 | 33 | 1 | 0 | 0 | 61 | 7 | 32 | 2 | 0 | 0 | 41 | 274 |
| 2024-11-20 07:30:00 | 1 | 118 | 5 | 0 | 0 | 124 | 1 | 18 | 13 | 0 | 0 | 32 | 31 | 30 | 1 | 0 | 0 | 62 | 12 | 50 | 1 | 0 | 0 | 63 | 281 |
| 2024-11-20 07:45:00 | 1 | 100 | 3 | 0 | 0 | 104 | 1 | 20 | 13 | 0 | 0 | 34 | 22 | 48 | 3 | 0 | 0 | 73 | 9 | 45 | 5 | 0 | 0 | 59 | 270 |
| **Grand Total** | 6 | 439 | 12 | 0 | 0 | 457 | 4 | 79 | 44 | 0 | 0 | 127 | 113 | 148 | 7 | 0 | 0 | 268 | 29 | 158 | 14 | 0 | 0 | 201 | **1053** |
| **Approach%** | 1.3% | 96.1% | 2.6% | 0% | | - | 3.1% | 62.2% | 34.6% | 0% | | - | 42.2% | 55.2% | 2.6% | 0% | | - | 14.4% | 78.6% | 7% | 0% | | - | - |
| **Totals %** | 0.6% | 41.7% | 1.1% | 0% | | 43.4% | 0.4% | 7.5% | 4.2% | 0% | | 12.1% | 10.7% | 14.1% | 0.7% | 0% | | 25.5% | 2.8% | 15% | 1.3% | 0% | | 19.1% | - |
| **PHF** | 0.5 | 0.85 | 0.6 | 0 | | 0.85 | 1 | 0.79 | 0.85 | 0 | | 0.86 | 0.86 | 0.77 | 0.58 | 0 | | 0.92 | 0.6 | 0.79 | 0.58 | 0 | | 0.8 | 0.94 |
| **Heavy** | 1 | 53 | 2 | 0 | | 56 | 0 | 3 | 3 | 0 | | 6 | 7 | 37 | 1 | 0 | | 45 | 1 | 2 | 3 | 0 | | 6 | 113 |
| **Heavy %** | 16.7% | 12.1% | 16.7% | 0% | | 12.3% | 0% | 3.8% | 6.8% | 0% | | 4.7% | 6.2% | 25% | 14.3% | 0% | | 16.8% | 3.4% | 1.3% | 21.4% | 0% | | 3% | 10.7% |
| **Lights** | 5 | 386 | 10 | 0 | | 401 | 4 | 76 | 41 | 0 | | 121 | 106 | 111 | 6 | 0 | | 223 | 28 | 156 | 11 | 0 | | 195 | 940 |
| **Lights %** | 83.3% | 87.9% | 83.3% | 0% | | 87.7% | 100% | 96.2% | 93.2% | 0% | | 95.3% | 93.8% | 75% | 85.7% | 0% | | 83.2% | 96.6% | 98.7% | 78.6% | 0% | | 97% | 89.3% |
| **Single-Unit Trucks** | 1 | 20 | 0 | 0 | | 21 | 0 | 2 | 2 | 0 | | 4 | 2 | 16 | 0 | 0 | | 18 | 1 | 2 | 1 | 0 | | 4 | 47 |
| **Single-Unit Trucks %** | 16.7% | 4.6% | 0% | 0% | | 4.6% | 0% | 2.5% | 4.5% | 0% | | 3.1% | 1.8% | 10.8% | 0% | 0% | | 6.7% | 3.4% | 1.3% | 7.1% | 0% | | 2% | 4.5% |
| **Buses** | 0 | 3 | 2 | 0 | | 5 | 0 | 0 | 0 | 0 | | 0 | 5 | 10 | 1 | 0 | | 16 | 0 | 0 | 2 | 0 | | 2 | 23 |
| **Buses %** | 0% | 0.7% | 16.7% | 0% | | 1.1% | 0% | 0% | 0% | 0% | | 0% | 4.4% | 6.8% | 14.3% | 0% | | 6% | 0% | 0% | 14.3% | 0% | | 1% | 2.2% |
| **Articulated Trucks** | 0 | 30 | 0 | 0 | | 30 | 0 | 1 | 1 | 0 | | 2 | 0 | 11 | 0 | 0 | | 11 | 0 | 0 | 0 | 0 | | 0 | 43 |
| **Articulated Trucks %** | 0% | 6.8% | 0% | 0% | | 6.6% | 0% | 1.3% | 2.3% | 0% | | 1.6% | 0% | 7.4% | 0% | 0% | | 4.1% | 0% | 0% | 0% | 0% | | 0% | 4.1% |

Turning Movement Count
Location Name: AIRPORT ROAD & OLD SCHOOL ROAD / HEALY ROAD
Date: Wed, Nov 20, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

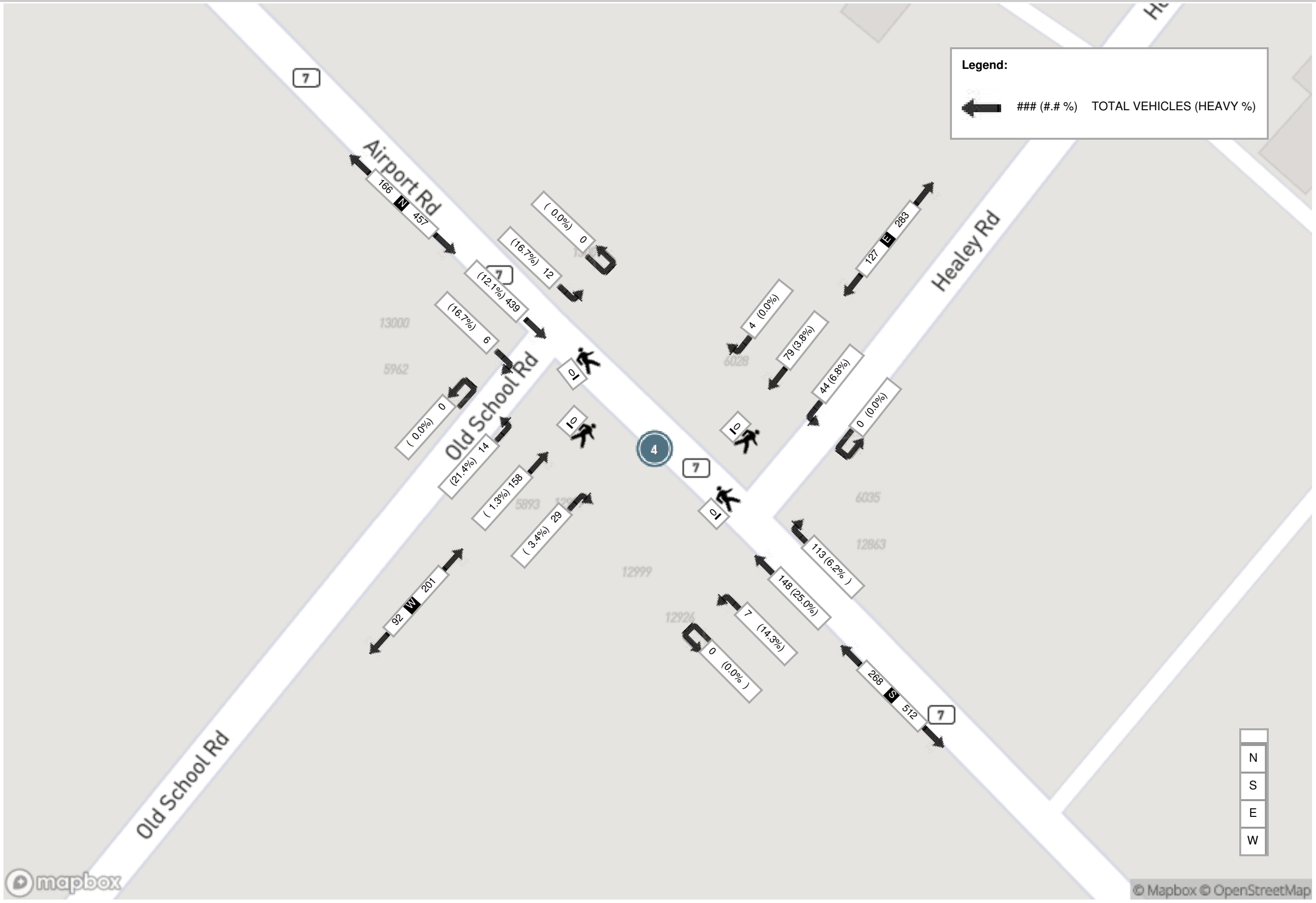
**Peak Hour: 04:15 PM - 05:15 PM Weather: Mist (8.21 °C)**

| Start Time | N Approach AIRPORT ROAD | | | | | | E Approach HEALY ROAD | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total |
| 2024-11-20 16:15:00 | 5 | 52 | 3 | 0 | 0 | 60 | 2 | 64 | 28 | 0 | 0 | 94 |
| 2024-11-20 16:30:00 | 4 | 57 | 3 | 0 | 0 | 64 | 1 | 69 | 23 | 0 | 0 | 93 |
| 2024-11-20 16:45:00 | 6 | 58 | 2 | 0 | 0 | 66 | 4 | 56 | 27 | 0 | 0 | 87 |
| 2024-11-20 17:00:00 | 5 | 47 | 2 | 0 | 0 | 54 | 2 | 65 | 20 | 0 | 0 | 87 |
| **Grand Total** | 20 | 214 | 10 | 0 | 0 | 244 | 9 | 254 | 98 | 0 | 0 | 361 |
| **Approach%** | 8.2% | 87.7% | 4.1% | 0% | | - | 2.5% | 70.4% | 27.1% | 0% | | - |
| **Totals %** | 1.5% | 16.4% | 0.8% | 0% | | 18.7% | 0.7% | 19.5% | 7.5% | 0% | | 27.7% |
| **PHF** | 0.83 | 0.92 | 0.83 | 0 | | 0.92 | 0.56 | 0.92 | 0.88 | 0 | | 0.96 |
| **Heavy** | 1 | 48 | 1 | 0 | | 50 | 1 | 2 | 4 | 0 | | 7 |
| **Heavy %** | 5% | 22.4% | 10% | 0% | | 20.5% | 11.1% | 0.8% | 4.1% | 0% | | 1.9% |
| **Lights** | 19 | 166 | 9 | 0 | | 194 | 8 | 252 | 94 | 0 | | 354 |
| **Lights %** | 95% | 77.6% | 90% | 0% | | 79.5% | 88.9% | 99.2% | 95.9% | 0% | | 98.1% |
| **Single-Unit Trucks** | 1 | 21 | 1 | 0 | | 23 | 1 | 0 | 1 | 0 | | 2 |
| **Single-Unit Trucks %** | 5% | 9.8% | 10% | 0% | | 9.4% | 11.1% | 0% | 1% | 0% | | 0.6% |
| **Buses** | 0 | 9 | 0 | 0 | | 9 | 0 | 2 | 3 | 0 | | 5 |
| **Buses %** | 0% | 4.2% | 0% | 0% | | 3.7% | 0% | 0.8% | 3.1% | 0% | | 1.4% |
| **Articulated Trucks** | 0 | 18 | 0 | 0 | | 18 | 0 | 0 | 0 | 0 | | 0 |
| **Articulated Trucks %** | 0% | 8.4% | 0% | 0% | | 7.4% | 0% | 0% | 0% | 0% | | 0% |

| Start Time | S Approach AIRPORT ROAD | | | | | | W Approach OLD SCHOOL ROAD | | | | | | Int. Total (15 min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | |
| 2024-11-20 16:15:00 | 16 | 108 | 7 | 0 | 0 | 131 | 4 | 20 | 3 | 0 | 0 | 27 | 312 |
| 2024-11-20 16:30:00 | 16 | 102 | 4 | 0 | 0 | 122 | 6 | 38 | 8 | 0 | 0 | 52 | 331 |
| 2024-11-20 16:45:00 | 22 | 112 | 9 | 0 | 0 | 143 | 6 | 32 | 4 | 0 | 0 | 42 | 338 |
| 2024-11-20 17:00:00 | 17 | 105 | 7 | 0 | 0 | 129 | 6 | 41 | 6 | 0 | 0 | 53 | 323 |
| **Grand Total** | 71 | 427 | 27 | 0 | 0 | 525 | 22 | 131 | 21 | 0 | 0 | 174 | **1304** |
| **Approach%** | 13.5% | 81.3% | 5.1% | 0% | | - | 12.6% | 75.3% | 12.1% | 0% | | - | - |
| **Totals %** | 5.4% | 32.7% | 2.1% | 0% | | 40.3% | 1.7% | 10% | 1.6% | 0% | | 13.3% | - |
| **PHF** | 0.81 | 0.95 | 0.75 | 0 | | 0.92 | 0.92 | 0.8 | 0.66 | 0 | | 0.82 | 0.96 |
| **Heavy** | 3 | 22 | 2 | 0 | | 27 | 3 | 3 | 2 | 0 | | 8 | 92 |
| **Heavy %** | 4.2% | 5.2% | 7.4% | 0% | | 5.1% | 13.6% | 2.3% | 9.5% | 0% | | 4.6% | 7.1% |
| **Lights** | 68 | 405 | 25 | 0 | | 498 | 19 | 128 | 19 | 0 | | 166 | 1212 |
| **Lights %** | 95.8% | 94.8% | 92.6% | 0% | | 94.9% | 86.4% | 97.7% | 90.5% | 0% | | 95.4% | 92.9% |
| **Single-Unit Trucks** | 1 | 12 | 2 | 0 | | 15 | 0 | 2 | 1 | 0 | | 3 | 43 |
| **Single-Unit Trucks %** | 1.4% | 2.8% | 7.4% | 0% | | 2.9% | 0% | 1.5% | 4.8% | 0% | | 1.7% | 3.3% |
| **Buses** | 1 | 0 | 0 | 0 | | 1 | 3 | 1 | 1 | 0 | | 5 | 20 |
| **Buses %** | 1.4% | 0% | 0% | 0% | | 0.2% | 13.6% | 0.8% | 4.8% | 0% | | 2.9% | 1.5% |
| **Articulated Trucks** | 1 | 10 | 0 | 0 | | 11 | 0 | 0 | 0 | 0 | | 0 | 29 |
| **Articulated Trucks %** | 1.4% | 2.3% | 0% | 0% | | 2.1% | 0% | 0% | 0% | 0% | | 0% | 2.2% |

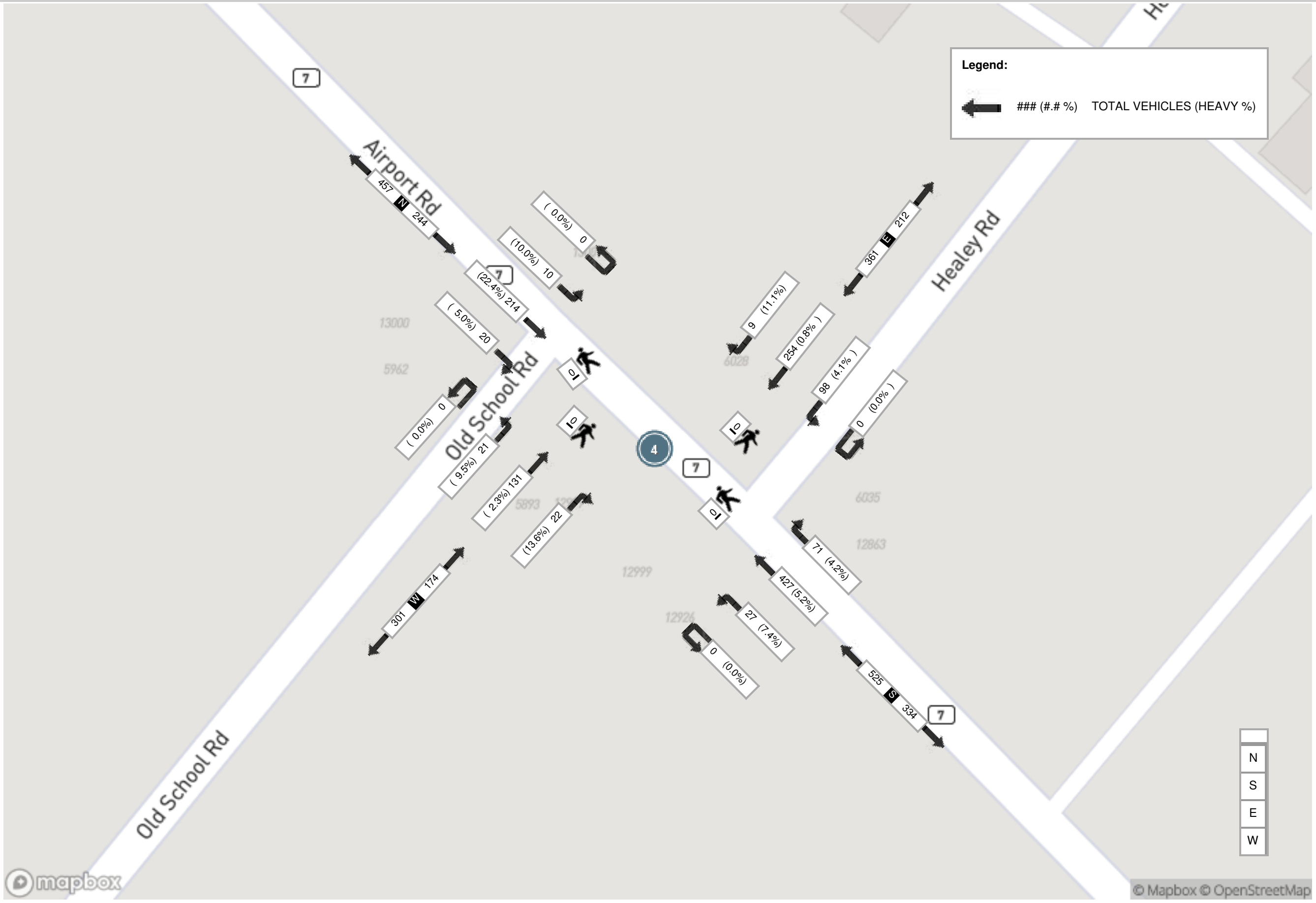
Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

**Peak Hour: 07:00 AM - 08:00 AM Weather: Overcast Clouds (7.52 °C)**



Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

**Peak Hour: 04:15 PM - 05:15 PM Weather: Mist (8.21 °C)**



Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

## Turning Movement Count (6 . AIRPORT ROAD & PERDUE COURT / DAVIS LANE) CustID: 00717933 MioID: 1250811

| Start Time | N Approach AIRPORT ROAD | | | | | | E Approach DAVIS LANE | | | | | | S Approach AIRPORT ROAD | | | | | | W Approach PERDUE COURT | | | | | | Int. Total (15 min) | Int. Total (1 hr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right N:W | Thru N:S | Left N:E | U-Turn N:N | Peds N: | Approach Total | Right E:N | Thru E:W | Left E:S | U-Turn E:E | Peds E: | Approach Total | Right S:E | Thru S:N | Left S:W | U-Turn S:S | Peds S: | Approach Total | Right W:S | Thru W:E | Left W:N | U-Turn W:W | Peds W: | Approach Total | | |
| 2024-11-20 07:00:00 | 1 | 94 | 0 | 0 | 0 | 95 | 8 | 0 | 12 | 0 | 1 | 20 | 13 | 81 | 9 | 0 | 0 | 103 | 6 | 0 | 0 | 0 | 0 | 6 | 224 | |
| 2024-11-20 07:15:00 | 1 | 135 | 0 | 0 | 0 | 136 | 3 | 0 | 20 | 0 | 2 | 23 | 10 | 70 | 7 | 0 | 0 | 87 | 9 | 1 | 1 | 0 | 0 | 11 | 257 | |
| 2024-11-20 07:30:00 | 1 | 173 | 0 | 0 | 0 | 174 | 1 | 0 | 6 | 0 | 6 | 7 | 9 | 65 | 8 | 0 | 0 | 82 | 5 | 0 | 1 | 0 | 0 | 6 | 269 | |
| 2024-11-20 07:45:00 | 1 | 122 | 1 | 0 | 0 | 124 | 1 | 0 | 6 | 0 | 4 | 7 | 5 | 97 | 18 | 1 | 0 | 121 | 5 | 0 | 0 | 0 | 0 | 5 | 257 | 1007 |
| 2024-11-20 08:00:00 | 0 | 120 | 1 | 0 | 0 | 121 | 1 | 0 | 4 | 0 | 2 | 5 | 5 | 73 | 19 | 0 | 1 | 97 | 7 | 0 | 1 | 0 | 2 | 8 | 231 | 1014 |
| 2024-11-20 08:15:00 | 1 | 140 | 2 | 0 | 0 | 143 | 0 | 0 | 5 | 0 | 0 | 5 | 13 | 69 | 25 | 0 | 0 | 107 | 11 | 0 | 0 | 0 | 0 | 11 | 266 | 1023 |
| 2024-11-20 08:30:00 | 1 | 132 | 4 | 0 | 0 | 137 | 2 | 0 | 8 | 0 | 1 | 10 | 9 | 66 | 21 | 0 | 0 | 96 | 6 | 0 | 4 | 0 | 0 | 10 | 253 | 1007 |
| 2024-11-20 08:45:00 | 2 | 113 | 3 | 0 | 0 | 118 | 3 | 0 | 10 | 0 | 0 | 13 | 19 | 61 | 13 | 0 | 0 | 93 | 8 | 0 | 0 | 0 | 1 | 8 | 232 | 982 |
| 2024-11-20 09:00:00 | 4 | 118 | 8 | 0 | 0 | 130 | 1 | 0 | 17 | 0 | 0 | 18 | 29 | 66 | 14 | 0 | 0 | 109 | 4 | 0 | 2 | 2 | 0 | 8 | 265 | 1016 |
| 2024-11-20 09:15:00 | 0 | 102 | 7 | 0 | 0 | 109 | 1 | 0 | 26 | 0 | 0 | 27 | 31 | 35 | 8 | 0 | 0 | 74 | 6 | 0 | 2 | 0 | 1 | 8 | 218 | 968 |
| 2024-11-20 09:30:00 | 0 | 83 | 1 | 0 | 0 | 84 | 1 | 0 | 29 | 0 | 2 | 30 | 18 | 36 | 6 | 0 | 0 | 60 | 9 | 0 | 1 | 0 | 2 | 10 | 184 | 899 |
| 2024-11-20 09:45:00 | 2 | 74 | 1 | 0 | 0 | 77 | 2 | 0 | 16 | 0 | 0 | 18 | 9 | 58 | 11 | 0 | 0 | 78 | 7 | 0 | 0 | 0 | 0 | 7 | 180 | 847 |
| ***BREAK*** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2024-11-20 16:00:00 | 1 | 90 | 2 | 2 | 0 | 95 | 1 | 0 | 12 | 0 | 0 | 13 | 17 | 114 | 11 | 0 | 0 | 142 | 11 | 0 | 2 | 0 | 0 | 13 | 263 | |
| 2024-11-20 16:15:00 | 1 | 100 | 4 | 0 | 0 | 105 | 3 | 0 | 19 | 0 | 1 | 22 | 16 | 169 | 7 | 0 | 0 | 192 | 15 | 0 | 3 | 0 | 0 | 18 | 337 | |
| 2024-11-20 16:30:00 | 1 | 116 | 5 | 1 | 0 | 123 | 1 | 0 | 23 | 0 | 4 | 24 | 16 | 139 | 5 | 2 | 0 | 162 | 13 | 0 | 1 | 0 | 0 | 14 | 323 | |
| 2024-11-20 16:45:00 | 1 | 98 | 5 | 1 | 0 | 105 | 4 | 0 | 16 | 0 | 5 | 20 | 10 | 166 | 12 | 0 | 0 | 188 | 14 | 0 | 1 | 0 | 0 | 15 | 328 | 1251 |
| 2024-11-20 17:00:00 | 6 | 67 | 6 | 6 | 0 | 85 | 0 | 0 | 22 | 0 | 2 | 22 | 7 | 134 | 12 | 1 | 0 | 154 | 19 | 0 | 1 | 0 | 0 | 20 | 281 | 1269 |
| 2024-11-20 17:15:00 | 0 | 113 | 0 | 1 | 0 | 114 | 5 | 0 | 10 | 0 | 0 | 15 | 7 | 119 | 9 | 0 | 0 | 135 | 16 | 0 | 0 | 0 | 0 | 16 | 280 | 1212 |
| 2024-11-20 17:30:00 | 1 | 90 | 2 | 2 | 1 | 95 | 0 | 0 | 8 | 0 | 2 | 8 | 5 | 130 | 11 | 0 | 0 | 146 | 16 | 0 | 0 | 0 | 0 | 16 | 265 | 1154 |
| 2024-11-20 17:45:00 | 1 | 104 | 0 | 0 | 0 | 105 | 0 | 0 | 10 | 0 | 0 | 10 | 4 | 94 | 13 | 0 | 0 | 111 | 8 | 0 | 1 | 0 | 0 | 9 | 235 | 1061 |
| 2024-11-20 18:00:00 | 2 | 95 | 1 | 1 | 0 | 99 | 0 | 0 | 4 | 0 | 0 | 4 | 1 | 104 | 4 | 0 | 1 | 109 | 10 | 0 | 0 | 0 | 2 | 10 | 222 | 1002 |
| 2024-11-20 18:15:00 | 0 | 71 | 0 | 0 | 0 | 71 | 0 | 0 | 4 | 0 | 0 | 4 | 5 | 98 | 9 | 1 | 0 | 113 | 7 | 0 | 1 | 0 | 0 | 8 | 196 | 918 |
| 2024-11-20 18:30:00 | 0 | 81 | 0 | 0 | 0 | 81 | 1 | 0 | 4 | 0 | 0 | 5 | 3 | 108 | 8 | 1 | 0 | 120 | 9 | 0 | 0 | 0 | 0 | 9 | 215 | 868 |
| 2024-11-20 18:45:00 | 1 | 64 | 0 | 0 | 0 | 65 | 0 | 0 | 3 | 0 | 1 | 3 | 1 | 82 | 7 | 0 | 0 | 90 | 11 | 0 | 0 | 0 | 0 | 11 | 169 | 802 |
| **Grand Total** | 29 | 2495 | 53 | 14 | 1 | 2591 | 39 | 0 | 294 | 0 | 33 | 333 | 262 | 2234 | 267 | 6 | 2 | 2769 | 232 | 1 | 22 | 2 | 8 | 257 | **5950** | - |
| **Approach%** | 1.1% | 96.3% | 2% | 0.5% | | - | 11.7% | 0% | 88.3% | 0% | | - | 9.5% | 80.7% | 9.6% | 0.2% | | - | 90.3% | 0.4% | 8.6% | 0.8% | | - | - | - |
| **Totals %** | 0.5% | 41.9% | 0.9% | 0.2% | | 43.5% | 0.7% | 0% | 4.9% | 0% | | 5.6% | 4.4% | 37.5% | 4.5% | 0.1% | | 46.5% | 3.9% | 0% | 0.4% | 0% | | 4.3% | - | - |
| **Heavy** | 16 | 341 | 43 | 0 | | - | 23 | 0 | 88 | 0 | | - | 181 | 279 | 97 | 0 | | - | 70 | 0 | 7 | 2 | | - | - | - |
| **Heavy %** | 55.2% | 13.7% | 81.1% | 0% | | - | 59% | 0% | 29.9% | 0% | | - | 69.1% | 12.5% | 36.3% | 0% | | - | 30.2% | 0% | 31.8% | 100% | | - | - | - |
| **Bicycles** | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - |
| **Bicycle %** | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - |

Turning Movement Count
Location Name: AIRPORT ROAD & PERDUE COURT / DAVIS LANE
Date: Wed, Nov 20, 2024    Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

**Peak Hour: 07:30 AM - 08:30 AM    Weather: Overcast Clouds (7.52 °C)**

| Start Time | N Approach AIRPORT ROAD | | | | | | E Approach DAVIS LANE | | | | | | S Approach AIRPORT ROAD | | | | | | W Approach PERDUE COURT | | | | | | Int. Total (15 min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | |
| 2024-11-20 07:30:00 | 1 | 173 | 0 | 0 | 0 | 174 | 1 | 0 | 6 | 0 | 6 | 7 | 9 | 65 | 8 | 0 | 0 | 82 | 5 | 0 | 1 | 0 | 0 | 6 | 269 |
| 2024-11-20 07:45:00 | 1 | 122 | 1 | 0 | 0 | 124 | 1 | 0 | 6 | 0 | 4 | 7 | 5 | 97 | 18 | 1 | 0 | 121 | 5 | 0 | 0 | 0 | 0 | 5 | 257 |
| 2024-11-20 08:00:00 | 0 | 120 | 1 | 0 | 0 | 121 | 1 | 0 | 4 | 0 | 2 | 5 | 5 | 73 | 19 | 0 | 1 | 97 | 7 | 0 | 1 | 0 | 2 | 8 | 231 |
| 2024-11-20 08:15:00 | 1 | 140 | 2 | 0 | 0 | 143 | 0 | 0 | 5 | 0 | 0 | 5 | 13 | 69 | 25 | 0 | 0 | 107 | 11 | 0 | 0 | 0 | 0 | 11 | 266 |
| **Grand Total** | 3 | 555 | 4 | 0 | 0 | 562 | 3 | 0 | 21 | 0 | 12 | 24 | 32 | 304 | 70 | 1 | 1 | 407 | 28 | 0 | 2 | 0 | 2 | 30 | **1023** |
| **Approach%** | 0.5% | 98.8% | 0.7% | 0% | | - | 12.5% | 0% | 87.5% | 0% | | - | 7.9% | 74.7% | 17.2% | 0.2% | | - | 93.3% | 0% | 6.7% | 0% | | - | - |
| **Totals %** | 0.3% | 54.3% | 0.4% | 0% | | 54.9% | 0.3% | 0% | 2.1% | 0% | | 2.3% | 3.1% | 29.7% | 6.8% | 0.1% | | 39.8% | 2.7% | 0% | 0.2% | 0% | | 2.9% | - |
| **PHF** | 0.75 | 0.8 | 0.5 | 0 | | 0.81 | 0.75 | 0 | 0.88 | 0 | | 0.86 | 0.62 | 0.78 | 0.7 | 0.25 | | 0.84 | 0.64 | 0 | 0.5 | 0 | | 0.68 | 0.95 |
| **Heavy** | 0 | 70 | 2 | 0 | | 72 | 3 | 0 | 14 | 0 | | 17 | 11 | 46 | 15 | 0 | | 72 | 21 | 0 | 2 | 0 | | 23 | 184 |
| **Heavy %** | 0% | 12.6% | 50% | 0% | | 12.8% | 100% | 0% | 66.7% | 0% | | 70.8% | 34.4% | 15.1% | 21.4% | 0% | | 17.7% | 75% | 0% | 100% | 0% | | 76.7% | 18% |
| **Lights** | 3 | 485 | 2 | 0 | | 490 | 0 | 0 | 7 | 0 | | 7 | 21 | 258 | 55 | 1 | | 335 | 7 | 0 | 0 | 0 | | 7 | 839 |
| **Lights %** | 100% | 87.4% | 50% | 0% | | 87.2% | 0% | 0% | 33.3% | 0% | | 29.2% | 65.6% | 84.9% | 78.6% | 100% | | 82.3% | 25% | 0% | 0% | 0% | | 23.3% | 82% |
| **Single-Unit Trucks** | 0 | 32 | 1 | 0 | | 33 | 0 | 0 | 0 | 0 | | 0 | 0 | 18 | 12 | 0 | | 30 | 11 | 0 | 2 | 0 | | 13 | 76 |
| **Single-Unit Trucks %** | 0% | 5.8% | 25% | 0% | | 5.9% | 0% | 0% | 0% | 0% | | 0% | 0% | 5.9% | 17.1% | 0% | | 7.4% | 39.3% | 0% | 100% | 0% | | 43.3% | 7.4% |
| **Buses** | 0 | 3 | 1 | 0 | | 4 | 2 | 0 | 10 | 0 | | 12 | 11 | 7 | 0 | 0 | | 18 | 0 | 0 | 0 | 0 | | 0 | 34 |
| **Buses %** | 0% | 0.5% | 25% | 0% | | 0.7% | 66.7% | 0% | 47.6% | 0% | | 50% | 34.4% | 2.3% | 0% | 0% | | 4.4% | 0% | 0% | 0% | 0% | | 0% | 3.3% |
| **Articulated Trucks** | 0 | 35 | 0 | 0 | | 35 | 1 | 0 | 4 | 0 | | 5 | 0 | 21 | 3 | 0 | | 24 | 10 | 0 | 0 | 0 | | 10 | 74 |
| **Articulated Trucks %** | 0% | 6.3% | 0% | 0% | | 6.2% | 33.3% | 0% | 19% | 0% | | 20.8% | 0% | 6.9% | 4.3% | 0% | | 5.9% | 35.7% | 0% | 0% | 0% | | 33.3% | 7.2% |
| **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% |
| **Pedestrians** | - | - | - | - | 0 | - | - | - | - | - | 12 | - | - | - | - | - | 1 | - | - | - | - | - | 2 | - | - |
| **Pedestrians%** | - | - | - | - | 0% | | - | - | - | - | 80% | | - | - | - | - | 6.7% | | - | - | - | - | 13.3% | | - |

Spectrum

Turning Movement Count
Location Name: AIRPORT ROAD & PERDUE COURT / DAVIS LANE
Date: Wed, Nov 20, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

## Peak Hour: 04:15 PM - 05:15 PM Weather: Mist (8.21 °C)

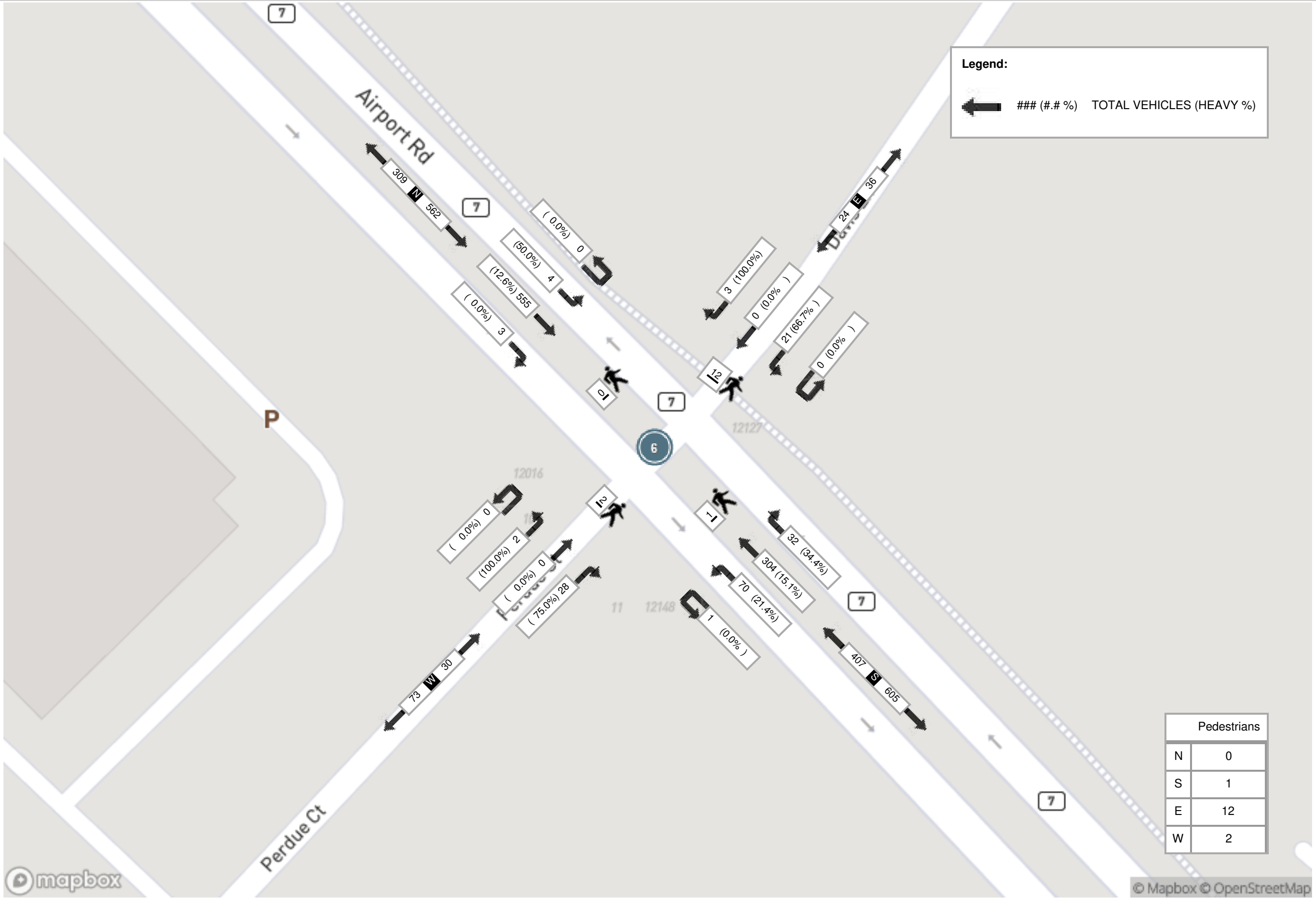
| Start Time | N Approach AIRPORT ROAD | | | | | | E Approach DAVIS LANE | | | | | | S Approach AIRPORT ROAD | | | | | | W Approach PERDUE COURT | | | | | | Int. Total (15 min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | |
| 2024-11-20 16:15:00 | 1 | 100 | 4 | 0 | 0 | 105 | 3 | 0 | 19 | 0 | 1 | 22 | 16 | 169 | 7 | 0 | 0 | 192 | 15 | 0 | 3 | 0 | 0 | 18 | 337 |
| 2024-11-20 16:30:00 | 1 | 116 | 5 | 1 | 0 | 123 | 1 | 0 | 23 | 0 | 4 | 24 | 16 | 139 | 5 | 2 | 0 | 162 | 13 | 0 | 1 | 0 | 0 | 14 | 323 |
| 2024-11-20 16:45:00 | 1 | 98 | 5 | 1 | 0 | 105 | 4 | 0 | 16 | 0 | 5 | 20 | 10 | 166 | 12 | 0 | 0 | 188 | 14 | 0 | 1 | 0 | 0 | 15 | 328 |
| 2024-11-20 17:00:00 | 6 | 67 | 6 | 6 | 0 | 85 | 0 | 0 | 22 | 0 | 2 | 22 | 7 | 134 | 12 | 1 | 0 | 154 | 19 | 0 | 1 | 0 | 0 | 20 | 281 |
| **Grand Total** | 9 | 381 | 20 | 8 | 0 | 418 | 8 | 0 | 80 | 0 | 12 | 88 | 49 | 608 | 36 | 3 | 0 | 696 | 61 | 0 | 6 | 0 | 0 | 67 | **1269** |
| **Approach%** | 2.2% | 91.1% | 4.8% | 1.9% | | - | 9.1% | 0% | 90.9% | 0% | | - | 7% | 87.4% | 5.2% | 0.4% | | - | 91% | 0% | 9% | 0% | | - | - |
| **Totals %** | 0.7% | 30% | 1.6% | 0.6% | | 32.9% | 0.6% | 0% | 6.3% | 0% | | 6.9% | 3.9% | 47.9% | 2.8% | 0.2% | | 54.8% | 4.8% | 0% | 0.5% | 0% | | 5.3% | - |
| **PHF** | 0.38 | 0.82 | 0.83 | 0.33 | | 0.85 | 0.5 | 0 | 0.87 | 0 | | 0.92 | 0.77 | 0.9 | 0.75 | 0.38 | | 0.91 | 0.8 | 0 | 0.5 | 0 | | 0.84 | 0.94 |
| **Heavy** | 8 | 41 | 18 | 0 | | 67 | 1 | 0 | 7 | 0 | | 8 | 41 | 53 | 23 | 0 | | 117 | 7 | 0 | 0 | 0 | | 7 | 199 |
| **Heavy %** | 88.9% | 10.8% | 90% | 0% | | 16% | 12.5% | 0% | 8.8% | 0% | | 9.1% | 83.7% | 8.7% | 63.9% | 0% | | 16.8% | 11.5% | 0% | 0% | 0% | | 10.4% | 15.7% |
| **Lights** | 1 | 340 | 2 | 8 | | 351 | 7 | 0 | 73 | 0 | | 80 | 8 | 555 | 13 | 3 | | 579 | 54 | 0 | 6 | 0 | | 60 | 1070 |
| **Lights %** | 11.1% | 89.2% | 10% | 100% | | 84% | 87.5% | 0% | 91.3% | 0% | | 90.9% | 16.3% | 91.3% | 36.1% | 100% | | 83.2% | 88.5% | 0% | 100% | 0% | | 89.6% | 84.3% |
| **Single-Unit Trucks** | 3 | 23 | 2 | 0 | | 28 | 0 | 0 | 2 | 0 | | 2 | 0 | 17 | 5 | 0 | | 22 | 2 | 0 | 0 | 0 | | 2 | 54 |
| **Single-Unit Trucks %** | 33.3% | 6% | 10% | 0% | | 6.7% | 0% | 0% | 2.5% | 0% | | 2.3% | 0% | 2.8% | 13.9% | 0% | | 3.2% | 3.3% | 0% | 0% | 0% | | 3% | 4.3% |
| **Buses** | 0 | 1 | 16 | 0 | | 17 | 1 | 0 | 3 | 0 | | 4 | 39 | 0 | 0 | 0 | | 39 | 0 | 0 | 0 | 0 | | 0 | 60 |
| **Buses %** | 0% | 0.3% | 80% | 0% | | 4.1% | 12.5% | 0% | 3.8% | 0% | | 4.5% | 79.6% | 0% | 0% | 0% | | 5.6% | 0% | 0% | 0% | 0% | | 0% | 4.7% |
| **Articulated Trucks** | 5 | 17 | 0 | 0 | | 22 | 0 | 0 | 2 | 0 | | 2 | 2 | 36 | 18 | 0 | | 56 | 5 | 0 | 0 | 0 | | 5 | 85 |
| **Articulated Trucks %** | 55.6% | 4.5% | 0% | 0% | | 5.3% | 0% | 0% | 2.5% | 0% | | 2.3% | 4.1% | 5.9% | 50% | 0% | | 8% | 8.2% | 0% | 0% | 0% | | 7.5% | 6.7% |
| **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% |
| **Pedestrians** | - | - | - | - | 0 | - | - | - | - | - | 12 | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - |
| **Pedestrians%** | - | - | - | - | 0% | | - | - | - | - | 100% | | - | - | - | - | 0% | | - | - | - | - | 0% | | - |

Spectrum

Turning Movement Count
Location Name: AIRPORT ROAD & PERDUE COURT / DAVIS LANE
Date: Wed, Nov 20, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

**Peak Hour: 07:30 AM - 08:30 AM Weather: Overcast Clouds (7.52 °C)**




| Pedestrians | |
|---|---|
| N | 0 |
| S | 1 |
| E | 12 |
| W | 2 |

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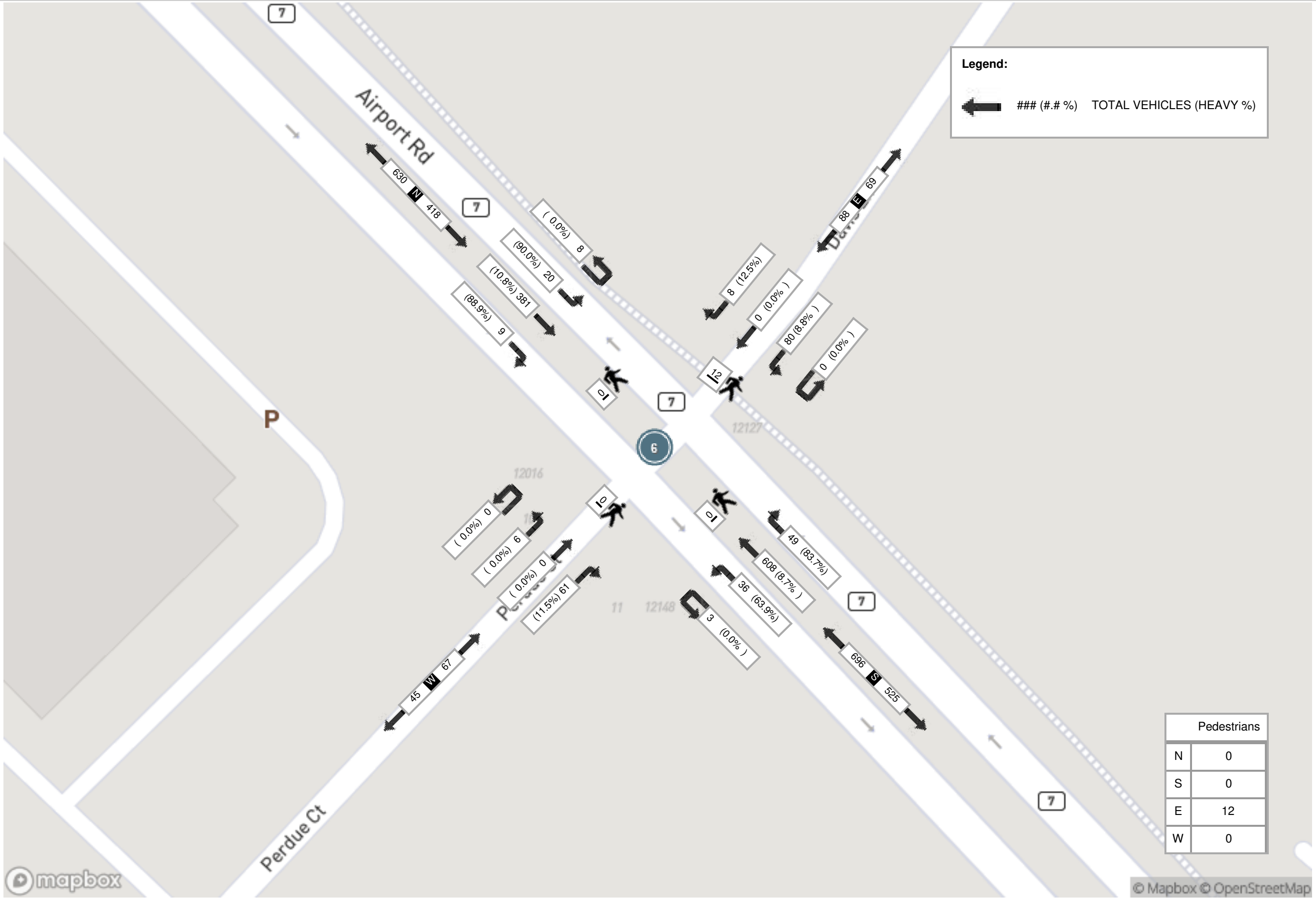
TORONTO ONTARIO, M5B 1M4
CANADA

**Peak Hour: 04:15 PM - 05:15 PM Weather: Mist (8.21 °C)**



Spectrum

Turning Movement Count
Location Name: HEALY ROAD & INNIS LAKE ROAD
Date: Wed, Nov 20, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

## Turning Movement Count (11 . HEALY ROAD & INNIS LAKE ROAD) MioID: 1250835

| Start Time | N Approach INNIS LAKE ROAD | | | | | | E Approach HEALY ROAD | | | | | | S Approach INNIS LAKE ROAD | | | | | | W Approach HEALY ROAD | | | | | | Int. Total (15 min) | Int. Total (1 hr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right N:W | Thru N:S | Left N:E | U-Turn N:N | Peds N: | Approach Total | Right E:N | Thru E:W | Left E:S | U-Turn E:E | Peds E: | Approach Total | Right S:E | Thru S:N | Left S:W | U-Turn S:S | Peds S: | Approach Total | Right W:S | Thru W:E | Left W:N | U-Turn W:W | Peds W: | Approach Total | | |
| 2024-11-20 07:00:00 | 0 | 17 | 2 | 0 | 0 | 19 | 1 | 27 | 1 | 0 | 0 | 29 | 11 | 1 | 1 | 0 | 0 | 13 | 0 | 47 | 2 | 0 | 0 | 49 | 110 | |
| 2024-11-20 07:15:00 | 0 | 28 | 2 | 0 | 0 | 30 | 2 | 32 | 0 | 0 | 0 | 34 | 10 | 9 | 0 | 0 | 0 | 19 | 1 | 69 | 1 | 0 | 0 | 71 | 154 | |
| 2024-11-20 07:30:00 | 3 | 19 | 2 | 0 | 0 | 24 | 2 | 29 | 8 | 0 | 0 | 39 | 15 | 11 | 0 | 0 | 0 | 26 | 3 | 81 | 1 | 0 | 0 | 85 | 174 | |
| 2024-11-20 07:45:00 | 1 | 23 | 6 | 0 | 0 | 30 | 3 | 28 | 5 | 0 | 0 | 36 | 18 | 8 | 1 | 0 | 0 | 27 | 2 | 70 | 0 | 0 | 0 | 72 | 165 | 603 |
| 2024-11-20 08:00:00 | 4 | 24 | 2 | 0 | 0 | 30 | 1 | 25 | 8 | 0 | 0 | 34 | 16 | 10 | 0 | 0 | 0 | 26 | 1 | 60 | 0 | 0 | 0 | 61 | 151 | 644 |
| 2024-11-20 08:15:00 | 2 | 27 | 0 | 0 | 0 | 29 | 1 | 28 | 5 | 0 | 0 | 34 | 11 | 6 | 3 | 0 | 0 | 20 | 1 | 60 | 1 | 0 | 0 | 62 | 145 | 635 |
| 2024-11-20 08:30:00 | 1 | 8 | 1 | 0 | 0 | 10 | 1 | 23 | 5 | 0 | 0 | 29 | 10 | 1 | 0 | 0 | 0 | 11 | 1 | 51 | 1 | 0 | 0 | 53 | 103 | 564 |
| 2024-11-20 08:45:00 | 4 | 18 | 3 | 0 | 0 | 25 | 1 | 20 | 3 | 0 | 0 | 24 | 12 | 9 | 0 | 0 | 0 | 21 | 5 | 55 | 4 | 0 | 0 | 64 | 134 | 533 |
| 2024-11-20 09:00:00 | 4 | 14 | 3 | 0 | 0 | 21 | 2 | 26 | 1 | 0 | 0 | 29 | 14 | 4 | 0 | 0 | 0 | 18 | 2 | 48 | 0 | 0 | 0 | 50 | 118 | 500 |
| 2024-11-20 09:15:00 | 2 | 19 | 1 | 0 | 0 | 22 | 1 | 17 | 2 | 0 | 0 | 20 | 8 | 8 | 0 | 0 | 0 | 16 | 1 | 25 | 0 | 0 | 0 | 26 | 84 | 439 |
| 2024-11-20 09:30:00 | 0 | 13 | 0 | 0 | 0 | 13 | 1 | 14 | 0 | 0 | 0 | 15 | 4 | 10 | 0 | 0 | 0 | 14 | 2 | 31 | 1 | 0 | 0 | 34 | 76 | 412 |
| 2024-11-20 09:45:00 | 1 | 14 | 2 | 0 | 0 | 17 | 1 | 17 | 2 | 0 | 0 | 20 | 9 | 4 | 0 | 0 | 0 | 13 | 0 | 35 | 1 | 0 | 0 | 36 | 86 | 364 |
| ***BREAK*** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2024-11-20 16:00:00 | 1 | 18 | 0 | 0 | 0 | 19 | 4 | 84 | 8 | 0 | 0 | 96 | 8 | 25 | 5 | 0 | 0 | 38 | 0 | 46 | 2 | 0 | 0 | 48 | 201 | |
| 2024-11-20 16:15:00 | 1 | 13 | 5 | 0 | 0 | 19 | 4 | 94 | 10 | 0 | 0 | 108 | 9 | 20 | 1 | 0 | 0 | 30 | 0 | 36 | 1 | 0 | 0 | 37 | 194 | |
| 2024-11-20 16:30:00 | 2 | 8 | 2 | 0 | 0 | 12 | 1 | 93 | 19 | 0 | 0 | 113 | 12 | 41 | 1 | 0 | 0 | 54 | 1 | 42 | 5 | 0 | 0 | 48 | 227 | |
| 2024-11-20 16:45:00 | 4 | 9 | 2 | 0 | 0 | 15 | 8 | 91 | 18 | 0 | 0 | 117 | 7 | 33 | 1 | 0 | 0 | 41 | 0 | 50 | 5 | 0 | 0 | 55 | 228 | 850 |
| 2024-11-20 17:00:00 | 2 | 13 | 1 | 0 | 0 | 16 | 4 | 83 | 15 | 0 | 0 | 102 | 7 | 16 | 0 | 0 | 0 | 23 | 1 | 53 | 3 | 0 | 0 | 57 | 198 | 847 |
| 2024-11-20 17:15:00 | 3 | 10 | 0 | 0 | 0 | 13 | 5 | 91 | 11 | 0 | 0 | 107 | 7 | 19 | 1 | 0 | 0 | 27 | 2 | 26 | 2 | 0 | 0 | 30 | 177 | 830 |
| 2024-11-20 17:30:00 | 3 | 15 | 0 | 0 | 0 | 18 | 4 | 95 | 12 | 0 | 0 | 111 | 8 | 19 | 1 | 0 | 0 | 28 | 0 | 39 | 4 | 0 | 0 | 43 | 200 | 803 |
| 2024-11-20 17:45:00 | 1 | 15 | 0 | 0 | 0 | 16 | 3 | 85 | 17 | 0 | 0 | 105 | 10 | 14 | 2 | 0 | 0 | 26 | 3 | 41 | 1 | 0 | 0 | 45 | 192 | 767 |
| 2024-11-20 18:00:00 | 2 | 12 | 1 | 0 | 0 | 15 | 2 | 80 | 14 | 0 | 0 | 96 | 5 | 11 | 3 | 0 | 0 | 19 | 2 | 38 | 1 | 0 | 0 | 41 | 171 | 740 |
| 2024-11-20 18:15:00 | 0 | 15 | 1 | 0 | 0 | 16 | 0 | 97 | 10 | 0 | 0 | 107 | 5 | 14 | 4 | 0 | 0 | 23 | 1 | 46 | 2 | 0 | 0 | 49 | 195 | 758 |
| 2024-11-20 18:30:00 | 1 | 12 | 3 | 0 | 0 | 16 | 0 | 79 | 11 | 0 | 0 | 90 | 7 | 8 | 1 | 0 | 0 | 16 | 2 | 29 | 2 | 0 | 0 | 33 | 155 | 713 |
| 2024-11-20 18:45:00 | 0 | 6 | 0 | 0 | 0 | 6 | 7 | 43 | 5 | 0 | 0 | 55 | 3 | 10 | 1 | 0 | 0 | 14 | 0 | 20 | 1 | 0 | 0 | 21 | 96 | 617 |
| **Grand Total** | 42 | 370 | 39 | 0 | 0 | 451 | 59 | 1301 | 190 | 0 | 0 | 1550 | 226 | 311 | 26 | 0 | 0 | 563 | 31 | 1098 | 41 | 0 | 0 | 1170 | **3734** | - |
| **Approach%** | 9.3% | 82% | 8.6% | 0% | | - | 3.8% | 83.9% | 12.3% | 0% | | - | 40.1% | 55.2% | 4.6% | 0% | | - | 2.6% | 93.8% | 3.5% | 0% | | - | - | - |
| **Totals %** | 1.1% | 9.9% | 1% | 0% | | 12.1% | 1.6% | 34.8% | 5.1% | 0% | | 41.5% | 6.1% | 8.3% | 0.7% | 0% | | 15.1% | 0.8% | 29.4% | 1.1% | 0% | | 31.3% | - | - |
| **Heavy** | 3 | 9 | 1 | 0 | | - | 3 | 37 | 1 | 0 | | - | 8 | 5 | 3 | 0 | | - | 7 | 27 | 4 | 0 | | - | - | - |
| **Heavy %** | 7.1% | 2.4% | 2.6% | 0% | | - | 5.1% | 2.8% | 0.5% | 0% | | - | 3.5% | 1.6% | 11.5% | 0% | | - | 22.6% | 2.5% | 9.8% | 0% | | - | - | - |
| **Bicycles** | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - |
| **Bicycle %** | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - |

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

**Peak Hour: 07:15 AM - 08:15 AM Weather: Overcast Clouds (7.52 °C)**

| Start Time | N Approach INNIS LAKE ROAD | | | | | | E Approach HEALY ROAD | | | | | | S Approach INNIS LAKE ROAD | | | | | | W Approach HEALY ROAD | | | | | | Int. Total (15 min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | |
| 2024-11-20 07:15:00 | 0 | 28 | 2 | 0 | 0 | 30 | 2 | 32 | 0 | 0 | 0 | 34 | 10 | 9 | 0 | 0 | 0 | 19 | 1 | 69 | 1 | 0 | 0 | 71 | 154 |
| 2024-11-20 07:30:00 | 3 | 19 | 2 | 0 | 0 | 24 | 2 | 29 | 8 | 0 | 0 | 39 | 15 | 11 | 0 | 0 | 0 | 26 | 3 | 81 | 1 | 0 | 0 | 85 | 174 |
| 2024-11-20 07:45:00 | 1 | 23 | 6 | 0 | 0 | 30 | 3 | 28 | 5 | 0 | 0 | 36 | 18 | 8 | 1 | 0 | 0 | 27 | 2 | 70 | 0 | 0 | 0 | 72 | 165 |
| 2024-11-20 08:00:00 | 4 | 24 | 2 | 0 | 0 | 30 | 1 | 25 | 8 | 0 | 0 | 34 | 16 | 10 | 0 | 0 | 0 | 26 | 1 | 60 | 0 | 0 | 0 | 61 | 151 |
| **Grand Total** | 8 | 94 | 12 | 0 | 0 | 114 | 8 | 114 | 21 | 0 | 0 | 143 | 59 | 38 | 1 | 0 | 0 | 98 | 7 | 280 | 2 | 0 | 0 | 289 | **644** |
| **Approach%** | 7% | 82.5% | 10.5% | 0% | | - | 5.6% | 79.7% | 14.7% | 0% | | - | 60.2% | 38.8% | 1% | 0% | | - | 2.4% | 96.9% | 0.7% | 0% | | - | **-** |
| **Totals %** | 1.2% | 14.6% | 1.9% | 0% | | 17.7% | 1.2% | 17.7% | 3.3% | 0% | | 22.2% | 9.2% | 5.9% | 0.2% | 0% | | 15.2% | 1.1% | 43.5% | 0.3% | 0% | | 44.9% | **-** |
| **PHF** | 0.5 | 0.84 | 0.5 | 0 | | 0.95 | 0.67 | 0.89 | 0.66 | 0 | | 0.92 | 0.82 | 0.86 | 0.25 | 0 | | 0.91 | 0.58 | 0.86 | 0.5 | 0 | | 0.85 | 0.93 |
| **Heavy** | 0 | 1 | 0 | 0 | | 1 | 0 | 2 | 0 | 0 | | 2 | 2 | 1 | 0 | 0 | | 3 | 1 | 7 | 1 | 0 | | 9 | 15 |
| **Heavy %** | 0% | 1.1% | 0% | 0% | | 0.9% | 0% | 1.8% | 0% | 0% | | 1.4% | 3.4% | 2.6% | 0% | 0% | | 3.1% | 14.3% | 2.5% | 50% | 0% | | 3.1% | 2.3% |
| **Lights** | 8 | 93 | 12 | 0 | | 113 | 8 | 112 | 21 | 0 | | 141 | 57 | 37 | 1 | 0 | | 95 | 6 | 273 | 1 | 0 | | 280 | 629 |
| **Lights %** | 100% | 98.9% | 100% | 0% | | 99.1% | 100% | 98.2% | 100% | 0% | | 98.6% | 96.6% | 97.4% | 100% | 0% | | 96.9% | 85.7% | 97.5% | 50% | 0% | | 96.9% | 97.7% |
| **Single-Unit Trucks** | 0 | 1 | 0 | 0 | | 1 | 0 | 1 | 0 | 0 | | 1 | 1 | 0 | 0 | 0 | | 1 | 0 | 2 | 0 | 0 | | 2 | 5 |
| **Single-Unit Trucks %** | 0% | 1.1% | 0% | 0% | | 0.9% | 0% | 0.9% | 0% | 0% | | 0.7% | 1.7% | 0% | 0% | 0% | | 1% | 0% | 0.7% | 0% | 0% | | 0.7% | 0.8% |
| **Buses** | 0 | 0 | 0 | 0 | | 0 | 0 | 1 | 0 | 0 | | 1 | 1 | 1 | 0 | 0 | | 2 | 1 | 5 | 1 | 0 | | 7 | 10 |
| **Buses %** | 0% | 0% | 0% | 0% | | 0% | 0% | 0.9% | 0% | 0% | | 0.7% | 1.7% | 2.6% | 0% | 0% | | 2% | 14.3% | 1.8% | 50% | 0% | | 2.4% | 1.6% |
| **Articulated Trucks** | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 |
| **Articulated Trucks %** | 0% | 0% | 0% | 0% | | 0% | 0% | 0% | 0% | 0% | | 0% | 0% | 0% | 0% | 0% | | 0% | 0% | 0% | 0% | 0% | | 0% | 0% |

Turning Movement Count
Location Name: HEALY ROAD & INNIS LAKE ROAD
Date: Wed, Nov 20, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

## Peak Hour: 04:00 PM - 05:00 PM Weather: Mist (8.21 °C)

| Start Time | N Approach INNIS LAKE ROAD | | | | | | E Approach HEALY ROAD | | | | | | S Approach INNIS LAKE ROAD | | | | | | W Approach HEALY ROAD | | | | | | Int. Total (15 min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | |
| 2024-11-20 16:00:00 | 1 | 18 | 0 | 0 | 0 | 19 | 4 | 84 | 8 | 0 | 0 | 96 | 8 | 25 | 5 | 0 | 0 | 38 | 0 | 46 | 2 | 0 | 0 | 48 | 201 |
| 2024-11-20 16:15:00 | 1 | 13 | 5 | 0 | 0 | 19 | 4 | 94 | 10 | 0 | 0 | 108 | 9 | 20 | 1 | 0 | 0 | 30 | 0 | 36 | 1 | 0 | 0 | 37 | 194 |
| 2024-11-20 16:30:00 | 2 | 8 | 2 | 0 | 0 | 12 | 1 | 93 | 19 | 0 | 0 | 113 | 12 | 41 | 1 | 0 | 0 | 54 | 1 | 42 | 5 | 0 | 0 | 48 | 227 |
| 2024-11-20 16:45:00 | 4 | 9 | 2 | 0 | 0 | 15 | 8 | 91 | 18 | 0 | 0 | 117 | 7 | 33 | 1 | 0 | 0 | 41 | 0 | 50 | 5 | 0 | 0 | 55 | 228 |
| **Grand Total** | 8 | 48 | 9 | 0 | 0 | 65 | 17 | 362 | 55 | 0 | 0 | 434 | 36 | 119 | 8 | 0 | 0 | 163 | 1 | 174 | 13 | 0 | 0 | 188 | **850** |
| **Approach%** | 12.3% | 73.8% | 13.8% | 0% | | - | 3.9% | 83.4% | 12.7% | 0% | | - | 22.1% | 73% | 4.9% | 0% | | - | 0.5% | 92.6% | 6.9% | 0% | | - | - |
| **Totals %** | 0.9% | 5.6% | 1.1% | 0% | | 7.6% | 2% | 42.6% | 6.5% | 0% | | 51.1% | 4.2% | 14% | 0.9% | 0% | | 19.2% | 0.1% | 20.5% | 1.5% | 0% | | 22.1% | - |
| **PHF** | 0.5 | 0.67 | 0.45 | 0 | | 0.86 | 0.53 | 0.96 | 0.72 | 0 | | 0.93 | 0.75 | 0.73 | 0.4 | 0 | | 0.75 | 0.25 | 0.87 | 0.65 | 0 | | 0.85 | 0.93 |
| **Heavy** | 3 | 2 | 1 | 0 | | 6 | 1 | 8 | 0 | 0 | | 9 | 1 | 0 | 1 | 0 | | 2 | 1 | 2 | 0 | 0 | | 3 | 20 |
| **Heavy %** | 37.5% | 4.2% | 11.1% | 0% | | 9.2% | 5.9% | 2.2% | 0% | 0% | | 2.1% | 2.8% | 0% | 12.5% | 0% | | 1.2% | 100% | 1.1% | 0% | 0% | | 1.6% | 2.4% |
| **Lights** | 5 | 46 | 8 | 0 | | 59 | 16 | 354 | 55 | 0 | | 425 | 35 | 119 | 7 | 0 | | 161 | 0 | 172 | 13 | 0 | | 185 | 830 |
| **Lights %** | 62.5% | 95.8% | 88.9% | 0% | | 90.8% | 94.1% | 97.8% | 100% | 0% | | 97.9% | 97.2% | 100% | 87.5% | 0% | | 98.8% | 0% | 98.9% | 100% | 0% | | 98.4% | 97.6% |
| **Single-Unit Trucks** | 0 | 0 | 0 | 0 | | 0 | 0 | 4 | 0 | 0 | | 4 | 0 | 0 | 0 | 0 | | 0 | 0 | 1 | 0 | 0 | | 1 | 5 |
| **Single-Unit Trucks %** | 0% | 0% | 0% | 0% | | 0% | 0% | 1.1% | 0% | 0% | | 0.9% | 0% | 0% | 0% | 0% | | 0% | 0% | 0.6% | 0% | 0% | | 0.5% | 0.6% |
| **Buses** | 3 | 2 | 1 | 0 | | 6 | 0 | 4 | 0 | 0 | | 4 | 1 | 0 | 1 | 0 | | 2 | 1 | 1 | 0 | 0 | | 2 | 14 |
| **Buses %** | 37.5% | 4.2% | 11.1% | 0% | | 9.2% | 0% | 1.1% | 0% | 0% | | 0.9% | 2.8% | 0% | 12.5% | 0% | | 1.2% | 100% | 0.6% | 0% | 0% | | 1.1% | 1.6% |
| **Articulated Trucks** | 0 | 0 | 0 | 0 | | 0 | 1 | 0 | 0 | 0 | | 1 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 1 |
| **Articulated Trucks %** | 0% | 0% | 0% | 0% | | 0% | 5.9% | 0% | 0% | 0% | | 0.2% | 0% | 0% | 0% | 0% | | 0% | 0% | 0% | 0% | 0% | | 0% | 0.1% |

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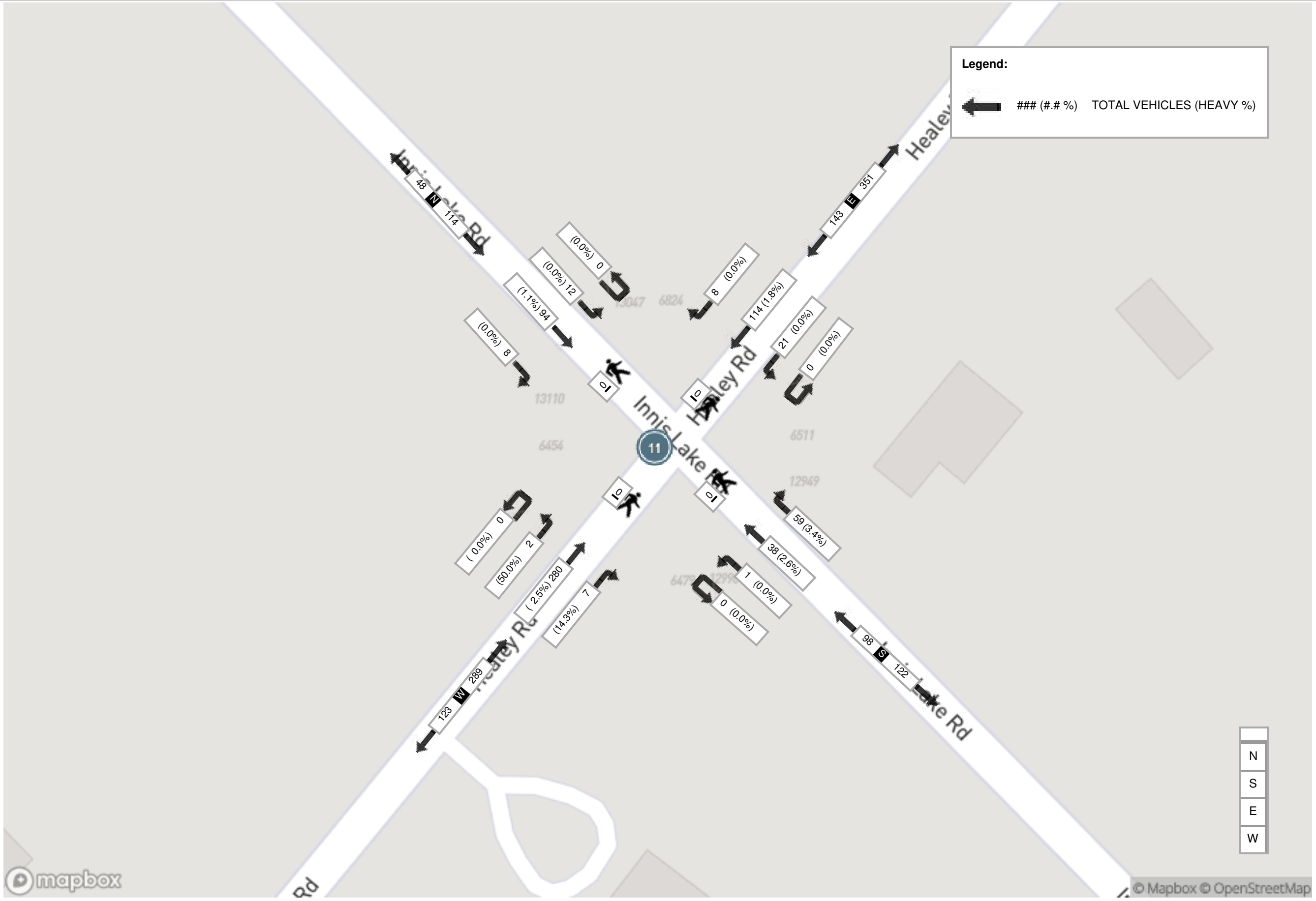
**Peak Hour: 07:15 AM - 08:15 AM Weather: Overcast Clouds (7.52 °C)**



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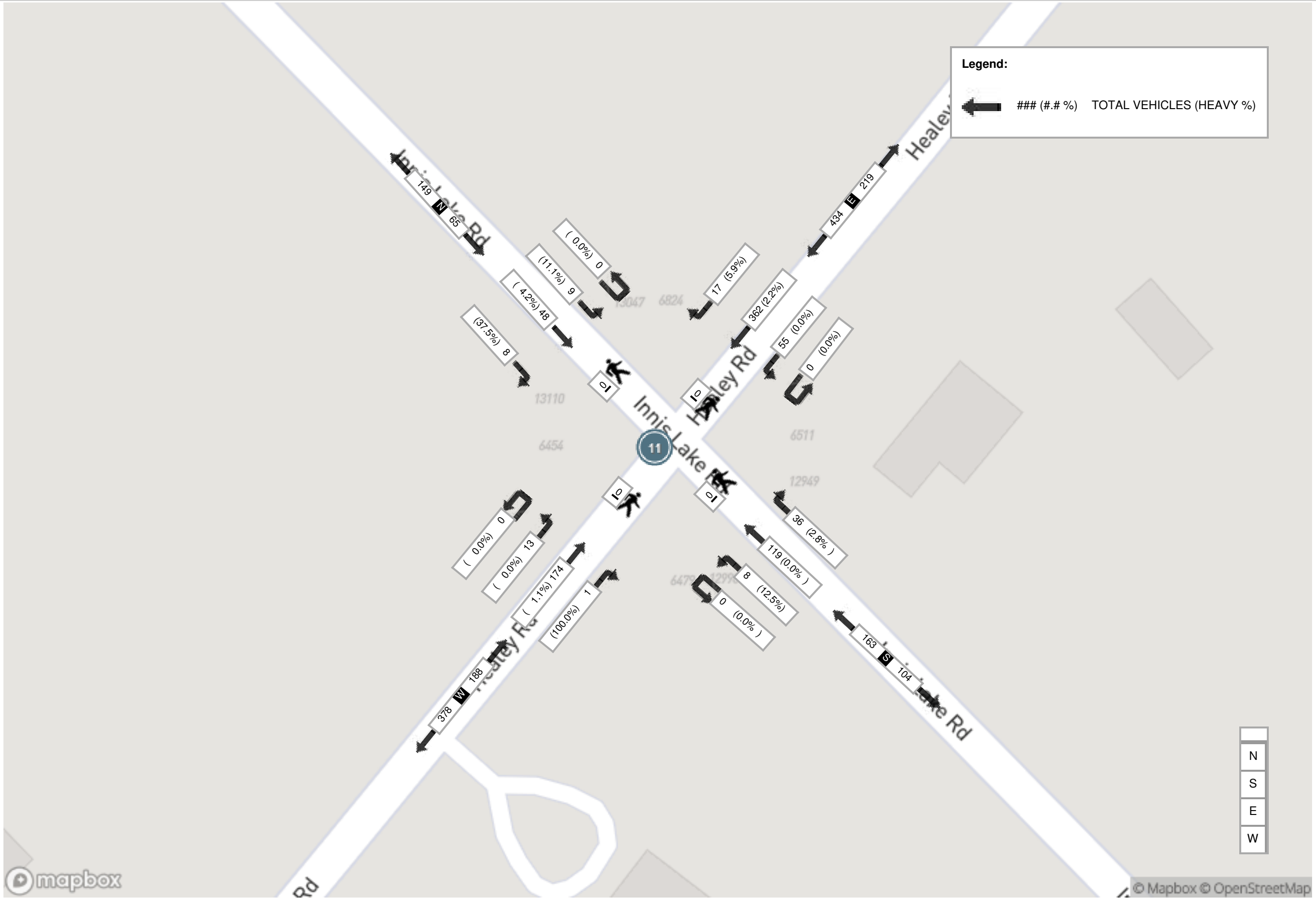
**Peak Hour: 04:00 PM - 05:00 PM Weather: Mist (8.21 °C)**



Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

## Turning Movement Count (1 . MAYFIELD & AIRPORT ROAD) CustID: 00717433 MioID: 1250745

| Start Time | N Approach AIRPORT ROAD | | | | | | E Approach MAYFIELD RD | | | | | | S Approach AIRPORT ROAD | | | | | | W Approach MAYFIELD RD | | | | | | Int. Total (15 min) | Int. Total (1 hr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right N:W | Thru N:S | Left N:E | U-Turn N:N | Peds N: | Approach Total | Right E:N | Thru E:W | Left E:S | U-Turn E:E | Peds E: | Approach Total | Right S:E | Thru S:N | Left S:W | U-Turn S:S | Peds S: | Approach Total | Right W:S | Thru W:E | Left W:N | U-Turn W:W | Peds W: | Approach Total | | |
| 2024-11-20 07:00:00 | 34 | 67 | 8 | 0 | 0 | 109 | 8 | 98 | 17 | 0 | 1 | 123 | 16 | 42 | 28 | 0 | 0 | 86 | 103 | 143 | 46 | 0 | 0 | 292 | 610 | |
| 2024-11-20 07:15:00 | 27 | 130 | 13 | 1 | 4 | 171 | 6 | 105 | 24 | 0 | 3 | 135 | 15 | 40 | 38 | 0 | 0 | 93 | 84 | 144 | 37 | 0 | 0 | 265 | 664 | |
| 2024-11-20 07:30:00 | 27 | 139 | 11 | 0 | 4 | 177 | 5 | 86 | 21 | 0 | 8 | 112 | 13 | 50 | 41 | 0 | 1 | 104 | 79 | 164 | 30 | 0 | 1 | 273 | 666 | |
| 2024-11-20 07:45:00 | 23 | 120 | 12 | 0 | 1 | 155 | 12 | 90 | 10 | 1 | 2 | 113 | 17 | 57 | 55 | 0 | 0 | 129 | 101 | 151 | 51 | 0 | 0 | 303 | 700 | 2640 |
| 2024-11-20 08:00:00 | 34 | 73 | 19 | 0 | 1 | 126 | 9 | 94 | 23 | 0 | 5 | 126 | 17 | 41 | 41 | 0 | 2 | 99 | 101 | 168 | 41 | 0 | 2 | 310 | 661 | 2691 |
| 2024-11-20 08:15:00 | 23 | 129 | 12 | 0 | 2 | 164 | 17 | 121 | 21 | 0 | 4 | 159 | 25 | 52 | 46 | 0 | 3 | 123 | 84 | 142 | 43 | 0 | 1 | 269 | 715 | 2742 |
| 2024-11-20 08:30:00 | 26 | 100 | 25 | 0 | 1 | 151 | 12 | 109 | 24 | 0 | 1 | 145 | 23 | 45 | 42 | 0 | 4 | 110 | 94 | 161 | 28 | 0 | 2 | 283 | 689 | 2765 |
| 2024-11-20 08:45:00 | 21 | 93 | 14 | 0 | 0 | 128 | 9 | 108 | 20 | 0 | 1 | 137 | 19 | 44 | 37 | 1 | 4 | 101 | 76 | 148 | 44 | 0 | 3 | 268 | 634 | 2699 |
| 2024-11-20 09:00:00 | 34 | 102 | 18 | 2 | 0 | 156 | 9 | 108 | 13 | 0 | 0 | 130 | 20 | 56 | 33 | 0 | 1 | 109 | 56 | 125 | 38 | 0 | 0 | 219 | 614 | 2652 |
| 2024-11-20 09:15:00 | 33 | 89 | 18 | 0 | 1 | 140 | 11 | 97 | 16 | 0 | 2 | 124 | 17 | 19 | 29 | 0 | 4 | 65 | 50 | 110 | 32 | 0 | 2 | 192 | 521 | 2458 |
| 2024-11-20 09:30:00 | 28 | 77 | 17 | 0 | 2 | 122 | 5 | 108 | 20 | 0 | 4 | 133 | 9 | 28 | 24 | 0 | 0 | 61 | 46 | 103 | 31 | 0 | 4 | 180 | 496 | 2265 |
| 2024-11-20 09:45:00 | 30 | 56 | 15 | 0 | 0 | 101 | 11 | 100 | 20 | 0 | 0 | 131 | 9 | 31 | 26 | 0 | 1 | 66 | 47 | 124 | 32 | 0 | 3 | 203 | 501 | 2132 |
| ***BREAK*** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2024-11-20 16:00:00 | 56 | 62 | 19 | 0 | 0 | 137 | 15 | 157 | 27 | 0 | 1 | 199 | 23 | 108 | 60 | 0 | 1 | 191 | 41 | 127 | 33 | 0 | 0 | 201 | 728 | |
| 2024-11-20 16:15:00 | 56 | 62 | 17 | 0 | 0 | 135 | 8 | 180 | 19 | 0 | 5 | 207 | 16 | 124 | 52 | 0 | 5 | 192 | 55 | 133 | 35 | 0 | 4 | 223 | 757 | |
| 2024-11-20 16:30:00 | 67 | 69 | 23 | 0 | 4 | 159 | 15 | 146 | 22 | 0 | 9 | 183 | 25 | 111 | 55 | 0 | 3 | 191 | 47 | 136 | 41 | 0 | 3 | 224 | 757 | |
| 2024-11-20 16:45:00 | 53 | 66 | 20 | 1 | 0 | 140 | 13 | 156 | 24 | 0 | 9 | 193 | 27 | 143 | 73 | 0 | 2 | 243 | 15 | 108 | 39 | 0 | 0 | 162 | 738 | 2980 |
| 2024-11-20 17:00:00 | 42 | 63 | 27 | 0 | 2 | 132 | 7 | 154 | 17 | 0 | 4 | 178 | 29 | 106 | 48 | 0 | 0 | 183 | 28 | 135 | 36 | 0 | 0 | 199 | 692 | 2944 |
| 2024-11-20 17:15:00 | 54 | 67 | 8 | 1 | 1 | 130 | 5 | 155 | 16 | 0 | 2 | 176 | 20 | 90 | 59 | 0 | 4 | 169 | 53 | 177 | 44 | 0 | 3 | 274 | 749 | 2936 |
| 2024-11-20 17:30:00 | 46 | 73 | 15 | 0 | 1 | 134 | 9 | 178 | 20 | 0 | 2 | 207 | 17 | 110 | 66 | 0 | 0 | 193 | 49 | 151 | 31 | 0 | 0 | 231 | 765 | 2944 |
| 2024-11-20 17:45:00 | 49 | 67 | 12 | 0 | 0 | 128 | 10 | 170 | 20 | 0 | 0 | 200 | 14 | 74 | 70 | 0 | 1 | 158 | 52 | 164 | 32 | 0 | 4 | 248 | 734 | 2940 |
| 2024-11-20 18:00:00 | 43 | 66 | 11 | 0 | 0 | 120 | 6 | 144 | 18 | 0 | 5 | 168 | 36 | 73 | 65 | 0 | 0 | 174 | 54 | 140 | 26 | 0 | 2 | 220 | 682 | 2930 |
| 2024-11-20 18:15:00 | 40 | 48 | 10 | 0 | 0 | 98 | 2 | 130 | 17 | 0 | 0 | 149 | 20 | 91 | 95 | 0 | 0 | 206 | 49 | 154 | 33 | 0 | 0 | 236 | 689 | 2870 |
| 2024-11-20 18:30:00 | 40 | 43 | 9 | 2 | 2 | 94 | 6 | 158 | 25 | 0 | 2 | 189 | 17 | 81 | 70 | 0 | 0 | 168 | 45 | 115 | 30 | 0 | 0 | 190 | 641 | 2746 |
| 2024-11-20 18:45:00 | 37 | 49 | 9 | 0 | 0 | 95 | 6 | 122 | 22 | 0 | 1 | 150 | 31 | 60 | 69 | 0 | 0 | 160 | 41 | 113 | 25 | 0 | 0 | 179 | 584 | 2596 |
| **Grand Total** | 923 | 1910 | 362 | 7 | 26 | 3202 | 216 | 3074 | 476 | 1 | 71 | 3767 | 475 | 1676 | 1222 | 1 | 36 | 3374 | 1450 | 3336 | 858 | 0 | 34 | 5644 | **15987** | - |
| **Approach%** | 28.8% | 59.7% | 11.3% | 0.2% | | - | 5.7% | 81.6% | 12.6% | 0% | | - | 14.1% | 49.7% | 36.2% | 0% | | - | 25.7% | 59.1% | 15.2% | 0% | | - | - | - |
| **Totals %** | 5.8% | 11.9% | 2.3% | 0% | | 20% | 1.4% | 19.2% | 3% | 0% | | 23.6% | 3% | 10.5% | 7.6% | 0% | | 21.1% | 9.1% | 20.9% | 5.4% | 0% | | 35.3% | - | - |
| **Heavy** | 199 | 211 | 91 | 0 | | - | 100 | 316 | 122 | 0 | | - | 178 | 231 | 85 | 0 | | - | 83 | 343 | 233 | 0 | | - | - | - |
| **Heavy %** | 21.6% | 11% | 25.1% | 0% | | - | 46.3% | 10.3% | 25.6% | 0% | | - | 37.5% | 13.8% | 7% | 0% | | - | 5.7% | 10.3% | 27.2% | 0% | | - | - | - |
| **Bicycles** | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - |
| **Bicycle %** | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - |

Spectrum

Turning Movement Count
Location Name: MAYFIELD & AIRPORT ROAD
Date: Wed, Nov 20, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

**Peak Hour: 07:45 AM - 08:45 AM Weather: Overcast Clouds (7.52 °C)**

| Start Time | N Approach AIRPORT ROAD | | | | | | E Approach MAYFIELD RD | | | | | | S Approach AIRPORT ROAD | | | | | | W Approach MAYFIELD RD | | | | | | Int. Total (15 min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | |
| 2024-11-20 07:45:00 | 23 | 120 | 12 | 0 | 1 | 155 | 12 | 90 | 10 | 1 | 2 | 113 | 17 | 57 | 55 | 0 | 0 | 129 | 101 | 151 | 51 | 0 | 0 | 303 | 700 |
| 2024-11-20 08:00:00 | 34 | 73 | 19 | 0 | 1 | 126 | 9 | 94 | 23 | 0 | 5 | 126 | 17 | 41 | 41 | 0 | 2 | 99 | 101 | 168 | 41 | 0 | 2 | 310 | 661 |
| 2024-11-20 08:15:00 | 23 | 129 | 12 | 0 | 2 | 164 | 17 | 121 | 21 | 0 | 4 | 159 | 25 | 52 | 46 | 0 | 3 | 123 | 84 | 142 | 43 | 0 | 1 | 269 | 715 |
| 2024-11-20 08:30:00 | 26 | 100 | 25 | 0 | 1 | 151 | 12 | 109 | 24 | 0 | 1 | 145 | 23 | 45 | 42 | 0 | 4 | 110 | 94 | 161 | 28 | 0 | 2 | 283 | 689 |
| **Grand Total** | 106 | 422 | 68 | 0 | 5 | 596 | 50 | 414 | 78 | 1 | 12 | 543 | 82 | 195 | 184 | 0 | 9 | 461 | 380 | 622 | 163 | 0 | 5 | 1165 | **2765** |
| **Approach%** | 17.8% | 70.8% | 11.4% | 0% | | - | 9.2% | 76.2% | 14.4% | 0.2% | | - | 17.8% | 42.3% | 39.9% | 0% | | - | 32.6% | 53.4% | 14% | 0% | | - | - |
| **Totals %** | 3.8% | 15.3% | 2.5% | 0% | | 21.6% | 1.8% | 15% | 2.8% | 0% | | 19.6% | 3% | 7.1% | 6.7% | 0% | | 16.7% | 13.7% | 22.5% | 5.9% | 0% | | 42.1% | - |
| **PHF** | 0.78 | 0.82 | 0.68 | 0 | | 0.91 | 0.74 | 0.86 | 0.81 | 0.25 | | 0.85 | 0.82 | 0.86 | 0.84 | 0 | | 0.89 | 0.94 | 0.93 | 0.8 | 0 | | 0.94 | 0.97 |
| **Heavy** | 36 | 48 | 16 | 0 | | 100 | 20 | 59 | 25 | 0 | | 104 | 36 | 33 | 7 | 0 | | 76 | 23 | 44 | 33 | 0 | | 100 | 380 |
| **Heavy %** | 34% | 11.4% | 23.5% | 0% | | 16.8% | 40% | 14.3% | 32.1% | 0% | | 19.2% | 43.9% | 16.9% | 3.8% | 0% | | 16.5% | 6.1% | 7.1% | 20.2% | 0% | | 8.6% | 13.7% |
| **Lights** | 70 | 374 | 52 | 0 | | 496 | 30 | 355 | 53 | 1 | | 439 | 46 | 162 | 177 | 0 | | 385 | 357 | 578 | 130 | 0 | | 1065 | 2385 |
| **Lights %** | 66% | 88.6% | 76.5% | 0% | | 83.2% | 60% | 85.7% | 67.9% | 100% | | 80.8% | 56.1% | 83.1% | 96.2% | 0% | | 83.5% | 93.9% | 92.9% | 79.8% | 0% | | 91.4% | 86.3% |
| **Single-Unit Trucks** | 11 | 23 | 6 | 0 | | 40 | 8 | 23 | 9 | 0 | | 40 | 3 | 13 | 2 | 0 | | 18 | 8 | 14 | 12 | 0 | | 34 | 132 |
| **Single-Unit Trucks %** | 10.4% | 5.5% | 8.8% | 0% | | 6.7% | 16% | 5.6% | 11.5% | 0% | | 7.4% | 3.7% | 6.7% | 1.1% | 0% | | 3.9% | 2.1% | 2.3% | 7.4% | 0% | | 2.9% | 4.8% |
| **Buses** | 6 | 3 | 4 | 0 | | 13 | 7 | 3 | 2 | 0 | | 12 | 7 | 8 | 3 | 0 | | 18 | 7 | 5 | 14 | 0 | | 26 | 69 |
| **Buses %** | 5.7% | 0.7% | 5.9% | 0% | | 2.2% | 14% | 0.7% | 2.6% | 0% | | 2.2% | 8.5% | 4.1% | 1.6% | 0% | | 3.9% | 1.8% | 0.8% | 8.6% | 0% | | 2.2% | 2.5% |
| **Articulated Trucks** | 19 | 22 | 6 | 0 | | 47 | 5 | 33 | 14 | 0 | | 52 | 26 | 12 | 2 | 0 | | 40 | 8 | 25 | 7 | 0 | | 40 | 179 |
| **Articulated Trucks %** | 17.9% | 5.2% | 8.8% | 0% | | 7.9% | 10% | 8% | 17.9% | 0% | | 9.6% | 31.7% | 6.2% | 1.1% | 0% | | 8.7% | 2.1% | 4% | 4.3% | 0% | | 3.4% | 6.5% |
| **Pedestrians** | - | - | - | - | 5 | - | - | - | - | - | 12 | - | - | - | - | - | 9 | - | - | - | - | - | 5 | - | - |
| **Pedestrians%** | - | - | - | - | 16.1% | | - | - | - | - | 38.7% | | - | - | - | - | 29% | | - | - | - | - | 16.1% | | - |
| **Bicycles on Crosswalk** | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - |
| **Bicycles on Crosswalk%** | - | - | - | - | 0% | | - | - | - | - | 0% | | - | - | - | - | 0% | | - | - | - | - | 0% | | - |

Turning Movement Count
Location Name: MAYFIELD & AIRPORT ROAD
Date: Wed, Nov 20, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

**Peak Hour: 04:00 PM - 05:00 PM Weather: Mist (8.21 °C)**

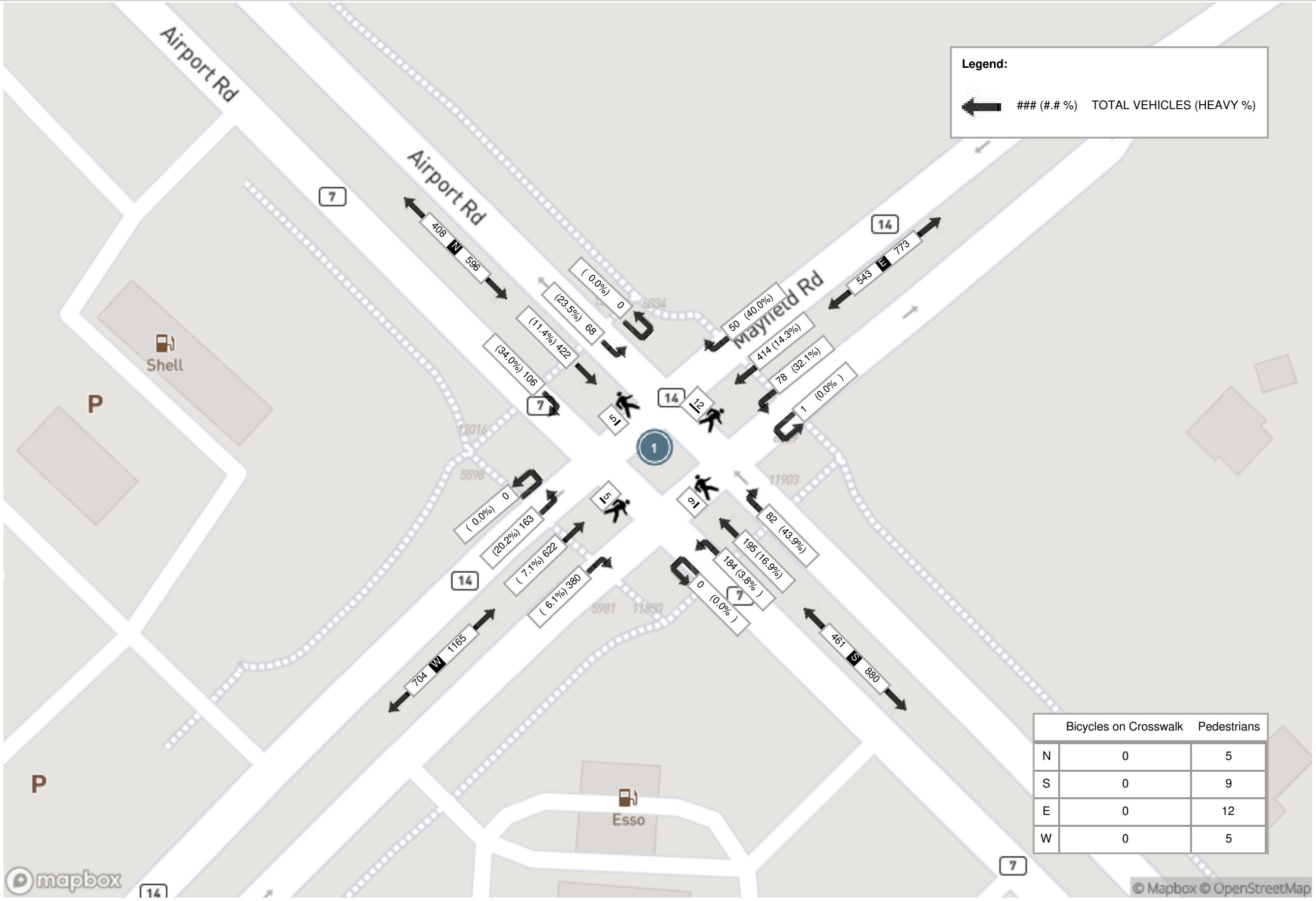
| Start Time | N Approach AIRPORT ROAD | | | | | | E Approach MAYFIELD RD | | | | | | S Approach AIRPORT ROAD | | | | | | W Approach MAYFIELD RD | | | | | | Int. Total (15 min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | |
| 2024-11-20 16:00:00 | 56 | 62 | 19 | 0 | 0 | 137 | 15 | 157 | 27 | 0 | 1 | 199 | 23 | 108 | 60 | 0 | 1 | 191 | 41 | 127 | 33 | 0 | 0 | 201 | 728 |
| 2024-11-20 16:15:00 | 56 | 62 | 17 | 0 | 0 | 135 | 8 | 180 | 19 | 0 | 5 | 207 | 16 | 124 | 52 | 0 | 5 | 192 | 55 | 133 | 35 | 0 | 4 | 223 | 757 |
| 2024-11-20 16:30:00 | 67 | 69 | 23 | 0 | 4 | 159 | 15 | 146 | 22 | 0 | 9 | 183 | 25 | 111 | 55 | 0 | 3 | 191 | 47 | 136 | 41 | 0 | 3 | 224 | 757 |
| 2024-11-20 16:45:00 | 53 | 66 | 20 | 1 | 0 | 140 | 13 | 156 | 24 | 0 | 9 | 193 | 27 | 143 | 73 | 0 | 2 | 243 | 15 | 108 | 39 | 0 | 0 | 162 | 738 |
| **Grand Total** | 232 | 259 | 79 | 1 | 4 | 571 | 51 | 639 | 92 | 0 | 24 | 782 | 91 | 486 | 240 | 0 | 11 | 817 | 158 | 504 | 148 | 0 | 7 | 810 | **2980** |
| **Approach%** | 40.6% | 45.4% | 13.8% | 0.2% | | - | 6.5% | 81.7% | 11.8% | 0% | | - | 11.1% | 59.5% | 29.4% | 0% | | - | 19.5% | 62.2% | 18.3% | 0% | | - | - |
| **Totals %** | 7.8% | 8.7% | 2.7% | 0% | | 19.2% | 1.7% | 21.4% | 3.1% | 0% | | 26.2% | 3.1% | 16.3% | 8.1% | 0% | | 27.4% | 5.3% | 16.9% | 5% | 0% | | 27.2% | - |
| **PHF** | 0.87 | 0.94 | 0.86 | 0.25 | | 0.9 | 0.85 | 0.89 | 0.85 | 0 | | 0.94 | 0.84 | 0.85 | 0.82 | 0 | | 0.84 | 0.72 | 0.93 | 0.9 | 0 | | 0.9 | 0.98 |
| **Heavy** | 33 | 23 | 20 | 0 | | 76 | 29 | 37 | 19 | 0 | | 85 | 33 | 48 | 15 | 0 | | 96 | 8 | 75 | 44 | 0 | | 127 | 384 |
| **Heavy %** | 14.2% | 8.9% | 25.3% | 0% | | 13.3% | 56.9% | 5.8% | 20.7% | 0% | | 10.9% | 36.3% | 9.9% | 6.3% | 0% | | 11.8% | 5.1% | 14.9% | 29.7% | 0% | | 15.7% | 12.9% |
| **Lights** | 199 | 236 | 59 | 1 | | 495 | 22 | 602 | 73 | 0 | | 697 | 58 | 438 | 225 | 0 | | 721 | 150 | 429 | 104 | 0 | | 683 | 2596 |
| **Lights %** | 85.8% | 91.1% | 74.7% | 100% | | 86.7% | 43.1% | 94.2% | 79.3% | 0% | | 89.1% | 63.7% | 90.1% | 93.8% | 0% | | 88.2% | 94.9% | 85.1% | 70.3% | 0% | | 84.3% | 87.1% |
| **Single-Unit Trucks** | 13 | 13 | 9 | 0 | | 35 | 6 | 15 | 7 | 0 | | 28 | 6 | 13 | 10 | 0 | | 29 | 6 | 32 | 4 | 0 | | 42 | 134 |
| **Single-Unit Trucks %** | 5.6% | 5% | 11.4% | 0% | | 6.1% | 11.8% | 2.3% | 7.6% | 0% | | 3.6% | 6.6% | 2.7% | 4.2% | 0% | | 3.5% | 3.8% | 6.3% | 2.7% | 0% | | 5.2% | 4.5% |
| **Buses** | 3 | 2 | 1 | 0 | | 6 | 8 | 3 | 2 | 0 | | 13 | 6 | 21 | 0 | 0 | | 27 | 1 | 1 | 17 | 0 | | 19 | 65 |
| **Buses %** | 1.3% | 0.8% | 1.3% | 0% | | 1.1% | 15.7% | 0.5% | 2.2% | 0% | | 1.7% | 6.6% | 4.3% | 0% | 0% | | 3.3% | 0.6% | 0.2% | 11.5% | 0% | | 2.3% | 2.2% |
| **Articulated Trucks** | 17 | 8 | 10 | 0 | | 35 | 15 | 19 | 10 | 0 | | 44 | 21 | 14 | 5 | 0 | | 40 | 1 | 42 | 23 | 0 | | 66 | 185 |
| **Articulated Trucks %** | 7.3% | 3.1% | 12.7% | 0% | | 6.1% | 29.4% | 3% | 10.9% | 0% | | 5.6% | 23.1% | 2.9% | 2.1% | 0% | | 4.9% | 0.6% | 8.3% | 15.5% | 0% | | 8.1% | 6.2% |
| **Pedestrians** | - | - | - | - | 4 | - | - | - | - | - | 24 | - | - | - | - | - | 11 | - | - | - | - | - | 7 | - | - |
| **Pedestrians%** | - | - | - | - | 8.7% | | - | - | - | - | 52.2% | | - | - | - | - | 23.9% | | - | - | - | - | 15.2% | | - |
| **Bicycles on Crosswalk** | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - |
| **Bicycles on Crosswalk%** | - | - | - | - | 0% | | - | - | - | - | 0% | | - | - | - | - | 0% | | - | - | - | - | 0% | | - |

Spectrum

Turning Movement Count
Location Name: MAYFIELD & AIRPORT ROAD
Date: Wed, Nov 20, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

**Peak Hour: 07:45 AM - 08:45 AM Weather: Overcast Clouds (7.52 °C)**



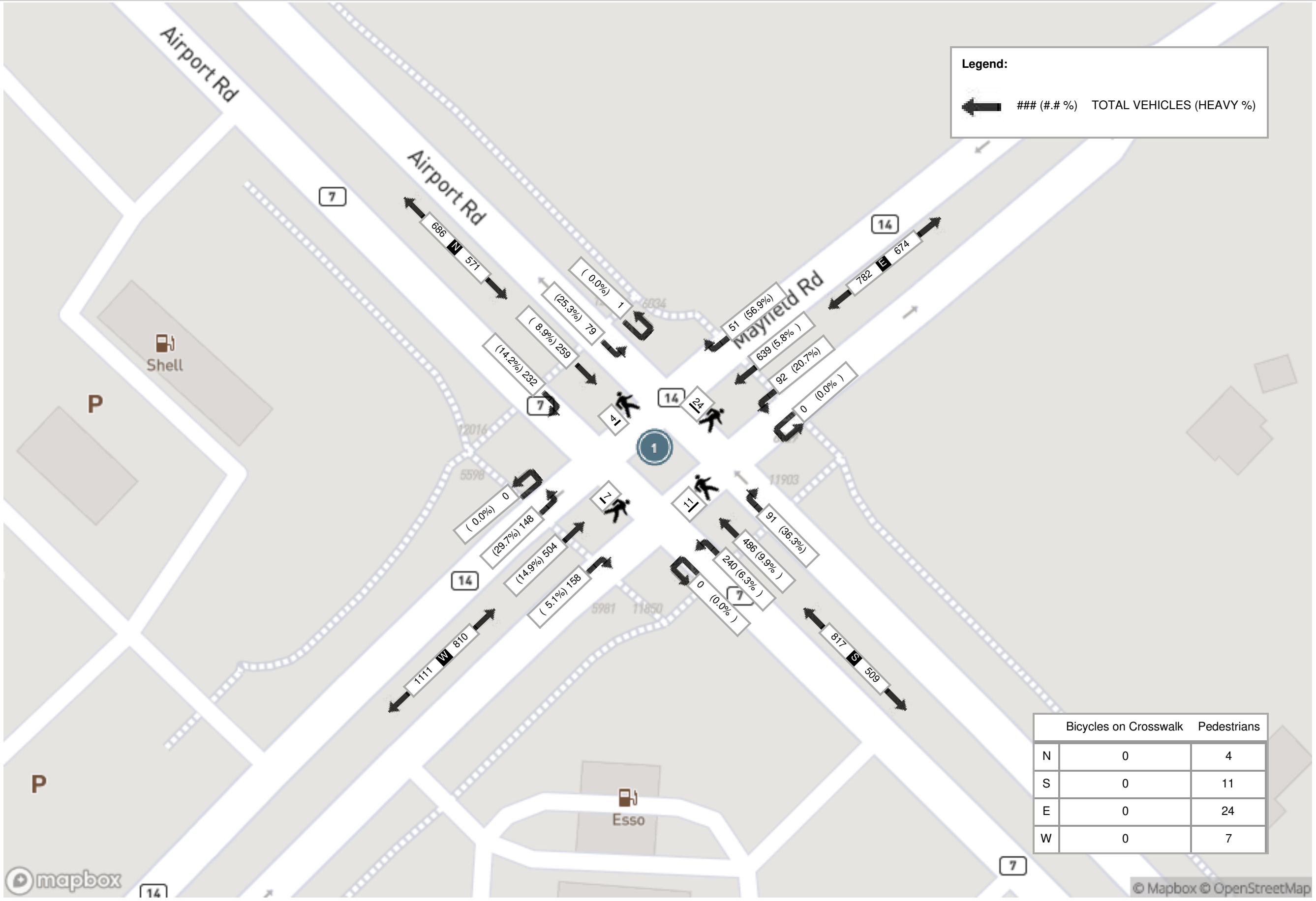

| | Bicycles on Crosswalk | Pedestrians |
|---|---|---|
| N | 0 | 5 |
| S | 0 | 9 |
| E | 0 | 12 |
| W | 0 | 5 |

Spectrum

Turning Movement Count
Location Name: MAYFIELD & AIRPORT ROAD
Date: Wed, Nov 20, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

**Peak Hour: 04:00 PM - 05:00 PM Weather: Mist (8.21 °C)**




| | Bicycles on Crosswalk | Pedestrians |
|---|---|---|
| N | 0 | 4 |
| S | 0 | 11 |
| E | 0 | 24 |
| W | 0 | 7 |

Turning Movement Count
Location Name: MAYFIELD ROAD & BRAMLEA ROAD
Date: Wed, Nov 20, 2024      Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

## Turning Movement Count (9 . MAYFIELD ROAD & BRAMLEA ROAD) CustID: 01411004 MioID: 1250828

| Start Time | N Approach BRAMLEA ROAD | | | | | | E Approach MAYFIELD ROAD | | | | | | S Approach BRAMLEA ROAD | | | | | | W Approach MAYFIELD ROAD | | | | | | Int. Total (15 min) | Int. Total (1 hr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right N:W | Thru N:S | Left N:E | U-Turn N:N | Peds N: | Approach Total | Right E:N | Thru E:W | Left E:S | U-Turn E:E | Peds E: | Approach Total | Right S:E | Thru S:N | Left S:W | U-Turn S:S | Peds S: | Approach Total | Right W:S | Thru W:E | Left W:N | U-Turn W:W | Peds W: | Approach Total | | |
| 2024-11-20 07:00:00 | 4 | 10 | 4 | 0 | 0 | 18 | 3 | 127 | 14 | 1 | 0 | 145 | 7 | 9 | 23 | 0 | 0 | 39 | 41 | 291 | 8 | 0 | 0 | 340 | 542 | |
| 2024-11-20 07:15:00 | 8 | 20 | 2 | 0 | 0 | 30 | 3 | 149 | 12 | 0 | 0 | 164 | 7 | 16 | 25 | 0 | 1 | 48 | 32 | 263 | 21 | 0 | 0 | 316 | 558 | |
| 2024-11-20 07:30:00 | 27 | 33 | 11 | 0 | 0 | 71 | 12 | 132 | 17 | 0 | 1 | 161 | 10 | 24 | 27 | 0 | 1 | 61 | 57 | 296 | 63 | 0 | 0 | 416 | 709 | |
| 2024-11-20 07:45:00 | 58 | 59 | 25 | 1 | 0 | 143 | 32 | 127 | 15 | 0 | 3 | 174 | 18 | 56 | 35 | 0 | 1 | 109 | 81 | 303 | 99 | 1 | 0 | 484 | 910 | 2719 |
| 2024-11-20 08:00:00 | 74 | 65 | 18 | 0 | 0 | 157 | 10 | 149 | 29 | 0 | 2 | 188 | 3 | 38 | 23 | 0 | 0 | 64 | 59 | 295 | 57 | 0 | 0 | 411 | 820 | 2997 |
| 2024-11-20 08:15:00 | 10 | 22 | 13 | 0 | 0 | 45 | 3 | 156 | 19 | 0 | 0 | 178 | 13 | 17 | 32 | 0 | 2 | 62 | 46 | 274 | 12 | 0 | 0 | 332 | 617 | 3056 |
| 2024-11-20 08:30:00 | 6 | 11 | 2 | 0 | 0 | 19 | 8 | 143 | 20 | 1 | 0 | 172 | 18 | 13 | 31 | 0 | 0 | 62 | 44 | 304 | 26 | 0 | 0 | 374 | 627 | 2974 |
| 2024-11-20 08:45:00 | 9 | 18 | 1 | 0 | 0 | 28 | 6 | 137 | 18 | 0 | 0 | 161 | 13 | 25 | 29 | 0 | 0 | 67 | 58 | 280 | 28 | 1 | 0 | 367 | 623 | 2687 |
| 2024-11-20 09:00:00 | 14 | 20 | 11 | 0 | 0 | 45 | 5 | 100 | 29 | 0 | 0 | 134 | 10 | 14 | 31 | 0 | 0 | 55 | 51 | 249 | 31 | 0 | 0 | 331 | 565 | 2432 |
| 2024-11-20 09:15:00 | 25 | 18 | 11 | 0 | 0 | 54 | 7 | 129 | 28 | 0 | 0 | 164 | 11 | 17 | 20 | 0 | 1 | 48 | 47 | 211 | 29 | 0 | 0 | 287 | 553 | 2368 |
| 2024-11-20 09:30:00 | 12 | 22 | 9 | 0 | 0 | 43 | 1 | 132 | 12 | 1 | 0 | 146 | 8 | 11 | 31 | 0 | 1 | 50 | 38 | 197 | 15 | 0 | 1 | 250 | 489 | 2230 |
| 2024-11-20 09:45:00 | 6 | 6 | 4 | 0 | 0 | 16 | 5 | 130 | 11 | 1 | 0 | 147 | 4 | 10 | 28 | 0 | 0 | 42 | 49 | 176 | 12 | 0 | 0 | 237 | 442 | 2049 |
| ***BREAK*** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2024-11-20 16:00:00 | 21 | 25 | 8 | 0 | 0 | 54 | 8 | 223 | 32 | 4 | 5 | 267 | 22 | 38 | 55 | 0 | 4 | 115 | 41 | 226 | 17 | 1 | 0 | 285 | 721 | |
| 2024-11-20 16:15:00 | 12 | 23 | 8 | 0 | 0 | 43 | 6 | 223 | 35 | 1 | 0 | 265 | 20 | 56 | 69 | 0 | 3 | 145 | 56 | 203 | 23 | 0 | 0 | 282 | 735 | |
| 2024-11-20 16:30:00 | 12 | 16 | 5 | 0 | 0 | 33 | 4 | 242 | 38 | 1 | 0 | 285 | 21 | 37 | 71 | 0 | 4 | 129 | 45 | 227 | 20 | 1 | 0 | 293 | 740 | |
| 2024-11-20 16:45:00 | 22 | 29 | 5 | 0 | 0 | 56 | 14 | 255 | 28 | 1 | 0 | 298 | 11 | 30 | 82 | 0 | 0 | 123 | 53 | 218 | 33 | 1 | 1 | 305 | 782 | 2978 |
| 2024-11-20 17:00:00 | 24 | 27 | 9 | 0 | 0 | 60 | 1 | 220 | 30 | 1 | 0 | 252 | 13 | 32 | 69 | 0 | 3 | 114 | 47 | 207 | 29 | 1 | 0 | 284 | 710 | 2967 |
| 2024-11-20 17:15:00 | 15 | 16 | 8 | 0 | 0 | 39 | 3 | 221 | 26 | 2 | 0 | 252 | 16 | 28 | 66 | 0 | 2 | 110 | 38 | 251 | 19 | 0 | 0 | 308 | 709 | 2941 |
| 2024-11-20 17:30:00 | 9 | 20 | 5 | 0 | 0 | 34 | 6 | 255 | 33 | 1 | 0 | 295 | 10 | 30 | 62 | 0 | 2 | 102 | 59 | 221 | 16 | 0 | 0 | 296 | 727 | 2928 |
| 2024-11-20 17:45:00 | 12 | 16 | 10 | 0 | 0 | 38 | 15 | 219 | 34 | 1 | 0 | 269 | 16 | 46 | 79 | 1 | 1 | 142 | 63 | 208 | 22 | 0 | 0 | 293 | 742 | 2888 |
| 2024-11-20 18:00:00 | 13 | 24 | 24 | 0 | 0 | 61 | 10 | 231 | 37 | 0 | 0 | 278 | 14 | 35 | 52 | 0 | 0 | 101 | 59 | 237 | 20 | 1 | 0 | 317 | 757 | 2935 |
| 2024-11-20 18:15:00 | 11 | 15 | 6 | 0 | 0 | 32 | 9 | 245 | 32 | 1 | 0 | 287 | 16 | 20 | 56 | 0 | 0 | 92 | 59 | 199 | 25 | 0 | 0 | 283 | 694 | 2920 |
| 2024-11-20 18:30:00 | 17 | 25 | 4 | 0 | 0 | 46 | 6 | 244 | 28 | 1 | 0 | 279 | 16 | 21 | 75 | 1 | 1 | 113 | 50 | 173 | 19 | 1 | 0 | 243 | 681 | 2874 |
| 2024-11-20 18:45:00 | 13 | 19 | 6 | 0 | 0 | 38 | 7 | 219 | 33 | 1 | 0 | 260 | 22 | 25 | 49 | 0 | 4 | 96 | 67 | 167 | 18 | 0 | 0 | 252 | 646 | 2778 |
| **Grand Total** | 434 | 559 | 209 | 1 | 0 | 1203 | 184 | 4408 | 610 | 19 | 11 | 5221 | 319 | 648 | 1120 | 2 | 31 | 2089 | 1240 | 5676 | 662 | 8 | 2 | 7586 | **16099** | - |
| **Approach%** | 36.1% | 46.5% | 17.4% | 0.1% | | - | 3.5% | 84.4% | 11.7% | 0.4% | | - | 15.3% | 31% | 53.6% | 0.1% | | - | 16.3% | 74.8% | 8.7% | 0.1% | | - | - | - |
| **Totals %** | 2.7% | 3.5% | 1.3% | 0% | | 7.5% | 1.1% | 27.4% | 3.8% | 0.1% | | 32.4% | 2% | 4% | 7% | 0% | | 13% | 7.7% | 35.3% | 4.1% | 0% | | 47.1% | - | - |
| **Heavy** | 16 | 13 | 12 | 0 | | - | 16 | 588 | 26 | 0 | | - | 16 | 15 | 25 | 0 | | - | 27 | 619 | 15 | 0 | | - | - | - |
| **Heavy %** | 3.7% | 2.3% | 5.7% | 0% | | - | 8.7% | 13.3% | 4.3% | 0% | | - | 5% | 2.3% | 2.2% | 0% | | - | 2.2% | 10.9% | 2.3% | 0% | | - | - | - |
| **Bicycles** | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - |
| **Bicycle %** | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - |

Turning Movement Count
Location Name: MAYFIELD ROAD & BRAMLEA ROAD
Date: Wed, Nov 20, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

**Peak Hour: 07:30 AM - 08:30 AM Weather: Overcast Clouds (7.52 °C)**

| Start Time | N Approach BRAMLEA ROAD | | | | | | E Approach MAYFIELD ROAD | | | | | | S Approach BRAMLEA ROAD | | | | | | W Approach MAYFIELD ROAD | | | | | | Int. Total (15 min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | |
| 2024-11-20 07:30:00 | 27 | 33 | 11 | 0 | 0 | 71 | 12 | 132 | 17 | 0 | 1 | 161 | 10 | 24 | 27 | 0 | 1 | 61 | 57 | 296 | 63 | 0 | 0 | 416 | 709 |
| 2024-11-20 07:45:00 | 58 | 59 | 25 | 1 | 0 | 143 | 32 | 127 | 15 | 0 | 3 | 174 | 18 | 56 | 35 | 0 | 1 | 109 | 81 | 303 | 99 | 1 | 0 | 484 | 910 |
| 2024-11-20 08:00:00 | 74 | 65 | 18 | 0 | 0 | 157 | 10 | 149 | 29 | 0 | 2 | 188 | 3 | 38 | 23 | 0 | 0 | 64 | 59 | 295 | 57 | 0 | 0 | 411 | 820 |
| 2024-11-20 08:15:00 | 10 | 22 | 13 | 0 | 0 | 45 | 3 | 156 | 19 | 0 | 0 | 178 | 13 | 17 | 32 | 0 | 2 | 62 | 46 | 274 | 12 | 0 | 0 | 332 | 617 |
| **Grand Total** | 169 | 179 | 67 | 1 | 0 | 416 | 57 | 564 | 80 | 0 | 6 | 701 | 44 | 135 | 117 | 0 | 4 | 296 | 243 | 1168 | 231 | 1 | 0 | 1643 | **3056** |
| **Approach%** | 40.6% | 43% | 16.1% | 0.2% | | - | 8.1% | 80.5% | 11.4% | 0% | | - | 14.9% | 45.6% | 39.5% | 0% | | - | 14.8% | 71.1% | 14.1% | 0.1% | | - | - |
| **Totals %** | 5.5% | 5.9% | 2.2% | 0% | | 13.6% | 1.9% | 18.5% | 2.6% | 0% | | 22.9% | 1.4% | 4.4% | 3.8% | 0% | | 9.7% | 8% | 38.2% | 7.6% | 0% | | 53.8% | - |
| **PHF** | 0.57 | 0.69 | 0.67 | 0.25 | | 0.66 | 0.45 | 0.9 | 0.69 | 0 | | 0.93 | 0.61 | 0.6 | 0.84 | 0 | | 0.68 | 0.75 | 0.96 | 0.58 | 0.25 | | 0.85 | 0.84 |
| **Heavy** | 4 | 7 | 5 | 0 | | 16 | 7 | 104 | 10 | 0 | | 121 | 3 | 5 | 4 | 0 | | 12 | 8 | 110 | 1 | 0 | | 119 | 268 |
| **Heavy %** | 2.4% | 3.9% | 7.5% | 0% | | 3.8% | 12.3% | 18.4% | 12.5% | 0% | | 17.3% | 6.8% | 3.7% | 3.4% | 0% | | 4.1% | 3.3% | 9.4% | 0.4% | 0% | | 7.2% | 8.8% |
| **Lights** | 165 | 172 | 62 | 1 | | 400 | 50 | 460 | 70 | 0 | | 580 | 41 | 130 | 113 | 0 | | 284 | 235 | 1058 | 230 | 1 | | 1524 | 2788 |
| **Lights %** | 97.6% | 96.1% | 92.5% | 100% | | 96.2% | 87.7% | 81.6% | 87.5% | 0% | | 82.7% | 93.2% | 96.3% | 96.6% | 0% | | 95.9% | 96.7% | 90.6% | 99.6% | 100% | | 92.8% | 91.2% |
| **Single-Unit Trucks** | 0 | 0 | 1 | 0 | | 1 | 0 | 32 | 3 | 0 | | 35 | 1 | 1 | 1 | 0 | | 3 | 2 | 31 | 0 | 0 | | 33 | 72 |
| **Single-Unit Trucks %** | 0% | 0% | 1.5% | 0% | | 0.2% | 0% | 5.7% | 3.8% | 0% | | 5% | 2.3% | 0.7% | 0.9% | 0% | | 1% | 0.8% | 2.7% | 0% | 0% | | 2% | 2.4% |
| **Buses** | 1 | 7 | 4 | 0 | | 12 | 7 | 17 | 6 | 0 | | 30 | 1 | 4 | 1 | 0 | | 6 | 5 | 41 | 1 | 0 | | 47 | 95 |
| **Buses %** | 0.6% | 3.9% | 6% | 0% | | 2.9% | 12.3% | 3% | 7.5% | 0% | | 4.3% | 2.3% | 3% | 0.9% | 0% | | 2% | 2.1% | 3.5% | 0.4% | 0% | | 2.9% | 3.1% |
| **Articulated Trucks** | 3 | 0 | 0 | 0 | | 3 | 0 | 55 | 1 | 0 | | 56 | 1 | 0 | 2 | 0 | | 3 | 1 | 38 | 0 | 0 | | 39 | 101 |
| **Articulated Trucks %** | 1.8% | 0% | 0% | 0% | | 0.7% | 0% | 9.8% | 1.3% | 0% | | 8% | 2.3% | 0% | 1.7% | 0% | | 1% | 0.4% | 3.3% | 0% | 0% | | 2.4% | 3.3% |
| **Pedestrians** | - | - | - | - | 0 | - | - | - | - | - | 5 | - | - | - | - | - | 4 | - | - | - | - | - | 0 | - | - |
| **Pedestrians%** | - | - | - | - | 0% | | - | - | - | - | 50% | | - | - | - | - | 40% | | - | - | - | - | 0% | | - |
| **Bicycles on Crosswalk** | - | - | - | - | 0 | - | - | - | - | - | 1 | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - |
| **Bicycles on Crosswalk%** | - | - | - | - | 0% | | - | - | - | - | 10% | | - | - | - | - | 0% | | - | - | - | - | 0% | | - |

Turning Movement Count
Location Name: MAYFIELD ROAD & BRAMLEA ROAD
Date: Wed, Nov 20, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

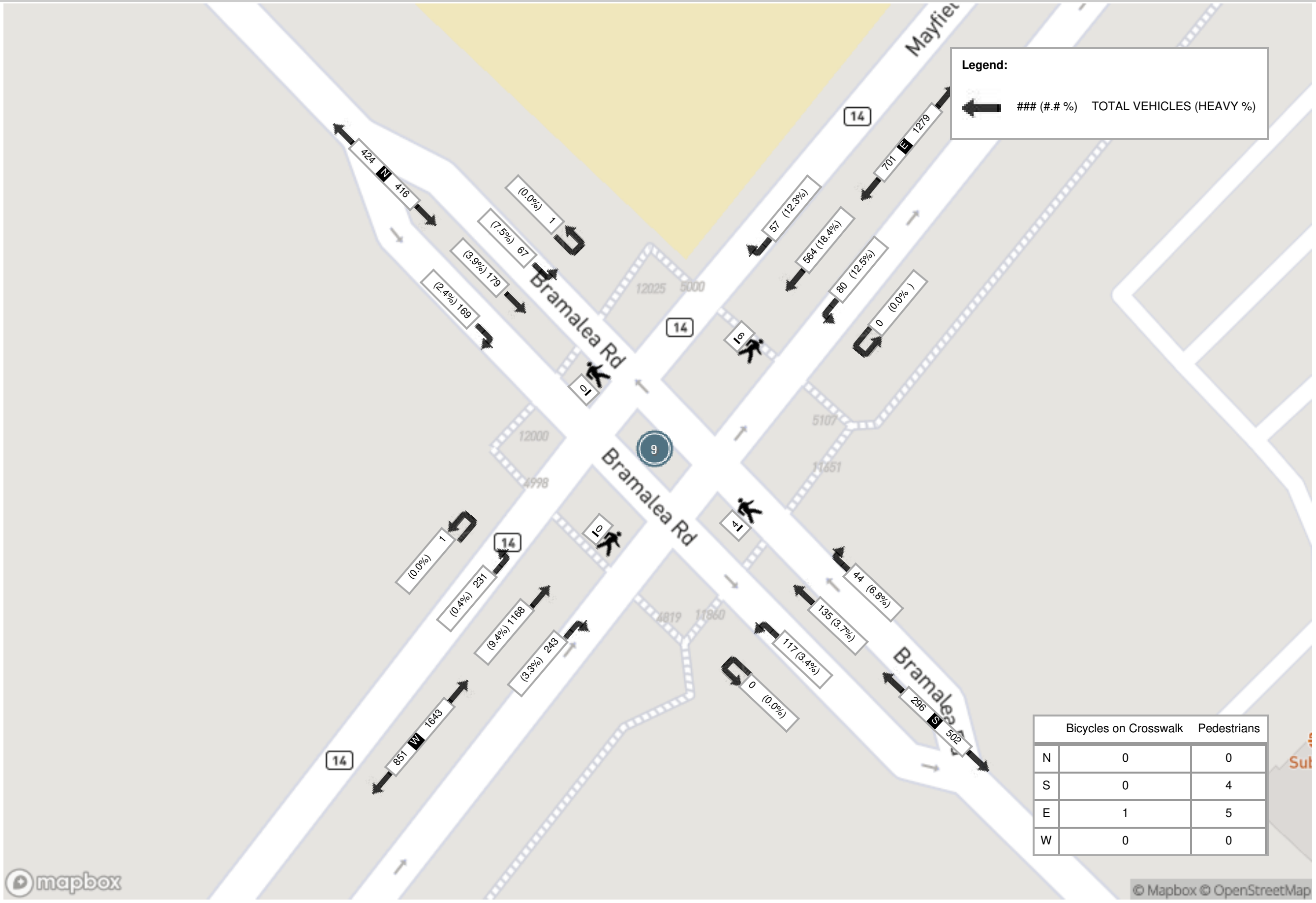
## Peak Hour: 04:00 PM - 05:00 PM Weather: Mist (8.21 °C)

| Start Time | N Approach BRAMLEA ROAD | | | | | | E Approach MAYFIELD ROAD | | | | | | S Approach BRAMLEA ROAD | | | | | | W Approach MAYFIELD ROAD | | | | | | Int. Total (15 min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | |
| 2024-11-20 16:00:00 | 21 | 25 | 8 | 0 | 0 | 54 | 8 | 223 | 32 | 4 | 5 | 267 | 22 | 38 | 55 | 0 | 4 | 115 | 41 | 226 | 17 | 1 | 0 | 285 | 721 |
| 2024-11-20 16:15:00 | 12 | 23 | 8 | 0 | 0 | 43 | 6 | 223 | 35 | 1 | 0 | 265 | 20 | 56 | 69 | 0 | 3 | 145 | 56 | 203 | 23 | 0 | 0 | 282 | 735 |
| 2024-11-20 16:30:00 | 12 | 16 | 5 | 0 | 0 | 33 | 4 | 242 | 38 | 1 | 0 | 285 | 21 | 37 | 71 | 0 | 4 | 129 | 45 | 227 | 20 | 1 | 0 | 293 | 740 |
| 2024-11-20 16:45:00 | 22 | 29 | 5 | 0 | 0 | 56 | 14 | 255 | 28 | 1 | 0 | 298 | 11 | 30 | 82 | 0 | 0 | 123 | 53 | 218 | 33 | 1 | 1 | 305 | 782 |
| **Grand Total** | 67 | 93 | 26 | 0 | 0 | 186 | 32 | 943 | 133 | 7 | 5 | 1115 | 74 | 161 | 277 | 0 | 11 | 512 | 195 | 874 | 93 | 3 | 1 | 1165 | **2978** |
| **Approach%** | 36% | 50% | 14% | 0% | | - | 2.9% | 84.6% | 11.9% | 0.6% | | - | 14.5% | 31.4% | 54.1% | 0% | | - | 16.7% | 75% | 8% | 0.3% | | - | - |
| **Totals %** | 2.2% | 3.1% | 0.9% | 0% | | 6.2% | 1.1% | 31.7% | 4.5% | 0.2% | | 37.4% | 2.5% | 5.4% | 9.3% | 0% | | 17.2% | 6.5% | 29.3% | 3.1% | 0.1% | | 39.1% | - |
| **PHF** | 0.76 | 0.8 | 0.81 | 0 | | 0.83 | 0.57 | 0.92 | 0.88 | 0.44 | | 0.94 | 0.84 | 0.72 | 0.84 | 0 | | 0.88 | 0.87 | 0.96 | 0.7 | 0.75 | | 0.95 | 0.95 |
| **Heavy** | 1 | 1 | 1 | 0 | | 3 | 1 | 86 | 3 | 0 | | 90 | 2 | 1 | 0 | 0 | | 3 | 5 | 124 | 0 | 0 | | 129 | 225 |
| **Heavy %** | 1.5% | 1.1% | 3.8% | 0% | | 1.6% | 3.1% | 9.1% | 2.3% | 0% | | 8.1% | 2.7% | 0.6% | 0% | 0% | | 0.6% | 2.6% | 14.2% | 0% | 0% | | 11.1% | 7.6% |
| **Lights** | 66 | 92 | 25 | 0 | | 183 | 31 | 857 | 130 | 7 | | 1025 | 72 | 160 | 277 | 0 | | 509 | 190 | 750 | 93 | 3 | | 1036 | 2753 |
| **Lights %** | 98.5% | 98.9% | 96.2% | 0% | | 98.4% | 96.9% | 90.9% | 97.7% | 100% | | 91.9% | 97.3% | 99.4% | 100% | 0% | | 99.4% | 97.4% | 85.8% | 100% | 100% | | 88.9% | 92.4% |
| **Single-Unit Trucks** | 0 | 0 | 0 | 0 | | 0 | 0 | 42 | 1 | 0 | | 43 | 1 | 0 | 0 | 0 | | 1 | 3 | 36 | 0 | 0 | | 39 | 83 |
| **Single-Unit Trucks %** | 0% | 0% | 0% | 0% | | 0% | 0% | 4.5% | 0.8% | 0% | | 3.9% | 1.4% | 0% | 0% | 0% | | 0.2% | 1.5% | 4.1% | 0% | 0% | | 3.3% | 2.8% |
| **Buses** | 1 | 1 | 1 | 0 | | 3 | 1 | 1 | 1 | 0 | | 3 | 1 | 1 | 0 | 0 | | 2 | 2 | 20 | 0 | 0 | | 22 | 30 |
| **Buses %** | 1.5% | 1.1% | 3.8% | 0% | | 1.6% | 3.1% | 0.1% | 0.8% | 0% | | 0.3% | 1.4% | 0.6% | 0% | 0% | | 0.4% | 1% | 2.3% | 0% | 0% | | 1.9% | 1% |
| **Articulated Trucks** | 0 | 0 | 0 | 0 | | 0 | 0 | 43 | 1 | 0 | | 44 | 0 | 0 | 0 | 0 | | 0 | 0 | 68 | 0 | 0 | | 68 | 112 |
| **Articulated Trucks %** | 0% | 0% | 0% | 0% | | 0% | 0% | 4.6% | 0.8% | 0% | | 3.9% | 0% | 0% | 0% | 0% | | 0% | 0% | 7.8% | 0% | 0% | | 5.8% | 3.8% |
| **Pedestrians** | - | - | - | - | 0 | - | - | - | - | - | 5 | - | - | - | - | - | 10 | - | - | - | - | - | 1 | - | - |
| **Pedestrians%** | - | - | - | - | 0% | | - | - | - | - | 29.4% | | - | - | - | - | 58.8% | | - | - | - | - | 5.9% | | - |
| **Bicycles on Crosswalk** | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 1 | - | - | - | - | - | 0 | - | - |
| **Bicycles on Crosswalk%** | - | - | - | - | 0% | | - | - | - | - | 0% | | - | - | - | - | 5.9% | | - | - | - | - | 0% | | - |

Turning Movement Count
Location Name: MAYFIELD ROAD & BRAMLEA ROAD
Date: Wed, Nov 20, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

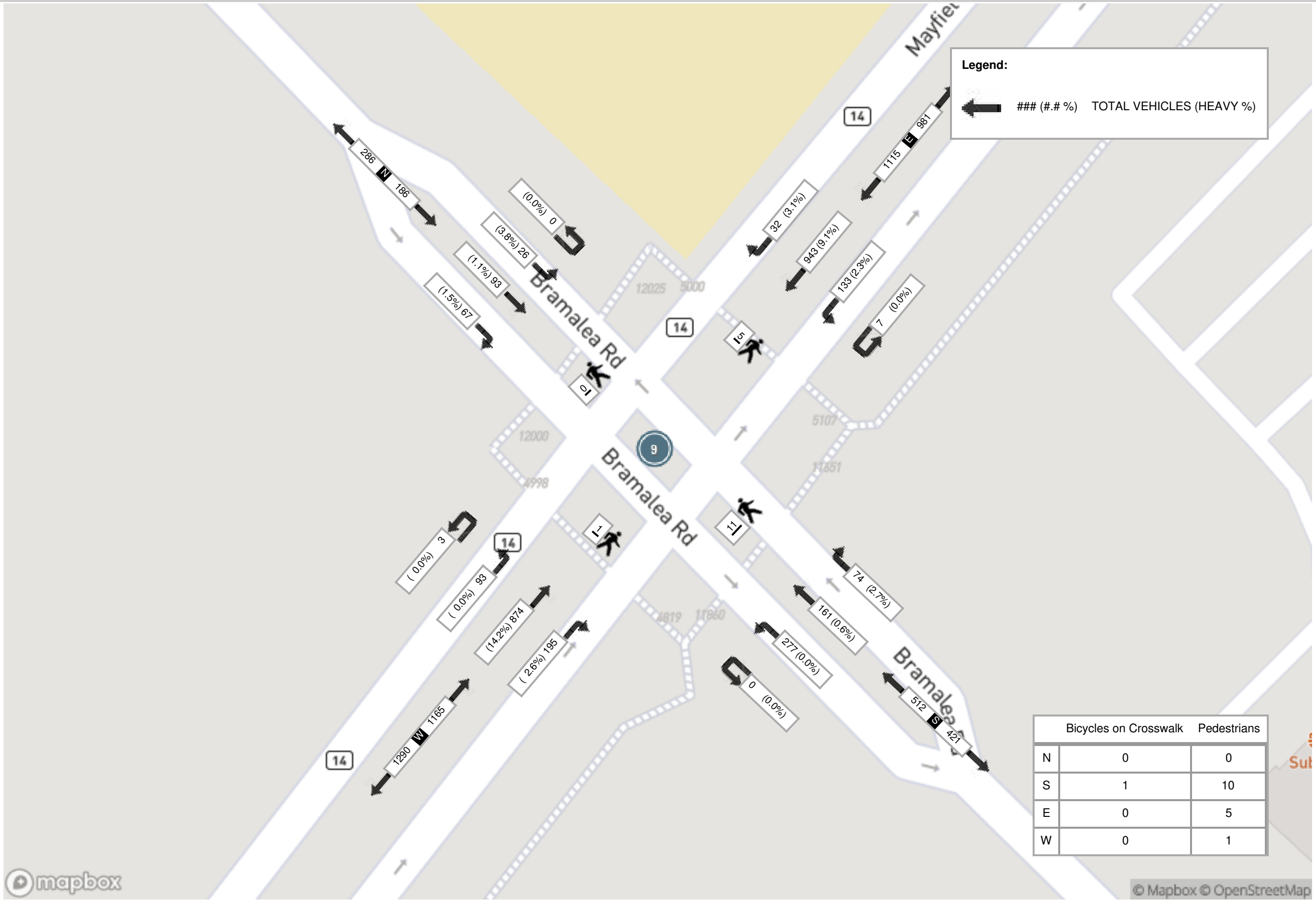
**Peak Hour: 07:30 AM - 08:30 AM Weather: Overcast Clouds (7.52 °C)**




| | Bicycles on Crosswalk | Pedestrians |
|---|---|---|
| N | 0 | 0 |
| S | 0 | 4 |
| E | 1 | 5 |
| W | 0 | 0 |

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

**Peak Hour: 04:00 PM - 05:00 PM Weather: Mist (8.21 °C)**




| | Bicycles on Crosswalk | Pedestrians |
|---|---|---|
| N | 0 | 0 |
| S | 1 | 10 |
| E | 0 | 5 |
| W | 0 | 1 |

Spectrum

Turning Movement Count
Location Name: MAYFIELD ROAD & INNIS LAKE ROAD / GOREWAY DRIVE
Date: Wed, Nov 20, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

## Turning Movement Count (8 . MAYFIELD ROAD & INNIS LAKE ROAD / GOREWAY DRIVE) CustID: 01406870 MioID: 1250824

| Start Time | N Approach INNIS LAKE ROAD | | | | | | E Approach MAYFIELD ROAD | | | | | | S Approach GOREWAY DRIVE | | | | | | W Approach MAYFIELD ROAD | | | | | | Int. Total (15 min) | Int. Total (1 hr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right N:W | Thru N:S | Left N:E | U-Turn N:N | Peds N: | Approach Total | Right E:N | Thru E:W | Left E:S | U-Turn E:E | Peds E: | Approach Total | Right S:E | Thru S:N | Left S:W | U-Turn S:S | Peds S: | Approach Total | Right W:S | Thru W:E | Left W:N | U-Turn W:W | Peds W: | Approach Total | | |
| 2024-11-20 07:00:00 | 9 | 8 | 1 | 0 | 0 | 18 | 0 | 110 | 7 | 0 | 0 | 117 | 3 | 3 | 3 | 0 | 0 | 9 | 7 | 143 | 17 | 0 | 0 | 167 | 311 | |
| 2024-11-20 07:15:00 | 11 | 16 | 2 | 0 | 0 | 29 | 1 | 129 | 3 | 0 | 0 | 133 | 4 | 6 | 6 | 0 | 0 | 16 | 7 | 166 | 8 | 0 | 0 | 181 | 359 | |
| 2024-11-20 07:30:00 | 14 | 19 | 3 | 0 | 0 | 36 | 1 | 78 | 6 | 0 | 0 | 85 | 5 | 8 | 4 | 0 | 0 | 17 | 7 | 152 | 19 | 0 | 0 | 178 | 316 | |
| 2024-11-20 07:45:00 | 15 | 9 | 1 | 0 | 0 | 25 | 2 | 96 | 1 | 0 | 2 | 99 | 2 | 7 | 6 | 0 | 0 | 15 | 15 | 162 | 21 | 0 | 0 | 198 | 337 | 1323 |
| 2024-11-20 08:00:00 | 18 | 16 | 4 | 0 | 0 | 38 | 1 | 89 | 5 | 0 | 0 | 95 | 6 | 11 | 8 | 0 | 0 | 25 | 7 | 143 | 18 | 0 | 0 | 168 | 326 | 1338 |
| 2024-11-20 08:15:00 | 14 | 21 | 4 | 0 | 0 | 39 | 2 | 129 | 6 | 0 | 0 | 137 | 10 | 3 | 12 | 0 | 0 | 25 | 13 | 147 | 14 | 0 | 0 | 174 | 375 | 1354 |
| 2024-11-20 08:30:00 | 10 | 6 | 2 | 0 | 0 | 18 | 3 | 103 | 6 | 0 | 0 | 112 | 10 | 3 | 18 | 0 | 0 | 31 | 6 | 162 | 4 | 0 | 0 | 172 | 333 | 1371 |
| 2024-11-20 08:45:00 | 14 | 5 | 4 | 0 | 0 | 23 | 2 | 113 | 6 | 0 | 0 | 121 | 7 | 6 | 10 | 0 | 0 | 23 | 11 | 144 | 14 | 0 | 0 | 169 | 336 | 1370 |
| 2024-11-20 09:00:00 | 10 | 11 | 1 | 0 | 0 | 22 | 0 | 100 | 7 | 0 | 0 | 107 | 10 | 5 | 11 | 0 | 1 | 26 | 8 | 138 | 14 | 0 | 0 | 160 | 315 | 1359 |
| 2024-11-20 09:15:00 | 11 | 10 | 3 | 0 | 0 | 24 | 2 | 109 | 5 | 0 | 0 | 116 | 3 | 6 | 4 | 0 | 0 | 13 | 10 | 114 | 13 | 0 | 0 | 137 | 290 | 1274 |
| 2024-11-20 09:30:00 | 7 | 10 | 3 | 0 | 0 | 20 | 0 | 114 | 4 | 0 | 0 | 118 | 2 | 7 | 9 | 0 | 0 | 18 | 4 | 119 | 11 | 0 | 0 | 134 | 290 | 1231 |
| 2024-11-20 09:45:00 | 2 | 10 | 1 | 0 | 0 | 13 | 2 | 106 | 5 | 0 | 0 | 113 | 4 | 6 | 6 | 0 | 0 | 16 | 7 | 121 | 9 | 0 | 0 | 137 | 279 | 1174 |
| ***BREAK*** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2024-11-20 16:00:00 | 6 | 15 | 4 | 0 | 0 | 25 | 2 | 155 | 7 | 0 | 0 | 164 | 9 | 13 | 17 | 0 | 0 | 39 | 8 | 129 | 18 | 0 | 0 | 155 | 383 | |
| 2024-11-20 16:15:00 | 15 | 12 | 1 | 0 | 1 | 28 | 3 | 176 | 12 | 0 | 0 | 191 | 8 | 14 | 11 | 0 | 1 | 33 | 12 | 123 | 14 | 0 | 0 | 149 | 401 | |
| 2024-11-20 16:30:00 | 21 | 14 | 2 | 0 | 0 | 37 | 4 | 151 | 12 | 0 | 0 | 167 | 10 | 28 | 20 | 0 | 0 | 58 | 9 | 125 | 27 | 0 | 0 | 161 | 423 | |
| 2024-11-20 16:45:00 | 17 | 5 | 3 | 0 | 0 | 25 | 2 | 148 | 9 | 0 | 0 | 159 | 8 | 26 | 15 | 0 | 1 | 49 | 12 | 112 | 14 | 0 | 0 | 138 | 371 | 1578 |
| 2024-11-20 17:00:00 | 9 | 16 | 3 | 0 | 0 | 28 | 6 | 137 | 14 | 0 | 0 | 157 | 15 | 9 | 15 | 0 | 0 | 39 | 9 | 147 | 7 | 0 | 0 | 163 | 387 | 1582 |
| 2024-11-20 17:15:00 | 17 | 8 | 1 | 0 | 0 | 26 | 4 | 167 | 8 | 0 | 0 | 179 | 7 | 13 | 15 | 0 | 0 | 35 | 7 | 166 | 15 | 1 | 0 | 189 | 429 | 1610 |
| 2024-11-20 17:30:00 | 18 | 7 | 4 | 0 | 0 | 29 | 4 | 161 | 10 | 0 | 0 | 175 | 11 | 12 | 14 | 0 | 0 | 37 | 9 | 114 | 12 | 0 | 0 | 135 | 376 | 1563 |
| 2024-11-20 17:45:00 | 21 | 18 | 2 | 0 | 0 | 41 | 3 | 163 | 13 | 0 | 0 | 179 | 7 | 11 | 19 | 0 | 2 | 37 | 13 | 142 | 13 | 0 | 0 | 168 | 425 | 1617 |
| 2024-11-20 18:00:00 | 20 | 10 | 3 | 0 | 0 | 33 | 2 | 137 | 11 | 0 | 0 | 150 | 7 | 9 | 9 | 0 | 0 | 25 | 3 | 154 | 4 | 0 | 0 | 161 | 369 | 1599 |
| 2024-11-20 18:15:00 | 15 | 9 | 3 | 0 | 0 | 27 | 1 | 130 | 15 | 0 | 0 | 146 | 9 | 16 | 11 | 0 | 0 | 36 | 19 | 142 | 12 | 0 | 0 | 173 | 382 | 1552 |
| 2024-11-20 18:30:00 | 15 | 14 | 2 | 0 | 0 | 31 | 2 | 125 | 8 | 0 | 0 | 135 | 10 | 6 | 13 | 0 | 0 | 29 | 9 | 119 | 9 | 0 | 1 | 137 | 332 | 1508 |
| 2024-11-20 18:45:00 | 5 | 5 | 2 | 0 | 0 | 12 | 3 | 153 | 20 | 0 | 0 | 176 | 7 | 7 | 15 | 0 | 1 | 29 | 6 | 115 | 6 | 0 | 0 | 127 | 344 | 1427 |
| **Grand Total** | 314 | 274 | 59 | 0 | 1 | 647 | 52 | 3079 | 200 | 0 | 2 | 3331 | 174 | 235 | 271 | 0 | 6 | 680 | 218 | 3299 | 313 | 1 | 1 | 3831 | **8489** | - |
| **Approach%** | 48.5% | 42.3% | 9.1% | 0% | | - | 1.6% | 92.4% | 6% | 0% | | - | 25.6% | 34.6% | 39.9% | 0% | | - | 5.7% | 86.1% | 8.2% | 0% | | - | - | - |
| **Totals %** | 3.7% | 3.2% | 0.7% | 0% | | 7.6% | 0.6% | 36.3% | 2.4% | 0% | | 39.2% | 2% | 2.8% | 3.2% | 0% | | 8% | 2.6% | 38.9% | 3.7% | 0% | | 45.1% | - | - |
| **Heavy** | 12 | 6 | 7 | 0 | | - | 8 | 534 | 5 | 0 | | - | 10 | 3 | 6 | 0 | | - | 7 | 560 | 17 | 0 | | - | - | - |
| **Heavy %** | 3.8% | 2.2% | 11.9% | 0% | | - | 15.4% | 17.3% | 2.5% | 0% | | - | 5.7% | 1.3% | 2.2% | 0% | | - | 3.2% | 17% | 5.4% | 0% | | - | - | - |
| **Bicycles** | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - |
| **Bicycle %** | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - |

Turning Movement Count
Location Name: MAYFIELD ROAD & INNIS LAKE ROAD / GOREWAY DRIVE
Date: Wed, Nov 20, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

**Peak Hour: 07:45 AM - 08:45 AM Weather: Overcast Clouds (7.52 °C)**

| Start Time | N Approach INNIS LAKE ROAD | | | | | | E Approach MAYFIELD ROAD | | | | | | S Approach GOREWAY DRIVE | | | | | | W Approach MAYFIELD ROAD | | | | | | Int. Total (15 min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | |
| 2024-11-20 07:45:00 | 15 | 9 | 1 | 0 | 0 | 25 | 2 | 96 | 1 | 0 | 2 | 99 | 2 | 7 | 6 | 0 | 0 | 15 | 15 | 162 | 21 | 0 | 0 | 198 | 337 |
| 2024-11-20 08:00:00 | 18 | 16 | 4 | 0 | 0 | 38 | 1 | 89 | 5 | 0 | 0 | 95 | 6 | 11 | 8 | 0 | 0 | 25 | 7 | 143 | 18 | 0 | 0 | 168 | 326 |
| 2024-11-20 08:15:00 | 14 | 21 | 4 | 0 | 0 | 39 | 2 | 129 | 6 | 0 | 0 | 137 | 10 | 3 | 12 | 0 | 0 | 25 | 13 | 147 | 14 | 0 | 0 | 174 | 375 |
| 2024-11-20 08:30:00 | 10 | 6 | 2 | 0 | 0 | 18 | 3 | 103 | 6 | 0 | 0 | 112 | 10 | 3 | 18 | 0 | 0 | 31 | 6 | 162 | 4 | 0 | 0 | 172 | 333 |
| **Grand Total** | 57 | 52 | 11 | 0 | 0 | 120 | 8 | 417 | 18 | 0 | 2 | 443 | 28 | 24 | 44 | 0 | 0 | 96 | 41 | 614 | 57 | 0 | 0 | 712 | **1371** |
| **Approach%** | 47.5% | 43.3% | 9.2% | 0% | | - | 1.8% | 94.1% | 4.1% | 0% | | - | 29.2% | 25% | 45.8% | 0% | | - | 5.8% | 86.2% | 8% | 0% | | - | - |
| **Totals %** | 4.2% | 3.8% | 0.8% | 0% | | 8.8% | 0.6% | 30.4% | 1.3% | 0% | | 32.3% | 2% | 1.8% | 3.2% | 0% | | 7% | 3% | 44.8% | 4.2% | 0% | | 51.9% | - |
| **PHF** | 0.79 | 0.62 | 0.69 | 0 | | 0.77 | 0.67 | 0.81 | 0.75 | 0 | | 0.81 | 0.7 | 0.55 | 0.61 | 0 | | 0.77 | 0.68 | 0.95 | 0.68 | 0 | | 0.9 | 0.91 |
| **Heavy** | 5 | 0 | 2 | 0 | | 7 | 4 | 99 | 0 | 0 | | 103 | 5 | 1 | 3 | 0 | | 9 | 1 | 89 | 1 | 0 | | 91 | 210 |
| **Heavy %** | 8.8% | 0% | 18.2% | 0% | | 5.8% | 50% | 23.7% | 0% | 0% | | 23.3% | 17.9% | 4.2% | 6.8% | 0% | | 9.4% | 2.4% | 14.5% | 1.8% | 0% | | 12.8% | 15.3% |
| **Lights** | 52 | 52 | 9 | 0 | | 113 | 4 | 318 | 18 | 0 | | 340 | 23 | 23 | 41 | 0 | | 87 | 40 | 525 | 56 | 0 | | 621 | 1161 |
| **Lights %** | 91.2% | 100% | 81.8% | 0% | | 94.2% | 50% | 76.3% | 100% | 0% | | 76.7% | 82.1% | 95.8% | 93.2% | 0% | | 90.6% | 97.6% | 85.5% | 98.2% | 0% | | 87.2% | 84.7% |
| **Single-Unit Trucks** | 3 | 0 | 1 | 0 | | 4 | 2 | 43 | 0 | 0 | | 45 | 0 | 1 | 1 | 0 | | 2 | 0 | 24 | 1 | 0 | | 25 | 76 |
| **Single-Unit Trucks %** | 5.3% | 0% | 9.1% | 0% | | 3.3% | 25% | 10.3% | 0% | 0% | | 10.2% | 0% | 4.2% | 2.3% | 0% | | 2.1% | 0% | 3.9% | 1.8% | 0% | | 3.5% | 5.5% |
| **Buses** | 2 | 0 | 1 | 0 | | 3 | 2 | 8 | 0 | 0 | | 10 | 5 | 0 | 2 | 0 | | 7 | 1 | 9 | 0 | 0 | | 10 | 30 |
| **Buses %** | 3.5% | 0% | 9.1% | 0% | | 2.5% | 25% | 1.9% | 0% | 0% | | 2.3% | 17.9% | 0% | 4.5% | 0% | | 7.3% | 2.4% | 1.5% | 0% | 0% | | 1.4% | 2.2% |
| **Articulated Trucks** | 0 | 0 | 0 | 0 | | 0 | 0 | 48 | 0 | 0 | | 48 | 0 | 0 | 0 | 0 | | 0 | 0 | 56 | 0 | 0 | | 56 | 104 |
| **Articulated Trucks %** | 0% | 0% | 0% | 0% | | 0% | 0% | 11.5% | 0% | 0% | | 10.8% | 0% | 0% | 0% | 0% | | 0% | 0% | 9.1% | 0% | 0% | | 7.9% | 7.6% |
| **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% |
| **Pedestrians** | - | - | - | - | 0 | - | - | - | - | - | 2 | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - |
| **Pedestrians%** | - | - | - | - | 0% | | - | - | - | - | 100% | | - | - | - | - | 0% | | - | - | - | - | 0% | | - |

Spectrum

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

## Peak Hour: 05:00 PM - 06:00 PM Weather: Mist (8.21 °C)

| Start Time | N Approach INNIS LAKE ROAD | | | | | | E Approach MAYFIELD ROAD | | | | | | S Approach GOREWAY DRIVE | | | | | | W Approach MAYFIELD ROAD | | | | | | Int. Total (15 min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | |
| 2024-11-20 17:00:00 | 9 | 16 | 3 | 0 | 0 | 28 | 6 | 137 | 14 | 0 | 0 | 157 | 15 | 9 | 15 | 0 | 0 | 39 | 9 | 147 | 7 | 0 | 0 | 163 | 387 |
| 2024-11-20 17:15:00 | 17 | 8 | 1 | 0 | 0 | 26 | 4 | 167 | 8 | 0 | 0 | 179 | 7 | 13 | 15 | 0 | 0 | 35 | 7 | 166 | 15 | 1 | 0 | 189 | 429 |
| 2024-11-20 17:30:00 | 18 | 7 | 4 | 0 | 0 | 29 | 4 | 161 | 10 | 0 | 0 | 175 | 11 | 12 | 14 | 0 | 0 | 37 | 9 | 114 | 12 | 0 | 0 | 135 | 376 |
| 2024-11-20 17:45:00 | 21 | 18 | 2 | 0 | 0 | 41 | 3 | 163 | 13 | 0 | 0 | 179 | 7 | 11 | 19 | 0 | 2 | 37 | 13 | 142 | 13 | 0 | 0 | 168 | 425 |
| **Grand Total** | 65 | 49 | 10 | 0 | 0 | 124 | 17 | 628 | 45 | 0 | 0 | 690 | 40 | 45 | 63 | 0 | 2 | 148 | 38 | 569 | 47 | 1 | 0 | 655 | **1617** |
| **Approach%** | 52.4% | 39.5% | 8.1% | 0% | | - | 2.5% | 91% | 6.5% | 0% | | - | 27% | 30.4% | 42.6% | 0% | | - | 5.8% | 86.9% | 7.2% | 0.2% | | - | - |
| **Totals %** | 4% | 3% | 0.6% | 0% | | 7.7% | 1.1% | 38.8% | 2.8% | 0% | | 42.7% | 2.5% | 2.8% | 3.9% | 0% | | 9.2% | 2.4% | 35.2% | 2.9% | 0.1% | | 40.5% | - |
| **PHF** | 0.77 | 0.68 | 0.63 | 0 | | 0.76 | 0.71 | 0.94 | 0.8 | 0 | | 0.96 | 0.67 | 0.87 | 0.83 | 0 | | 0.95 | 0.73 | 0.86 | 0.78 | 0.25 | | 0.87 | 0.94 |
| **Heavy** | 0 | 0 | 1 | 0 | | 1 | 1 | 66 | 0 | 0 | | 67 | 1 | 0 | 0 | 0 | | 1 | 1 | 95 | 5 | 0 | | 101 | 170 |
| **Heavy %** | 0% | 0% | 10% | 0% | | 0.8% | 5.9% | 10.5% | 0% | 0% | | 9.7% | 2.5% | 0% | 0% | 0% | | 0.7% | 2.6% | 16.7% | 10.6% | 0% | | 15.4% | 10.5% |
| **Lights** | 65 | 48 | 9 | 0 | | 122 | 16 | 562 | 45 | 0 | | 623 | 39 | 45 | 63 | 0 | | 147 | 37 | 474 | 42 | 1 | | 554 | 1446 |
| **Lights %** | 100% | 98% | 90% | 0% | | 98.4% | 94.1% | 89.5% | 100% | 0% | | 90.3% | 97.5% | 100% | 100% | 0% | | 99.3% | 97.4% | 83.3% | 89.4% | 100% | | 84.6% | 89.4% |
| **Single-Unit Trucks** | 0 | 0 | 1 | 0 | | 1 | 1 | 32 | 0 | 0 | | 33 | 1 | 0 | 0 | 0 | | 1 | 1 | 44 | 4 | 0 | | 49 | 84 |
| **Single-Unit Trucks %** | 0% | 0% | 10% | 0% | | 0.8% | 5.9% | 5.1% | 0% | 0% | | 4.8% | 2.5% | 0% | 0% | 0% | | 0.7% | 2.6% | 7.7% | 8.5% | 0% | | 7.5% | 5.2% |
| **Buses** | 0 | 0 | 0 | 0 | | 0 | 0 | 1 | 0 | 0 | | 1 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 1 | 0 | | 1 | 2 |
| **Buses %** | 0% | 0% | 0% | 0% | | 0% | 0% | 0.2% | 0% | 0% | | 0.1% | 0% | 0% | 0% | 0% | | 0% | 0% | 0% | 2.1% | 0% | | 0.2% | 0.1% |
| **Articulated Trucks** | 0 | 0 | 0 | 0 | | 0 | 0 | 33 | 0 | 0 | | 33 | 0 | 0 | 0 | 0 | | 0 | 0 | 51 | 0 | 0 | | 51 | 84 |
| **Articulated Trucks %** | 0% | 0% | 0% | 0% | | 0% | 0% | 5.3% | 0% | 0% | | 4.8% | 0% | 0% | 0% | 0% | | 0% | 0% | 9% | 0% | 0% | | 7.8% | 5.2% |
| **Bicycles on Road** | 0 | 1 | 0 | 0 | | 1 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 1 |
| **Bicycles on Road %** | 0% | 2% | 0% | 0% | | 0.8% | 0% | 0% | 0% | 0% | | 0% | 0% | 0% | 0% | 0% | | 0% | 0% | 0% | 0% | 0% | | 0% | 0.1% |
| **Pedestrians** | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 2 | - | - | - | - | - | 0 | - | - |
| **Pedestrians%** | - | - | - | - | 0% | | - | - | - | - | 0% | | - | - | - | - | 100% | | - | - | - | - | 0% | | - |

Turning Movement Count
Location Name: MAYFIELD ROAD & INNIS LAKE ROAD / GOREWAY DRIVE
Date: Wed, Nov 20, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

**Peak Hour: 07:45 AM - 08:45 AM Weather: Overcast Clouds (7.52 °C)**


| | Pedestrians |
|---|---|
| N | 0 |
| S | 0 |
| E | 2 |
| W | 0 |

Spectrum

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

**Peak Hour: 05:00 PM - 06:00 PM      Weather: Mist (8.21 °C)**

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

## Turning Movement Count (7 . MAYFIELD ROAD & MAISONNEUVE BOULEVARD) CustID: 01407581 MioID: 1250820

| Start Time | E Approach MAYFIELD ROAD | | | | | S Approach MAISONNEUVE BOULEVARD | | | | | W Approach MAYFIELD ROAD | | | | | Int. Total (15 min) | Int. Total (1 hr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Thru E:W | Left E:S | U-Turn E:E | Peds E: | Approach Total | Right S:E | Left S:W | U-Turn S:S | Peds S: | Approach Total | Right W:S | Thru W:E | U-Turn W:W | Peds W: | Approach Total | | |
| 2024-11-20 07:00:00 | 108 | 1 | 0 | 0 | 109 | 7 | 9 | 1 | 0 | 17 | 5 | 177 | 0 | 0 | 182 | 308 | |
| 2024-11-20 07:15:00 | 140 | 6 | 0 | 0 | 146 | 9 | 11 | 0 | 0 | 20 | 6 | 160 | 0 | 0 | 166 | 332 | |
| 2024-11-20 07:30:00 | 91 | 6 | 0 | 0 | 97 | 8 | 10 | 0 | 0 | 18 | 8 | 189 | 0 | 0 | 197 | 312 | |
| 2024-11-20 07:45:00 | 115 | 6 | 0 | 0 | 121 | 10 | 13 | 0 | 0 | 23 | 9 | 186 | 0 | 0 | 195 | 339 | 1291 |
| 2024-11-20 08:00:00 | 114 | 1 | 0 | 0 | 115 | 6 | 12 | 0 | 0 | 18 | 15 | 171 | 0 | 0 | 186 | 319 | 1302 |
| 2024-11-20 08:15:00 | 150 | 6 | 0 | 0 | 156 | 6 | 12 | 0 | 0 | 18 | 17 | 175 | 0 | 0 | 192 | 366 | 1336 |
| 2024-11-20 08:30:00 | 123 | 4 | 0 | 0 | 127 | 8 | 16 | 0 | 0 | 24 | 16 | 193 | 0 | 0 | 209 | 360 | 1384 |
| 2024-11-20 08:45:00 | 140 | 2 | 0 | 0 | 142 | 6 | 10 | 0 | 1 | 16 | 10 | 168 | 0 | 0 | 178 | 336 | 1381 |
| 2024-11-20 09:00:00 | 118 | 9 | 0 | 0 | 127 | 5 | 11 | 0 | 0 | 16 | 15 | 169 | 0 | 0 | 184 | 327 | 1389 |
| 2024-11-20 09:15:00 | 122 | 6 | 0 | 0 | 128 | 4 | 9 | 0 | 1 | 13 | 12 | 138 | 0 | 0 | 150 | 291 | 1314 |
| 2024-11-20 09:30:00 | 116 | 6 | 0 | 0 | 122 | 8 | 12 | 0 | 0 | 20 | 15 | 118 | 0 | 1 | 133 | 275 | 1229 |
| 2024-11-20 09:45:00 | 122 | 1 | 0 | 0 | 123 | 7 | 15 | 0 | 0 | 22 | 9 | 143 | 0 | 0 | 152 | 297 | 1190 |
| ***BREAK*** | | | | | | | | | | | | | | | | | |
| 2024-11-20 16:00:00 | 180 | 5 | 0 | 0 | 185 | 8 | 10 | 0 | 0 | 18 | 13 | 157 | 0 | 0 | 170 | 373 | |
| 2024-11-20 16:15:00 | 199 | 11 | 0 | 0 | 210 | 8 | 11 | 0 | 0 | 19 | 16 | 149 | 0 | 0 | 165 | 394 | |
| 2024-11-20 16:30:00 | 176 | 10 | 0 | 0 | 186 | 7 | 9 | 0 | 0 | 16 | 30 | 173 | 0 | 0 | 203 | 405 | |
| 2024-11-20 16:45:00 | 179 | 8 | 0 | 0 | 187 | 6 | 12 | 0 | 0 | 18 | 17 | 137 | 0 | 0 | 154 | 359 | 1531 |
| 2024-11-20 17:00:00 | 161 | 11 | 0 | 0 | 172 | 7 | 6 | 0 | 0 | 13 | 23 | 161 | 0 | 0 | 184 | 369 | 1527 |
| 2024-11-20 17:15:00 | 189 | 4 | 0 | 0 | 193 | 8 | 8 | 0 | 0 | 16 | 24 | 183 | 0 | 0 | 207 | 416 | 1549 |
| 2024-11-20 17:30:00 | 180 | 12 | 0 | 0 | 192 | 4 | 14 | 0 | 0 | 18 | 28 | 141 | 0 | 0 | 169 | 379 | 1523 |
| 2024-11-20 17:45:00 | 197 | 10 | 0 | 0 | 207 | 6 | 7 | 0 | 0 | 13 | 28 | 149 | 0 | 0 | 177 | 397 | 1561 |
| 2024-11-20 18:00:00 | 157 | 6 | 0 | 0 | 163 | 7 | 4 | 0 | 0 | 11 | 22 | 173 | 0 | 0 | 195 | 369 | 1561 |
| 2024-11-20 18:15:00 | 162 | 11 | 0 | 0 | 173 | 9 | 7 | 0 | 0 | 16 | 33 | 167 | 0 | 0 | 200 | 389 | 1534 |
| 2024-11-20 18:30:00 | 159 | 14 | 0 | 0 | 173 | 2 | 9 | 0 | 0 | 11 | 20 | 128 | 0 | 0 | 148 | 332 | 1487 |
| 2024-11-20 18:45:00 | 155 | 6 | 0 | 0 | 161 | 4 | 9 | 0 | 0 | 13 | 23 | 137 | 0 | 0 | 160 | 334 | 1424 |
| **Grand Total** | 3553 | 162 | 0 | 0 | 3715 | 160 | 246 | 1 | 2 | 407 | 414 | 3842 | 0 | 1 | 4256 | **8378** | - |
| **Approach%** | 95.6% | 4.4% | 0% | | - | 39.3% | 60.4% | 0.2% | | - | 9.7% | 90.3% | 0% | | - | - | - |
| **Totals %** | 42.4% | 1.9% | 0% | | 44.3% | 1.9% | 2.9% | 0% | | 4.9% | 4.9% | 45.9% | 0% | | 50.8% | - | - |
| **Heavy** | 543 | 4 | 0 | | - | 6 | 2 | 0 | | - | 44 | 549 | 0 | | - | - | - |
| **Heavy %** | 15.3% | 2.5% | 0% | | - | 3.8% | 0.8% | 0% | | - | 10.6% | 14.3% | 0% | | - | - | - |
| **Bicycles** | - | - | - | | - | - | - | - | | - | - | - | - | | - | - | - |
| **Bicycle %** | - | - | - | | - | - | - | - | | - | - | - | - | | - | - | - |

Spectrum

Turning Movement Count
Location Name: MAYFIELD ROAD & MAISONNEUVE BOULEVARD
Date: Wed, Nov 20, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

## Peak Hour: 08:15 AM - 09:15 AM Weather: Overcast Clouds (7.52 °C)

| Start Time | E Approach MAYFIELD ROAD | | | | | S Approach MAISONNEUVE BOULEVARD | | | | | W Approach MAYFIELD ROAD | | | | | Int. Total (15 min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Thru | Left | U-Turn | Peds | Approach Total | Right | Left | U-Turn | Peds | Approach Total | Right | Thru | U-Turn | Peds | Approach Total | |
| 2024-11-20 08:15:00 | 150 | 6 | 0 | 0 | 156 | 6 | 12 | 0 | 0 | 18 | 17 | 175 | 0 | 0 | 192 | 366 |
| 2024-11-20 08:30:00 | 123 | 4 | 0 | 0 | 127 | 8 | 16 | 0 | 0 | 24 | 16 | 193 | 0 | 0 | 209 | 360 |
| 2024-11-20 08:45:00 | 140 | 2 | 0 | 0 | 142 | 6 | 10 | 0 | 1 | 16 | 10 | 168 | 0 | 0 | 178 | 336 |
| 2024-11-20 09:00:00 | 118 | 9 | 0 | 0 | 127 | 5 | 11 | 0 | 0 | 16 | 15 | 169 | 0 | 0 | 184 | 327 |
| **Grand Total** | 531 | 21 | 0 | 0 | 552 | 25 | 49 | 0 | 1 | 74 | 58 | 705 | 0 | 0 | 763 | **1389** |
| **Approach%** | 96.2% | 3.8% | 0% | | - | 33.8% | 66.2% | 0% | | - | 7.6% | 92.4% | 0% | | - | - |
| **Totals %** | 38.2% | 1.5% | 0% | | 39.7% | 1.8% | 3.5% | 0% | | 5.3% | 4.2% | 50.8% | 0% | | 54.9% | - |
| **PHF** | 0.89 | 0.58 | 0 | | 0.88 | 0.78 | 0.77 | 0 | | 0.77 | 0.85 | 0.91 | 0 | | 0.91 | 0.95 |
| **Heavy** | 120 | 1 | 0 | | 121 | 1 | 2 | 0 | | 3 | 10 | 94 | 0 | | 104 | 228 |
| **Heavy %** | 22.6% | 4.8% | 0% | | 21.9% | 4% | 4.1% | 0% | | 4.1% | 17.2% | 13.3% | 0% | | 13.6% | 16.4% |
| **Lights** | 411 | 20 | 0 | | 431 | 23 | 47 | 0 | | 70 | 48 | 611 | 0 | | 659 | 1160 |
| **Lights %** | 77.4% | 95.2% | 0% | | 78.1% | 92% | 95.9% | 0% | | 94.6% | 82.8% | 86.7% | 0% | | 86.4% | 83.5% |
| **Single-Unit Trucks** | 46 | 0 | 0 | | 46 | 0 | 2 | 0 | | 2 | 2 | 26 | 0 | | 28 | 76 |
| **Single-Unit Trucks %** | 8.7% | 0% | 0% | | 8.3% | 0% | 4.1% | 0% | | 2.7% | 3.4% | 3.7% | 0% | | 3.7% | 5.5% |
| **Buses** | 17 | 1 | 0 | | 18 | 1 | 0 | 0 | | 1 | 8 | 5 | 0 | | 13 | 32 |
| **Buses %** | 3.2% | 4.8% | 0% | | 3.3% | 4% | 0% | 0% | | 1.4% | 13.8% | 0.7% | 0% | | 1.7% | 2.3% |
| **Articulated Trucks** | 57 | 0 | 0 | | 57 | 0 | 0 | 0 | | 0 | 0 | 63 | 0 | | 63 | 120 |
| **Articulated Trucks %** | 10.7% | 0% | 0% | | 10.3% | 0% | 0% | 0% | | 0% | 0% | 8.9% | 0% | | 8.3% | 8.6% |
| **Bicycles on Road** | 0 | 0 | 0 | | 0 | 1 | 0 | 0 | | 1 | 0 | 0 | 0 | | 0 | 1 |
| **Bicycles on Road %** | 0% | 0% | 0% | | 0% | 4% | 0% | 0% | | 1.4% | 0% | 0% | 0% | | 0% | 0.1% |
| **Pedestrians** | - | - | - | 0 | - | - | - | - | 1 | - | - | - | - | 0 | - | - |
| **Pedestrians%** | - | - | - | 0% | | - | - | - | 100% | | - | - | - | 0% | | - |

Turning Movement Count
Location Name: MAYFIELD ROAD & MAISONNEUVE BOULEVARD
Date: Wed, Nov 20, 2024    Deployment Lead: Rey Fernandez

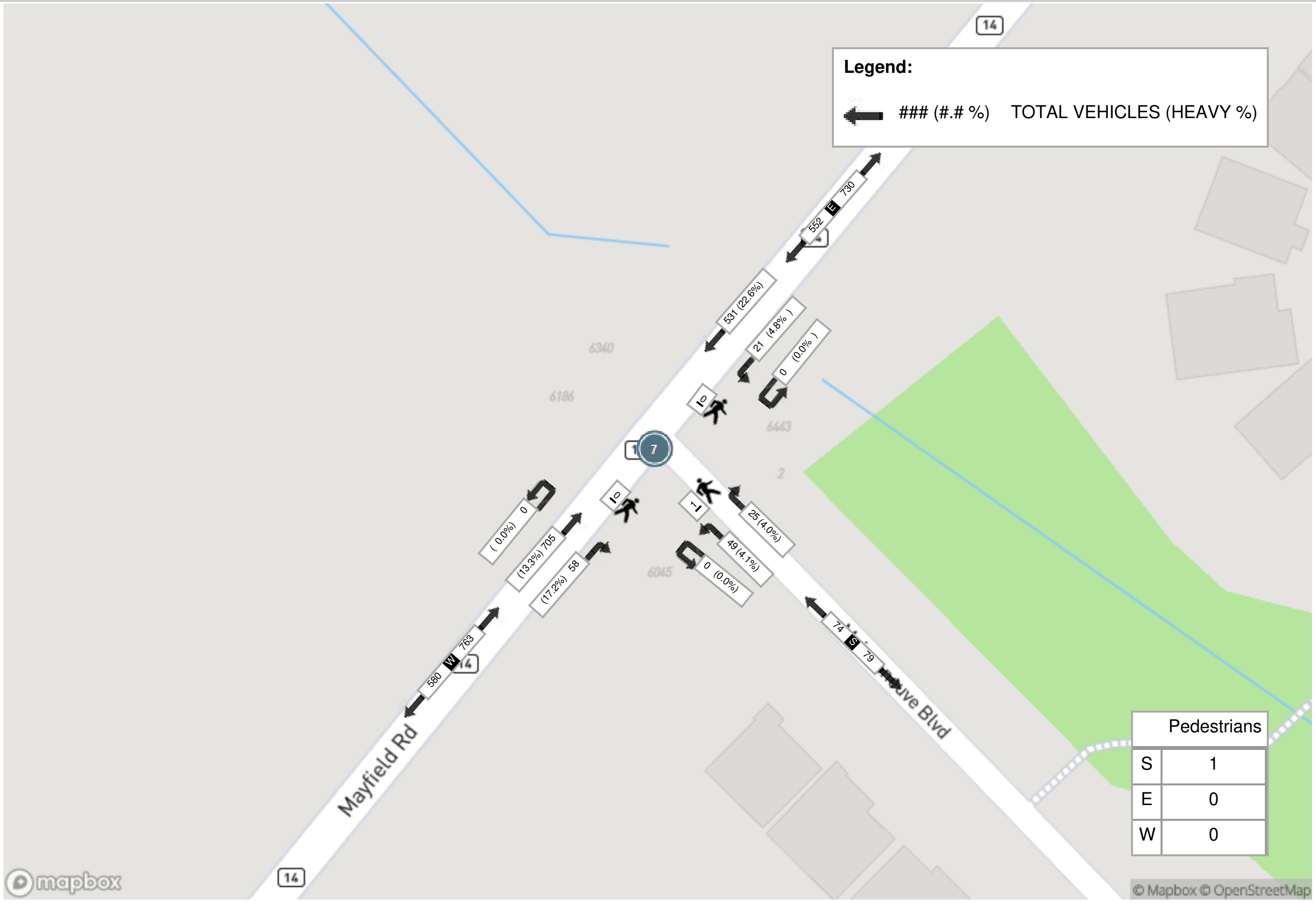
Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

**Peak Hour: 05:15 PM - 06:15 PM    Weather: Mist (8.21 °C)**

| Start Time | **E Approach** MAYFIELD ROAD | | | | | **S Approach** MAISONNEUVE BOULEVARD | | | | | **W Approach** MAYFIELD ROAD | | | | | **Int. Total (15 min)** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Thru | Left | U-Turn | Peds | Approach Total | Right | Left | U-Turn | Peds | Approach Total | Right | Thru | U-Turn | Peds | Approach Total | |
| 2024-11-20 17:15:00 | 189 | 4 | 0 | 0 | 193 | 8 | 8 | 0 | 0 | 16 | 24 | 183 | 0 | 0 | 207 | 416 |
| 2024-11-20 17:30:00 | 180 | 12 | 0 | 0 | 192 | 4 | 14 | 0 | 0 | 18 | 28 | 141 | 0 | 0 | 169 | 379 |
| 2024-11-20 17:45:00 | 197 | 10 | 0 | 0 | 207 | 6 | 7 | 0 | 0 | 13 | 28 | 149 | 0 | 0 | 177 | 397 |
| 2024-11-20 18:00:00 | 157 | 6 | 0 | 0 | 163 | 7 | 4 | 0 | 0 | 11 | 22 | 173 | 0 | 0 | 195 | 369 |
| **Grand Total** | 723 | 32 | 0 | 0 | 755 | 25 | 33 | 0 | 0 | 58 | 102 | 646 | 0 | 0 | 748 | **1561** |
| **Approach%** | 95.8% | 4.2% | 0% | | - | 43.1% | 56.9% | 0% | | - | 13.6% | 86.4% | 0% | | - | **-** |
| **Totals %** | 46.3% | 2% | 0% | | 48.4% | 1.6% | 2.1% | 0% | | 3.7% | 6.5% | 41.4% | 0% | | 47.9% | **-** |
| **PHF** | 0.92 | 0.67 | 0 | | 0.91 | 0.78 | 0.59 | 0 | | 0.81 | 0.91 | 0.88 | 0 | | 0.9 | 0.94 |
| **Heavy** | 53 | 0 | 0 | | 53 | 0 | 0 | 0 | | 0 | 6 | 79 | 0 | | 85 | 138 |
| **Heavy %** | 7.3% | 0% | 0% | | 7% | 0% | 0% | 0% | | 0% | 5.9% | 12.2% | 0% | | 11.4% | 8.8% |
| **Lights** | 670 | 32 | 0 | | 702 | 25 | 33 | 0 | | 58 | 96 | 567 | 0 | | 663 | 1423 |
| **Lights %** | 92.7% | 100% | 0% | | 93% | 100% | 100% | 0% | | 100% | 94.1% | 87.8% | 0% | | 88.6% | 91.2% |
| **Single-Unit Trucks** | 25 | 0 | 0 | | 25 | 0 | 0 | 0 | | 0 | 0 | 29 | 0 | | 29 | 54 |
| **Single-Unit Trucks %** | 3.5% | 0% | 0% | | 3.3% | 0% | 0% | 0% | | 0% | 0% | 4.5% | 0% | | 3.9% | 3.5% |
| **Buses** | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | 6 | 0 | 0 | | 6 | 6 |
| **Buses %** | 0% | 0% | 0% | | 0% | 0% | 0% | 0% | | 0% | 5.9% | 0% | 0% | | 0.8% | 0.4% |
| **Articulated Trucks** | 28 | 0 | 0 | | 28 | 0 | 0 | 0 | | 0 | 0 | 50 | 0 | | 50 | 78 |
| **Articulated Trucks %** | 3.9% | 0% | 0% | | 3.7% | 0% | 0% | 0% | | 0% | 0% | 7.7% | 0% | | 6.7% | 5% |
| **Bicycles on Road** | 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% |
| **Pedestrians** | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | **-** |
| **Pedestrians%** | - | - | - | 0% | | - | - | - | 0% | | - | - | - | 0% | | **-** |

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

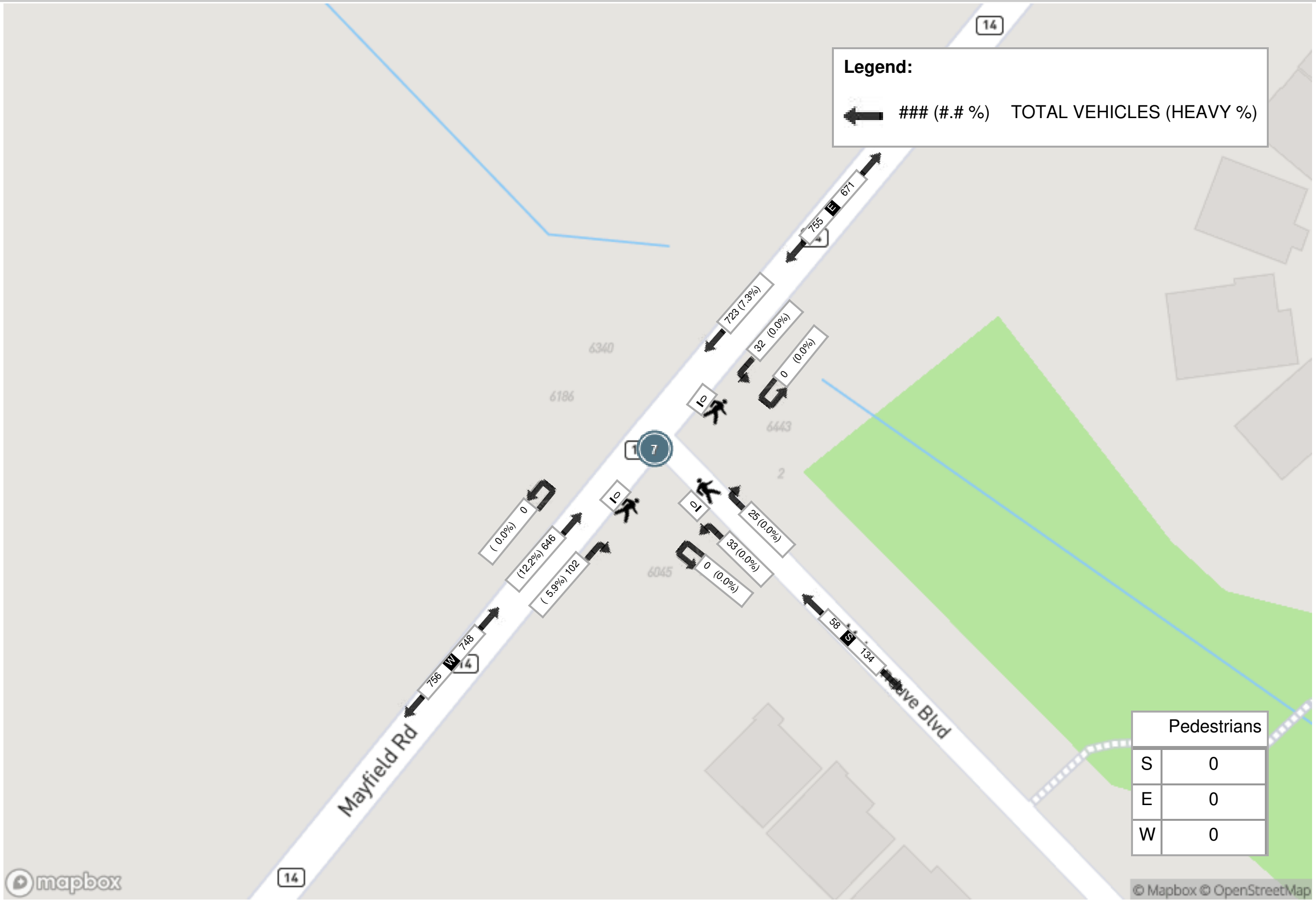
**Peak Hour: 08:15 AM - 09:15 AM Weather: Overcast Clouds (7.52 °C)**



Turning Movement Count
Location Name: MAYFIELD ROAD & MAISONNEUVE BOULEVARD
Date: Wed, Nov 20, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

**Peak Hour: 05:15 PM - 06:15 PM Weather: Mist (8.21 °C)**



Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

## Turning Movement Count (2 . MAYFIELD ROAD & TORBRAM ROAD) CustID: 01409611 MioID: 1250773

| Start Time | N Approach TORBRAM ROAD | | | | | | E Approach MAYFIELD ROAD | | | | | | S Approach TORBRAM ROAD | | | | | | W Approach MAYFIELD ROAD | | | | | | Int. Total (15 min) | Int. Total (1 hr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right N:W | Thru N:S | Left N:E | U-Turn N:N | Peds N: | Approach Total | Right E:N | Thru E:W | Left E:S | U-Turn E:E | Peds E: | Approach Total | Right S:E | Thru S:N | Left S:W | U-Turn S:S | Peds S: | Approach Total | Right W:S | Thru W:E | Left W:N | U-Turn W:W | Peds W: | Approach Total | | |
| 2024-11-20 07:00:00 | 4 | 41 | 6 | 0 | 0 | 51 | 0 | 151 | 11 | 0 | 0 | 162 | 12 | 9 | 7 | 0 | 0 | 28 | 28 | 234 | 5 | 0 | 0 | 267 | 508 | |
| 2024-11-20 07:15:00 | 6 | 49 | 8 | 0 | 0 | 63 | 4 | 144 | 12 | 0 | 0 | 160 | 10 | 8 | 16 | 0 | 0 | 34 | 39 | 248 | 6 | 0 | 0 | 293 | 550 | |
| 2024-11-20 07:30:00 | 8 | 74 | 2 | 0 | 0 | 84 | 1 | 141 | 15 | 0 | 0 | 157 | 17 | 14 | 11 | 0 | 0 | 42 | 41 | 250 | 7 | 0 | 0 | 298 | 581 | |
| 2024-11-20 07:45:00 | 6 | 85 | 12 | 0 | 0 | 103 | 3 | 143 | 15 | 0 | 0 | 161 | 16 | 10 | 26 | 0 | 0 | 52 | 54 | 257 | 1 | 0 | 0 | 312 | 628 | 2267 |
| 2024-11-20 08:00:00 | 3 | 66 | 11 | 0 | 0 | 80 | 3 | 138 | 15 | 0 | 0 | 156 | 15 | 10 | 30 | 0 | 0 | 55 | 54 | 280 | 4 | 0 | 0 | 338 | 629 | 2388 |
| 2024-11-20 08:15:00 | 6 | 63 | 5 | 0 | 0 | 74 | 9 | 146 | 16 | 0 | 0 | 171 | 15 | 16 | 14 | 0 | 0 | 45 | 53 | 256 | 7 | 0 | 0 | 316 | 606 | 2444 |
| 2024-11-20 08:30:00 | 5 | 43 | 8 | 0 | 0 | 56 | 3 | 155 | 8 | 0 | 0 | 166 | 14 | 15 | 19 | 0 | 0 | 48 | 47 | 256 | 4 | 0 | 0 | 307 | 577 | 2440 |
| 2024-11-20 08:45:00 | 6 | 40 | 4 | 0 | 0 | 50 | 1 | 136 | 11 | 0 | 0 | 148 | 17 | 17 | 12 | 0 | 0 | 46 | 49 | 252 | 7 | 1 | 0 | 309 | 553 | 2365 |
| 2024-11-20 09:00:00 | 3 | 25 | 2 | 0 | 0 | 30 | 3 | 130 | 8 | 0 | 0 | 141 | 8 | 7 | 14 | 0 | 0 | 29 | 39 | 220 | 9 | 0 | 0 | 268 | 468 | 2204 |
| 2024-11-20 09:15:00 | 8 | 33 | 2 | 0 | 0 | 43 | 3 | 152 | 10 | 0 | 0 | 165 | 7 | 10 | 9 | 0 | 0 | 26 | 37 | 202 | 6 | 0 | 0 | 245 | 479 | 2077 |
| 2024-11-20 09:30:00 | 2 | 24 | 3 | 0 | 0 | 29 | 4 | 135 | 15 | 0 | 0 | 154 | 6 | 8 | 5 | 0 | 0 | 19 | 32 | 188 | 5 | 0 | 0 | 225 | 427 | 1927 |
| 2024-11-20 09:45:00 | 2 | 28 | 0 | 0 | 0 | 30 | 1 | 136 | 5 | 0 | 0 | 142 | 19 | 10 | 7 | 0 | 0 | 36 | 22 | 160 | 3 | 0 | 0 | 185 | 393 | 1767 |
| ***BREAK*** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2024-11-20 16:00:00 | 5 | 24 | 1 | 0 | 0 | 30 | 8 | 228 | 21 | 0 | 0 | 257 | 12 | 47 | 24 | 0 | 1 | 83 | 44 | 183 | 14 | 0 | 0 | 241 | 611 | |
| 2024-11-20 16:15:00 | 6 | 28 | 2 | 0 | 0 | 36 | 1 | 241 | 21 | 1 | 0 | 264 | 19 | 67 | 28 | 0 | 0 | 114 | 37 | 201 | 14 | 0 | 0 | 252 | 666 | |
| 2024-11-20 16:30:00 | 3 | 22 | 4 | 0 | 0 | 29 | 3 | 258 | 20 | 1 | 0 | 282 | 26 | 49 | 33 | 0 | 0 | 108 | 36 | 174 | 9 | 1 | 0 | 220 | 639 | |
| 2024-11-20 16:45:00 | 9 | 26 | 2 | 0 | 0 | 37 | 6 | 245 | 20 | 0 | 0 | 271 | 19 | 75 | 38 | 0 | 0 | 132 | 36 | 180 | 14 | 0 | 0 | 230 | 670 | 2586 |
| 2024-11-20 17:00:00 | 6 | 26 | 0 | 0 | 0 | 32 | 3 | 207 | 27 | 0 | 0 | 237 | 14 | 57 | 33 | 0 | 0 | 104 | 37 | 183 | 22 | 1 | 0 | 243 | 616 | 2591 |
| 2024-11-20 17:15:00 | 5 | 16 | 3 | 0 | 0 | 24 | 5 | 224 | 27 | 0 | 0 | 256 | 27 | 54 | 44 | 0 | 0 | 125 | 34 | 241 | 13 | 1 | 0 | 289 | 694 | 2619 |
| 2024-11-20 17:30:00 | 5 | 33 | 3 | 0 | 0 | 41 | 5 | 261 | 23 | 0 | 0 | 289 | 14 | 49 | 51 | 0 | 0 | 114 | 29 | 200 | 12 | 1 | 0 | 242 | 686 | 2666 |
| 2024-11-20 17:45:00 | 4 | 22 | 0 | 0 | 0 | 26 | 6 | 244 | 18 | 0 | 0 | 268 | 23 | 38 | 33 | 0 | 0 | 94 | 59 | 218 | 13 | 0 | 0 | 290 | 678 | 2674 |
| 2024-11-20 18:00:00 | 2 | 21 | 1 | 0 | 0 | 24 | 3 | 244 | 32 | 0 | 0 | 279 | 14 | 25 | 31 | 0 | 0 | 70 | 36 | 215 | 13 | 2 | 0 | 266 | 639 | 2697 |
| 2024-11-20 18:15:00 | 4 | 20 | 2 | 0 | 0 | 26 | 11 | 222 | 23 | 0 | 0 | 256 | 17 | 24 | 43 | 0 | 0 | 84 | 37 | 218 | 6 | 0 | 0 | 261 | 627 | 2630 |
| 2024-11-20 18:30:00 | 9 | 20 | 0 | 0 | 0 | 29 | 0 | 221 | 33 | 0 | 0 | 254 | 7 | 20 | 27 | 0 | 0 | 54 | 38 | 177 | 8 | 2 | 0 | 225 | 562 | 2506 |
| 2024-11-20 18:45:00 | 4 | 15 | 1 | 0 | 0 | 20 | 4 | 237 | 17 | 1 | 0 | 259 | 11 | 13 | 22 | 0 | 0 | 46 | 48 | 175 | 8 | 0 | 0 | 231 | 556 | 2384 |
| **Grand Total** | 121 | 844 | 82 | 0 | 0 | 1047 | 90 | 4539 | 423 | 3 | 0 | 5055 | 359 | 652 | 577 | 0 | 1 | 1588 | 966 | 5168 | 210 | 9 | 0 | 6353 | **14043** | - |
| **Approach%** | 11.6% | 80.6% | 7.8% | 0% | | - | 1.8% | 89.8% | 8.4% | 0.1% | | - | 22.6% | 41.1% | 36.3% | 0% | | - | 15.2% | 81.3% | 3.3% | 0.1% | | - | - | - |
| **Totals %** | 0.9% | 6% | 0.6% | 0% | | 7.5% | 0.6% | 32.3% | 3% | 0% | | 36% | 2.6% | 4.6% | 4.1% | 0% | | 11.3% | 6.9% | 36.8% | 1.5% | 0.1% | | 45.2% | - | - |
| **Heavy** | 3 | 14 | 1 | 0 | | - | 2 | 582 | 18 | 1 | | - | 14 | 5 | 23 | 0 | | - | 27 | 632 | 5 | 0 | | - | - | - |
| **Heavy %** | 2.5% | 1.7% | 1.2% | 0% | | - | 2.2% | 12.8% | 4.3% | 33.3% | | - | 3.9% | 0.8% | 4% | 0% | | - | 2.8% | 12.2% | 2.4% | 0% | | - | - | - |
| **Bicycles** | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - |
| **Bicycle %** | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - |

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

**Peak Hour: 07:30 AM - 08:30 AM Weather: Overcast Clouds (7.52 °C)**

| Start Time | N Approach TORBRAM ROAD | | | | | | E Approach MAYFIELD ROAD | | | | | | S Approach TORBRAM ROAD | | | | | | W Approach MAYFIELD ROAD | | | | | | Int. Total (15 min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | |
| 2024-11-20 07:30:00 | 8 | 74 | 2 | 0 | 0 | 84 | 1 | 141 | 15 | 0 | 0 | 157 | 17 | 14 | 11 | 0 | 0 | 42 | 41 | 250 | 7 | 0 | 0 | 298 | 581 |
| 2024-11-20 07:45:00 | 6 | 85 | 12 | 0 | 0 | 103 | 3 | 143 | 15 | 0 | 0 | 161 | 16 | 10 | 26 | 0 | 0 | 52 | 54 | 257 | 1 | 0 | 0 | 312 | 628 |
| 2024-11-20 08:00:00 | 3 | 66 | 11 | 0 | 0 | 80 | 3 | 138 | 15 | 0 | 0 | 156 | 15 | 10 | 30 | 0 | 0 | 55 | 54 | 280 | 4 | 0 | 0 | 338 | 629 |
| 2024-11-20 08:15:00 | 6 | 63 | 5 | 0 | 0 | 74 | 9 | 146 | 16 | 0 | 0 | 171 | 15 | 16 | 14 | 0 | 0 | 45 | 53 | 256 | 7 | 0 | 0 | 316 | 606 |
| **Grand Total** | 23 | 288 | 30 | 0 | 0 | 341 | 16 | 568 | 61 | 0 | 0 | 645 | 63 | 50 | 81 | 0 | 0 | 194 | 202 | 1043 | 19 | 0 | 0 | 1264 | **2444** |
| **Approach%** | 6.7% | 84.5% | 8.8% | 0% | | - | 2.5% | 88.1% | 9.5% | 0% | | - | 32.5% | 25.8% | 41.8% | 0% | | - | 16% | 82.5% | 1.5% | 0% | | - | - |
| **Totals %** | 0.9% | 11.8% | 1.2% | 0% | | 14% | 0.7% | 23.2% | 2.5% | 0% | | 26.4% | 2.6% | 2% | 3.3% | 0% | | 7.9% | 8.3% | 42.7% | 0.8% | 0% | | 51.7% | - |
| **PHF** | 0.72 | 0.85 | 0.63 | 0 | | 0.83 | 0.44 | 0.97 | 0.95 | 0 | | 0.94 | 0.93 | 0.78 | 0.68 | 0 | | 0.88 | 0.94 | 0.93 | 0.68 | 0 | | 0.93 | 0.97 |
| **Heavy** | 2 | 2 | 0 | 0 | | 4 | 1 | 97 | 2 | 0 | | 100 | 6 | 2 | 4 | 0 | | 12 | 12 | 92 | 1 | 0 | | 105 | 221 |
| **Heavy %** | 8.7% | 0.7% | 0% | 0% | | 1.2% | 6.3% | 17.1% | 3.3% | 0% | | 15.5% | 9.5% | 4% | 4.9% | 0% | | 6.2% | 5.9% | 8.8% | 5.3% | 0% | | 8.3% | 9% |
| **Lights** | 21 | 286 | 30 | 0 | | 337 | 15 | 471 | 59 | 0 | | 545 | 57 | 48 | 77 | 0 | | 182 | 190 | 951 | 18 | 0 | | 1159 | 2223 |
| **Lights %** | 91.3% | 99.3% | 100% | 0% | | 98.8% | 93.8% | 82.9% | 96.7% | 0% | | 84.5% | 90.5% | 96% | 95.1% | 0% | | 93.8% | 94.1% | 91.2% | 94.7% | 0% | | 91.7% | 91% |
| **Single-Unit Trucks** | 0 | 0 | 0 | 0 | | 0 | 0 | 31 | 1 | 0 | | 32 | 3 | 0 | 1 | 0 | | 4 | 6 | 32 | 0 | 0 | | 38 | 74 |
| **Single-Unit Trucks %** | 0% | 0% | 0% | 0% | | 0% | 0% | 5.5% | 1.6% | 0% | | 5% | 4.8% | 0% | 1.2% | 0% | | 2.1% | 3% | 3.1% | 0% | 0% | | 3% | 3% |
| **Buses** | 2 | 1 | 0 | 0 | | 3 | 1 | 10 | 1 | 0 | | 12 | 2 | 2 | 3 | 0 | | 7 | 5 | 24 | 1 | 0 | | 30 | 52 |
| **Buses %** | 8.7% | 0.3% | 0% | 0% | | 0.9% | 6.3% | 1.8% | 1.6% | 0% | | 1.9% | 3.2% | 4% | 3.7% | 0% | | 3.6% | 2.5% | 2.3% | 5.3% | 0% | | 2.4% | 2.1% |
| **Articulated Trucks** | 0 | 1 | 0 | 0 | | 1 | 0 | 56 | 0 | 0 | | 56 | 1 | 0 | 0 | 0 | | 1 | 1 | 36 | 0 | 0 | | 37 | 95 |
| **Articulated Trucks %** | 0% | 0.3% | 0% | 0% | | 0.3% | 0% | 9.9% | 0% | 0% | | 8.7% | 1.6% | 0% | 0% | 0% | | 0.5% | 0.5% | 3.5% | 0% | 0% | | 2.9% | 3.9% |
| **Bicycles on Crosswalk** | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - |
| **Bicycles on Crosswalk%** | - | - | - | - | 0% | | - | - | - | - | 0% | | - | - | - | - | 0% | | - | - | - | - | 0% | | - |

Spectrum

Turning Movement Count
Location Name: MAYFIELD ROAD & TORBRAM ROAD
Date: Wed, Nov 20, 2024 Deployment Lead: Rey Fernandez

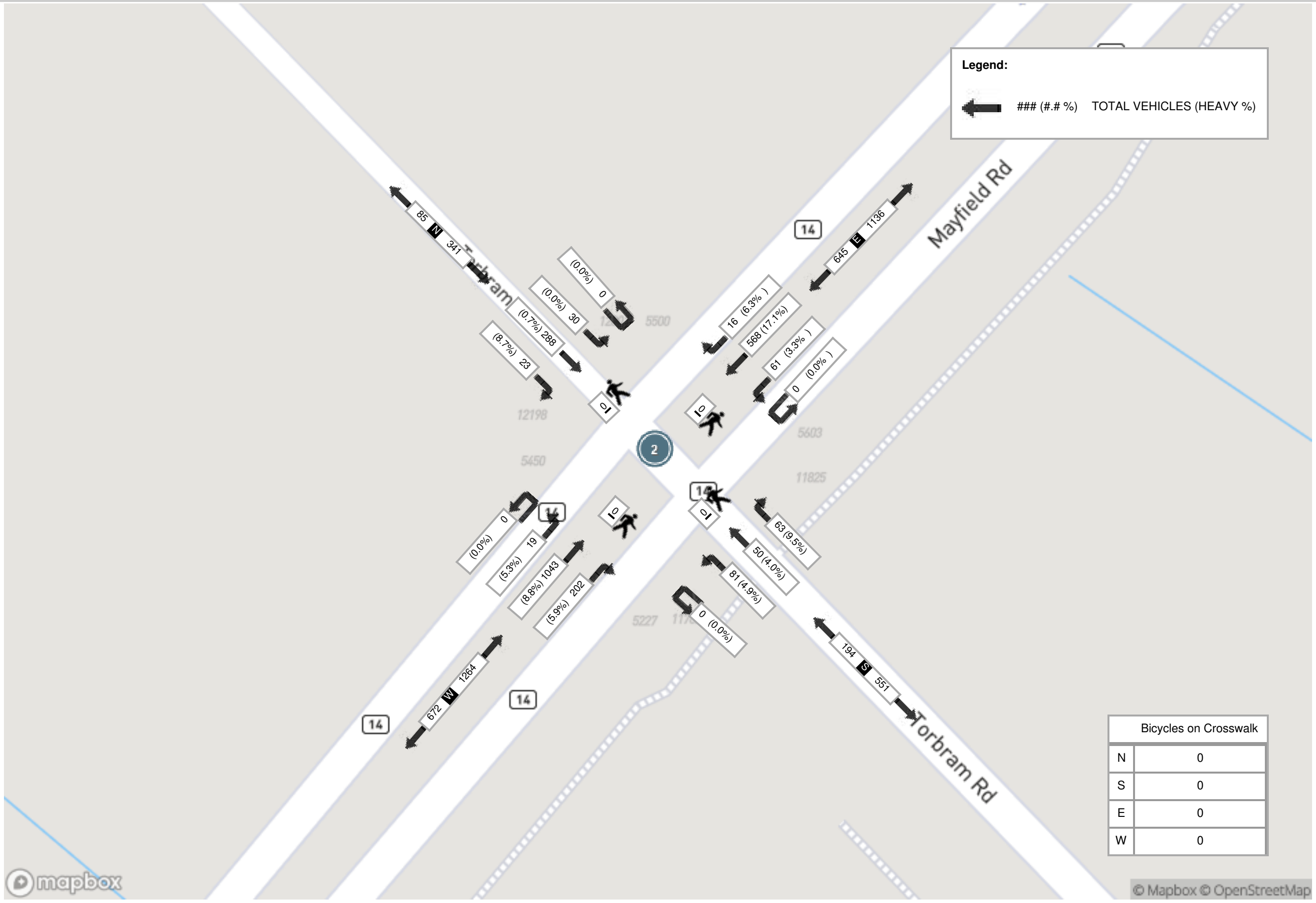
Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

**Peak Hour: 05:15 PM - 06:15 PM Weather: Mist (8.21 °C)**

| Start Time | N Approach TORBRAM ROAD | | | | | | E Approach MAYFIELD ROAD | | | | | | S Approach TORBRAM ROAD | | | | | | W Approach MAYFIELD ROAD | | | | | | Int. Total (15 min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | |
| 2024-11-20 17:15:00 | 5 | 16 | 3 | 0 | 0 | 24 | 5 | 224 | 27 | 0 | 0 | 256 | 27 | 54 | 44 | 0 | 0 | 125 | 34 | 241 | 13 | 1 | 0 | 289 | 694 |
| 2024-11-20 17:30:00 | 5 | 33 | 3 | 0 | 0 | 41 | 5 | 261 | 23 | 0 | 0 | 289 | 14 | 49 | 51 | 0 | 0 | 114 | 29 | 200 | 12 | 1 | 0 | 242 | 686 |
| 2024-11-20 17:45:00 | 4 | 22 | 0 | 0 | 0 | 26 | 6 | 244 | 18 | 0 | 0 | 268 | 23 | 38 | 33 | 0 | 0 | 94 | 59 | 218 | 13 | 0 | 0 | 290 | 678 |
| 2024-11-20 18:00:00 | 2 | 21 | 1 | 0 | 0 | 24 | 3 | 244 | 32 | 0 | 0 | 279 | 14 | 25 | 31 | 0 | 0 | 70 | 36 | 215 | 13 | 2 | 0 | 266 | 639 |
| **Grand Total** | 16 | 92 | 7 | 0 | 0 | 115 | 19 | 973 | 100 | 0 | 0 | 1092 | 78 | 166 | 159 | 0 | 0 | 403 | 158 | 874 | 51 | 4 | 0 | 1087 | **2697** |
| **Approach%** | 13.9% | 80% | 6.1% | 0% | | - | 1.7% | 89.1% | 9.2% | 0% | | - | 19.4% | 41.2% | 39.5% | 0% | | - | 14.5% | 80.4% | 4.7% | 0.4% | | - | - |
| **Totals %** | 0.6% | 3.4% | 0.3% | 0% | | 4.3% | 0.7% | 36.1% | 3.7% | 0% | | 40.5% | 2.9% | 6.2% | 5.9% | 0% | | 14.9% | 5.9% | 32.4% | 1.9% | 0.1% | | 40.3% | - |
| **PHF** | 0.8 | 0.7 | 0.58 | 0 | | 0.7 | 0.79 | 0.93 | 0.78 | 0 | | 0.94 | 0.72 | 0.77 | 0.78 | 0 | | 0.81 | 0.67 | 0.91 | 0.98 | 0.5 | | 0.94 | 0.97 |
| **Heavy** | 0 | 0 | 0 | 0 | | 0 | 0 | 79 | 4 | 0 | | 83 | 1 | 0 | 6 | 0 | | 7 | 1 | 93 | 0 | 0 | | 94 | 184 |
| **Heavy %** | 0% | 0% | 0% | 0% | | 0% | 0% | 8.1% | 4% | 0% | | 7.6% | 1.3% | 0% | 3.8% | 0% | | 1.7% | 0.6% | 10.6% | 0% | 0% | | 8.6% | 6.8% |
| **Lights** | 16 | 92 | 7 | 0 | | 115 | 19 | 894 | 96 | 0 | | 1009 | 77 | 166 | 153 | 0 | | 396 | 157 | 781 | 51 | 4 | | 993 | 2513 |
| **Lights %** | 100% | 100% | 100% | 0% | | 100% | 100% | 91.9% | 96% | 0% | | 92.4% | 98.7% | 100% | 96.2% | 0% | | 98.3% | 99.4% | 89.4% | 100% | 100% | | 91.4% | 93.2% |
| **Single-Unit Trucks** | 0 | 0 | 0 | 0 | | 0 | 0 | 36 | 2 | 0 | | 38 | 0 | 0 | 5 | 0 | | 5 | 1 | 38 | 0 | 0 | | 39 | 82 |
| **Single-Unit Trucks %** | 0% | 0% | 0% | 0% | | 0% | 0% | 3.7% | 2% | 0% | | 3.5% | 0% | 0% | 3.1% | 0% | | 1.2% | 0.6% | 4.3% | 0% | 0% | | 3.6% | 3% |
| **Buses** | 0 | 0 | 0 | 0 | | 0 | 0 | 3 | 2 | 0 | | 5 | 1 | 0 | 1 | 0 | | 2 | 0 | 1 | 0 | 0 | | 1 | 8 |
| **Buses %** | 0% | 0% | 0% | 0% | | 0% | 0% | 0.3% | 2% | 0% | | 0.5% | 1.3% | 0% | 0.6% | 0% | | 0.5% | 0% | 0.1% | 0% | 0% | | 0.1% | 0.3% |
| **Articulated Trucks** | 0 | 0 | 0 | 0 | | 0 | 0 | 40 | 0 | 0 | | 40 | 0 | 0 | 0 | 0 | | 0 | 0 | 54 | 0 | 0 | | 54 | 94 |
| **Articulated Trucks %** | 0% | 0% | 0% | 0% | | 0% | 0% | 4.1% | 0% | 0% | | 3.7% | 0% | 0% | 0% | 0% | | 0% | 0% | 6.2% | 0% | 0% | | 5% | 3.5% |
| **Bicycles on Crosswalk** | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - |
| **Bicycles on Crosswalk%** | - | - | - | - | 0% | | - | - | - | - | 0% | | - | - | - | - | 0% | | - | - | - | - | 0% | | - |

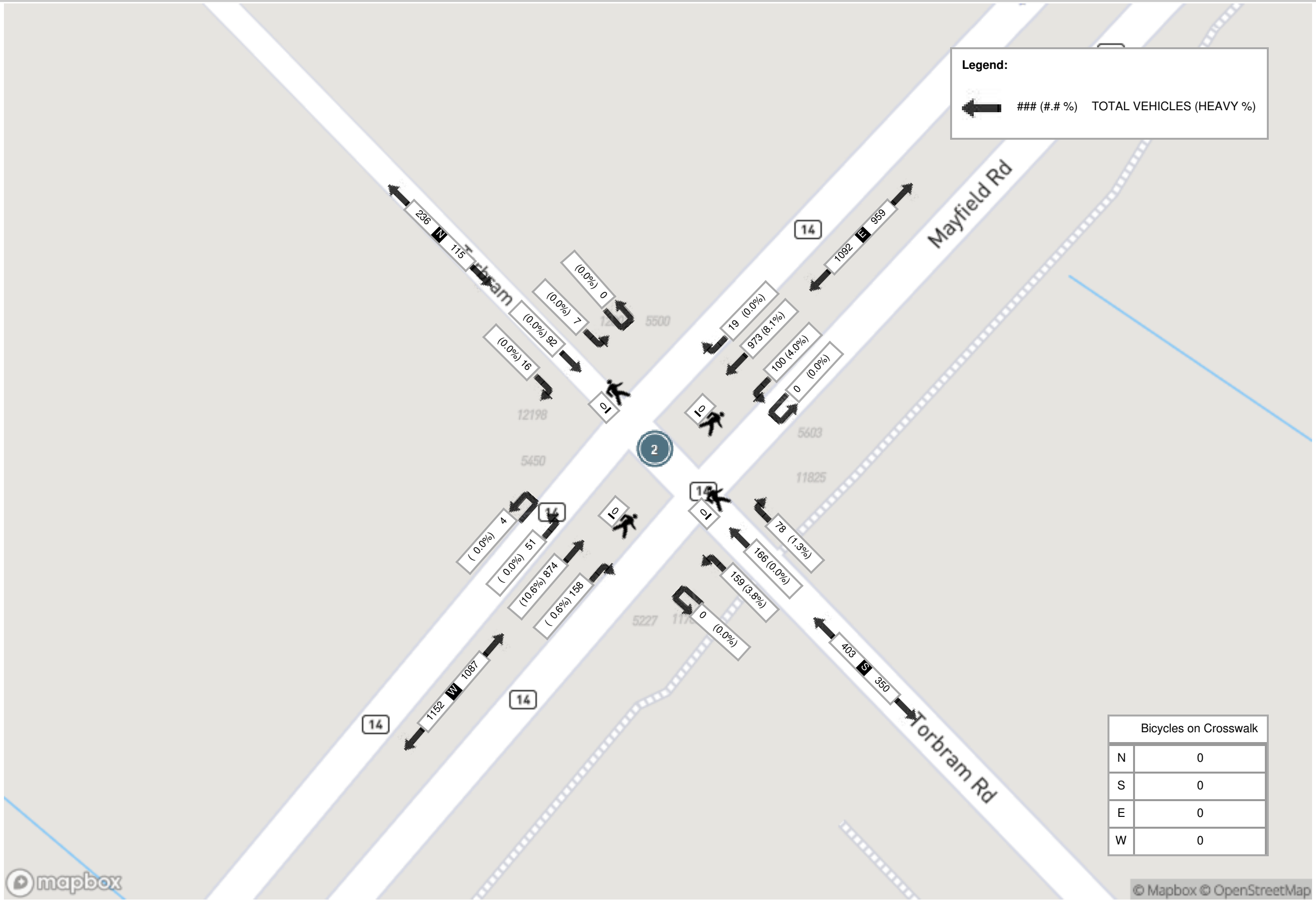
Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

**Peak Hour: 07:30 AM - 08:30 AM Weather: Overcast Clouds (7.52 °C)**



Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

**Peak Hour: 05:15 PM - 06:15 PM Weather: Mist (8.21 °C)**




| Bicycles on Crosswalk | |
|---|---|
| N | 0 |
| S | 0 |
| E | 0 |
| W | 0 |

Spectrum

Turning Movement Count
Location Name: OLD SCHOOL ROAD & BRAMLEA ROAD
Date: Wed, Nov 20, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

## Turning Movement Count (10 . OLD SCHOOL ROAD & BRAMLEA ROAD) MioID: 1250833

| Start Time | N Approach BRAMLEA ROAD | | | | | | E Approach OLD SCHOOL ROAD | | | | | | S Approach BRAMLEA ROAD | | | | | | W Approach OLD SCHOOL ROAD | | | | | | Int. Total (15 min) | Int. Total (1 hr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right N:W | Thru N:S | Left N:E | U-Turn N:N | Peds N: | Approach Total | Right E:N | Thru E:W | Left E:S | U-Turn E:E | Peds E: | Approach Total | Right S:E | Thru S:N | Left S:W | U-Turn S:S | Peds S: | Approach Total | Right W:S | Thru W:E | Left W:N | U-Turn W:W | Peds W: | Approach Total | | |
| 2024-11-20 07:00:00 | 1 | 9 | 1 | 0 | 0 | 11 | 0 | 14 | 1 | 0 | 0 | 15 | 2 | 5 | 1 | 0 | 0 | 8 | 3 | 44 | 2 | 0 | 0 | 49 | 83 | |
| 2024-11-20 07:15:00 | 6 | 16 | 1 | 0 | 0 | 23 | 0 | 22 | 2 | 0 | 0 | 24 | 2 | 13 | 1 | 0 | 0 | 16 | 6 | 60 | 4 | 0 | 0 | 70 | 133 | |
| 2024-11-20 07:30:00 | 7 | 40 | 2 | 0 | 0 | 49 | 0 | 27 | 7 | 0 | 0 | 34 | 1 | 13 | 5 | 0 | 0 | 19 | 15 | 62 | 4 | 0 | 0 | 81 | 183 | |
| 2024-11-20 07:45:00 | 5 | 62 | 1 | 0 | 0 | 68 | 1 | 23 | 6 | 0 | 0 | 30 | 5 | 9 | 5 | 0 | 0 | 19 | 45 | 73 | 0 | 0 | 0 | 118 | 235 | 634 |
| 2024-11-20 08:00:00 | 10 | 33 | 1 | 0 | 0 | 44 | 0 | 17 | 5 | 0 | 0 | 22 | 1 | 19 | 17 | 0 | 0 | 37 | 24 | 64 | 1 | 0 | 0 | 89 | 192 | 743 |
| 2024-11-20 08:15:00 | 3 | 17 | 2 | 0 | 0 | 22 | 3 | 23 | 6 | 0 | 0 | 32 | 4 | 8 | 7 | 0 | 0 | 19 | 9 | 58 | 1 | 0 | 0 | 68 | 141 | 751 |
| 2024-11-20 08:30:00 | 5 | 17 | 0 | 0 | 0 | 22 | 2 | 14 | 3 | 0 | 0 | 19 | 7 | 9 | 6 | 0 | 0 | 22 | 9 | 56 | 4 | 0 | 0 | 69 | 132 | 700 |
| 2024-11-20 08:45:00 | 7 | 17 | 1 | 0 | 0 | 25 | 0 | 17 | 0 | 0 | 0 | 17 | 5 | 15 | 4 | 0 | 0 | 24 | 4 | 57 | 2 | 0 | 0 | 63 | 129 | 594 |
| 2024-11-20 09:00:00 | 5 | 20 | 1 | 0 | 0 | 26 | 0 | 13 | 2 | 0 | 0 | 15 | 2 | 11 | 5 | 0 | 0 | 18 | 20 | 26 | 4 | 0 | 0 | 50 | 109 | 511 |
| 2024-11-20 09:15:00 | 6 | 16 | 1 | 0 | 0 | 23 | 1 | 20 | 1 | 0 | 0 | 22 | 2 | 14 | 9 | 0 | 0 | 25 | 11 | 24 | 5 | 0 | 0 | 40 | 110 | 480 |
| 2024-11-20 09:30:00 | 7 | 16 | 1 | 0 | 0 | 24 | 0 | 14 | 1 | 0 | 0 | 15 | 1 | 13 | 7 | 0 | 0 | 21 | 6 | 36 | 1 | 0 | 0 | 43 | 103 | 451 |
| 2024-11-20 09:45:00 | 2 | 5 | 0 | 0 | 0 | 7 | 1 | 17 | 1 | 0 | 0 | 19 | 1 | 11 | 2 | 0 | 0 | 14 | 3 | 23 | 2 | 0 | 0 | 28 | 68 | 390 |
| ***BREAK*** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2024-11-20 16:00:00 | 1 | 16 | 1 | 0 | 0 | 18 | 2 | 62 | 1 | 0 | 0 | 65 | 4 | 29 | 16 | 0 | 0 | 49 | 3 | 32 | 1 | 0 | 0 | 36 | 168 | |
| 2024-11-20 16:15:00 | 1 | 23 | 1 | 0 | 0 | 25 | 1 | 77 | 6 | 0 | 0 | 84 | 5 | 44 | 9 | 0 | 0 | 58 | 7 | 36 | 2 | 0 | 0 | 45 | 212 | |
| 2024-11-20 16:30:00 | 4 | 16 | 1 | 0 | 0 | 21 | 2 | 83 | 5 | 0 | 0 | 90 | 5 | 35 | 7 | 0 | 0 | 47 | 7 | 45 | 2 | 0 | 0 | 54 | 212 | |
| 2024-11-20 16:45:00 | 3 | 20 | 1 | 0 | 0 | 24 | 1 | 77 | 3 | 0 | 0 | 81 | 8 | 46 | 22 | 0 | 0 | 76 | 2 | 42 | 0 | 0 | 0 | 44 | 225 | 817 |
| 2024-11-20 17:00:00 | 4 | 12 | 0 | 0 | 0 | 16 | 0 | 82 | 6 | 0 | 0 | 88 | 9 | 41 | 10 | 0 | 0 | 60 | 3 | 36 | 5 | 0 | 0 | 44 | 208 | 857 |
| 2024-11-20 17:15:00 | 4 | 12 | 0 | 0 | 0 | 16 | 1 | 71 | 5 | 0 | 0 | 77 | 1 | 33 | 8 | 0 | 0 | 42 | 5 | 18 | 4 | 0 | 0 | 27 | 162 | 807 |
| 2024-11-20 17:30:00 | 3 | 15 | 2 | 0 | 0 | 20 | 3 | 94 | 4 | 0 | 0 | 101 | 5 | 30 | 10 | 0 | 0 | 45 | 4 | 39 | 0 | 0 | 0 | 43 | 209 | 804 |
| 2024-11-20 17:45:00 | 2 | 11 | 2 | 0 | 0 | 15 | 0 | 64 | 4 | 0 | 0 | 68 | 3 | 30 | 13 | 0 | 0 | 46 | 3 | 28 | 1 | 0 | 0 | 32 | 161 | 740 |
| 2024-11-20 18:00:00 | 3 | 15 | 0 | 0 | 0 | 18 | 1 | 75 | 2 | 0 | 0 | 78 | 3 | 26 | 9 | 0 | 0 | 38 | 4 | 31 | 4 | 0 | 0 | 39 | 173 | 705 |
| 2024-11-20 18:15:00 | 1 | 13 | 2 | 0 | 0 | 16 | 0 | 72 | 3 | 0 | 0 | 75 | 5 | 17 | 15 | 0 | 0 | 37 | 2 | 29 | 1 | 0 | 0 | 32 | 160 | 703 |
| 2024-11-20 18:30:00 | 1 | 16 | 1 | 0 | 0 | 18 | 0 | 72 | 6 | 0 | 0 | 78 | 2 | 18 | 5 | 0 | 0 | 25 | 5 | 20 | 1 | 0 | 0 | 26 | 147 | 641 |
| 2024-11-20 18:45:00 | 1 | 17 | 1 | 0 | 0 | 19 | 1 | 48 | 3 | 0 | 0 | 52 | 1 | 12 | 5 | 0 | 0 | 18 | 7 | 19 | 1 | 0 | 0 | 27 | 116 | 596 |
| **Grand Total** | 92 | 454 | 24 | 0 | 0 | 570 | 20 | 1098 | 83 | 0 | 0 | 1201 | 84 | 501 | 198 | 0 | 0 | 783 | 207 | 958 | 52 | 0 | 0 | 1217 | **3771** | - |
| **Approach%** | 16.1% | 79.6% | 4.2% | 0% | | - | 1.7% | 91.4% | 6.9% | 0% | | - | 10.7% | 64% | 25.3% | 0% | | - | 17% | 78.7% | 4.3% | 0% | | - | - | - |
| **Totals %** | 2.4% | 12% | 0.6% | 0% | | 15.1% | 0.5% | 29.1% | 2.2% | 0% | | 31.8% | 2.2% | 13.3% | 5.3% | 0% | | 20.8% | 5.5% | 25.4% | 1.4% | 0% | | 32.3% | - | - |
| **Heavy** | 14 | 11 | 4 | 0 | | - | 2 | 19 | 1 | 0 | | - | 0 | 21 | 4 | 0 | | - | 9 | 23 | 10 | 0 | | - | - | - |
| **Heavy %** | 15.2% | 2.4% | 16.7% | 0% | | - | 10% | 1.7% | 1.2% | 0% | | - | 0% | 4.2% | 2% | 0% | | - | 4.3% | 2.4% | 19.2% | 0% | | - | - | - |
| **Bicycles** | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - |
| **Bicycle %** | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - |

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

**Peak Hour: 07:30 AM - 08:30 AM      Weather: Overcast Clouds (7.52 °C)**

| Start Time | N Approach BRAMLEA ROAD | | | | | | E Approach OLD SCHOOL ROAD | | | | | | S Approach BRAMLEA ROAD | | | | | | W Approach OLD SCHOOL ROAD | | | | | | Int. Total (15 min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | |
| 2024-11-20 07:30:00 | 7 | 40 | 2 | 0 | 0 | 49 | 0 | 27 | 7 | 0 | 0 | 34 | 1 | 13 | 5 | 0 | 0 | 19 | 15 | 62 | 4 | 0 | 0 | 81 | 183 |
| 2024-11-20 07:45:00 | 5 | 62 | 1 | 0 | 0 | 68 | 1 | 23 | 6 | 0 | 0 | 30 | 5 | 9 | 5 | 0 | 0 | 19 | 45 | 73 | 0 | 0 | 0 | 118 | 235 |
| 2024-11-20 08:00:00 | 10 | 33 | 1 | 0 | 0 | 44 | 0 | 17 | 5 | 0 | 0 | 22 | 1 | 19 | 17 | 0 | 0 | 37 | 24 | 64 | 1 | 0 | 0 | 89 | 192 |
| 2024-11-20 08:15:00 | 3 | 17 | 2 | 0 | 0 | 22 | 3 | 23 | 6 | 0 | 0 | 32 | 4 | 8 | 7 | 0 | 0 | 19 | 9 | 58 | 1 | 0 | 0 | 68 | 141 |
| **Grand Total** | 25 | 152 | 6 | 0 | 0 | 183 | 4 | 90 | 24 | 0 | 0 | 118 | 11 | 49 | 34 | 0 | 0 | 94 | 93 | 257 | 6 | 0 | 0 | 356 | **751** |
| **Approach%** | 13.7% | 83.1% | 3.3% | 0% | | - | 3.4% | 76.3% | 20.3% | 0% | | - | 11.7% | 52.1% | 36.2% | 0% | | - | 26.1% | 72.2% | 1.7% | 0% | | - | - |
| **Totals %** | 3.3% | 20.2% | 0.8% | 0% | | 24.4% | 0.5% | 12% | 3.2% | 0% | | 15.7% | 1.5% | 6.5% | 4.5% | 0% | | 12.5% | 12.4% | 34.2% | 0.8% | 0% | | 47.4% | - |
| **PHF** | 0.63 | 0.61 | 0.75 | 0 | | 0.67 | 0.33 | 0.83 | 0.86 | 0 | | 0.87 | 0.55 | 0.64 | 0.5 | 0 | | 0.64 | 0.52 | 0.88 | 0.38 | 0 | | 0.75 | 0.8 |
| **Heavy** | 4 | 4 | 1 | 0 | | 9 | 1 | 2 | 1 | 0 | | 4 | 0 | 7 | 1 | 0 | | 8 | 5 | 8 | 1 | 0 | | 14 | 35 |
| **Heavy %** | 16% | 2.6% | 16.7% | 0% | | 4.9% | 25% | 2.2% | 4.2% | 0% | | 3.4% | 0% | 14.3% | 2.9% | 0% | | 8.5% | 5.4% | 3.1% | 16.7% | 0% | | 3.9% | 4.7% |
| **Lights** | 21 | 148 | 5 | 0 | | 174 | 3 | 88 | 23 | 0 | | 114 | 11 | 42 | 33 | 0 | | 86 | 88 | 249 | 5 | 0 | | 342 | 716 |
| **Lights %** | 84% | 97.4% | 83.3% | 0% | | 95.1% | 75% | 97.8% | 95.8% | 0% | | 96.6% | 100% | 85.7% | 97.1% | 0% | | 91.5% | 94.6% | 96.9% | 83.3% | 0% | | 96.1% | 95.3% |
| **Single-Unit Trucks** | 2 | 0 | 0 | 0 | | 2 | 0 | 1 | 0 | 0 | | 1 | 0 | 0 | 1 | 0 | | 1 | 0 | 3 | 0 | 0 | | 3 | 7 |
| **Single-Unit Trucks %** | 8% | 0% | 0% | 0% | | 1.1% | 0% | 1.1% | 0% | 0% | | 0.8% | 0% | 0% | 2.9% | 0% | | 1.1% | 0% | 1.2% | 0% | 0% | | 0.8% | 0.9% |
| **Buses** | 2 | 4 | 1 | 0 | | 7 | 1 | 1 | 1 | 0 | | 3 | 0 | 7 | 0 | 0 | | 7 | 3 | 5 | 1 | 0 | | 9 | 26 |
| **Buses %** | 8% | 2.6% | 16.7% | 0% | | 3.8% | 25% | 1.1% | 4.2% | 0% | | 2.5% | 0% | 14.3% | 0% | 0% | | 7.4% | 3.2% | 1.9% | 16.7% | 0% | | 2.5% | 3.5% |
| **Articulated Trucks** | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 2 | 0 | 0 | 0 | | 2 | 2 |
| **Articulated Trucks %** | 0% | 0% | 0% | 0% | | 0% | 0% | 0% | 0% | 0% | | 0% | 0% | 0% | 0% | 0% | | 0% | 2.2% | 0% | 0% | 0% | | 0.6% | 0.3% |
| **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% |

Crozier & Associates
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TORONTO ONTARIO, M5B 1M4
CANADA

**Peak Hour: 04:15 PM - 05:15 PM Weather: Mist (8.21 °C)**

| Start Time | N Approach BRAMLEA ROAD | | | | | | E Approach OLD SCHOOL ROAD | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total |
| 2024-11-20 16:15:00 | 1 | 23 | 1 | 0 | 0 | 25 | 1 | 77 | 6 | 0 | 0 | 84 |
| 2024-11-20 16:30:00 | 4 | 16 | 1 | 0 | 0 | 21 | 2 | 83 | 5 | 0 | 0 | 90 |
| 2024-11-20 16:45:00 | 3 | 20 | 1 | 0 | 0 | 24 | 1 | 77 | 3 | 0 | 0 | 81 |
| 2024-11-20 17:00:00 | 4 | 12 | 0 | 0 | 0 | 16 | 0 | 82 | 6 | 0 | 0 | 88 |
| **Grand Total** | 12 | 71 | 3 | 0 | 0 | 86 | 4 | 319 | 20 | 0 | 0 | 343 |
| **Approach%** | 14% | 82.6% | 3.5% | 0% | | - | 1.2% | 93% | 5.8% | 0% | | - |
| **Totals %** | 1.4% | 8.3% | 0.4% | 0% | | 10% | 0.5% | 37.2% | 2.3% | 0% | | 40% |
| **PHF** | 0.75 | 0.77 | 0.75 | 0 | | 0.86 | 0.5 | 0.96 | 0.83 | 0 | | 0.95 |
| **Heavy** | 1 | 2 | 1 | 0 | | 4 | 0 | 4 | 0 | 0 | | 4 |
| **Heavy %** | 8.3% | 2.8% | 33.3% | 0% | | 4.7% | 0% | 1.3% | 0% | 0% | | 1.2% |
| **Lights** | 11 | 69 | 2 | 0 | | 82 | 4 | 315 | 20 | 0 | | 339 |
| **Lights %** | 91.7% | 97.2% | 66.7% | 0% | | 95.3% | 100% | 98.7% | 100% | 0% | | 98.8% |
| **Single-Unit Trucks** | 0 | 0 | 0 | 0 | | 0 | 0 | 2 | 0 | 0 | | 2 |
| **Single-Unit Trucks %** | 0% | 0% | 0% | 0% | | 0% | 0% | 0.6% | 0% | 0% | | 0.6% |
| **Buses** | 1 | 2 | 1 | 0 | | 4 | 0 | 2 | 0 | 0 | | 2 |
| **Buses %** | 8.3% | 2.8% | 33.3% | 0% | | 4.7% | 0% | 0.6% | 0% | 0% | | 0.6% |
| **Articulated Trucks** | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 |
| **Articulated Trucks %** | 0% | 0% | 0% | 0% | | 0% | 0% | 0% | 0% | 0% | | 0% |
| **Bicycles on Road** | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 |
| **Bicycles on Road %** | 0% | 0% | 0% | 0% | | 0% | 0% | 0% | 0% | 0% | | 0% |

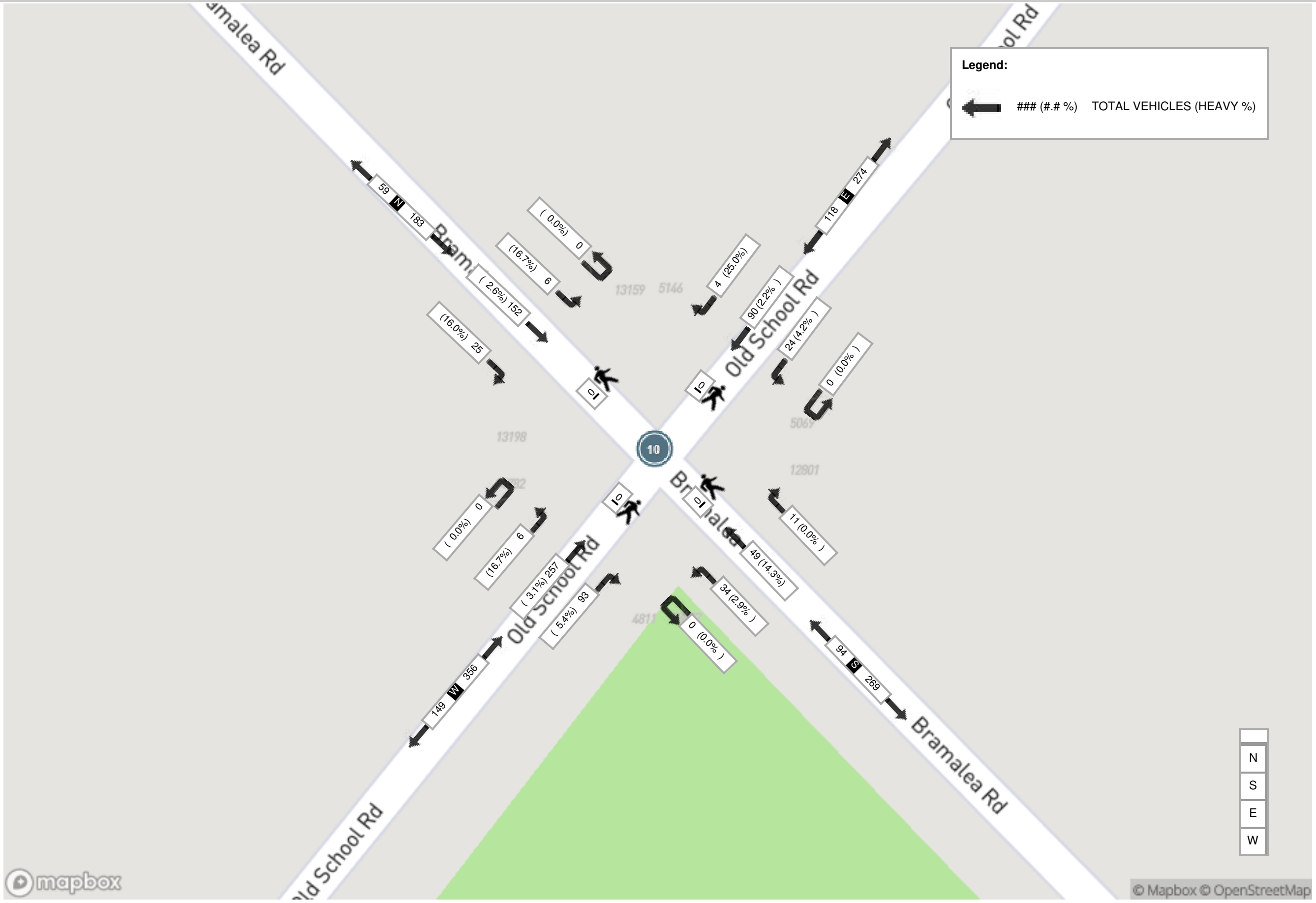
| Start Time | S Approach BRAMLEA ROAD | | | | | | W Approach OLD SCHOOL ROAD | | | | | | Int. Total (15 min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | |
| 2024-11-20 16:15:00 | 5 | 44 | 9 | 0 | 0 | 58 | 7 | 36 | 2 | 0 | 0 | 45 | 212 |
| 2024-11-20 16:30:00 | 5 | 35 | 7 | 0 | 0 | 47 | 7 | 45 | 2 | 0 | 0 | 54 | 212 |
| 2024-11-20 16:45:00 | 8 | 46 | 22 | 0 | 0 | 76 | 2 | 42 | 0 | 0 | 0 | 44 | 225 |
| 2024-11-20 17:00:00 | 9 | 41 | 10 | 0 | 0 | 60 | 3 | 36 | 5 | 0 | 0 | 44 | 208 |
| **Grand Total** | 27 | 166 | 48 | 0 | 0 | 241 | 19 | 159 | 9 | 0 | 0 | 187 | **857** |
| **Approach%** | 11.2% | 68.9% | 19.9% | 0% | | - | 10.2% | 85% | 4.8% | 0% | | - | - |
| **Totals %** | 3.2% | 19.4% | 5.6% | 0% | | 28.1% | 2.2% | 18.6% | 1.1% | 0% | | 21.8% | - |
| **PHF** | 0.75 | 0.9 | 0.55 | 0 | | 0.79 | 0.68 | 0.88 | 0.45 | 0 | | 0.87 | 0.95 |
| **Heavy** | 0 | 2 | 0 | 0 | | 2 | 1 | 4 | 2 | 0 | | 7 | 17 |
| **Heavy %** | 0% | 1.2% | 0% | 0% | | 0.8% | 5.3% | 2.5% | 22.2% | 0% | | 3.7% | 2% |
| **Lights** | 27 | 164 | 48 | 0 | | 239 | 18 | 155 | 7 | 0 | | 180 | 840 |
| **Lights %** | 100% | 98.8% | 100% | 0% | | 99.2% | 94.7% | 97.5% | 77.8% | 0% | | 96.3% | 98% |
| **Single-Unit Trucks** | 0 | 0 | 0 | 0 | | 0 | 0 | 2 | 0 | 0 | | 2 | 4 |
| **Single-Unit Trucks %** | 0% | 0% | 0% | 0% | | 0% | 0% | 1.3% | 0% | 0% | | 1.1% | 0.5% |
| **Buses** | 0 | 2 | 0 | 0 | | 2 | 1 | 2 | 2 | 0 | | 5 | 13 |
| **Buses %** | 0% | 1.2% | 0% | 0% | | 0.8% | 5.3% | 1.3% | 22.2% | 0% | | 2.7% | 1.5% |
| **Articulated Trucks** | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 |
| **Articulated Trucks %** | 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 |
| **Bicycles on Road %** | 0% | 0% | 0% | 0% | | 0% | 0% | 0% | 0% | 0% | | 0% | 0% |

Spectrum

Turning Movement Count
Location Name: OLD SCHOOL ROAD & BRAMLEA ROAD
Date: Wed, Nov 20, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

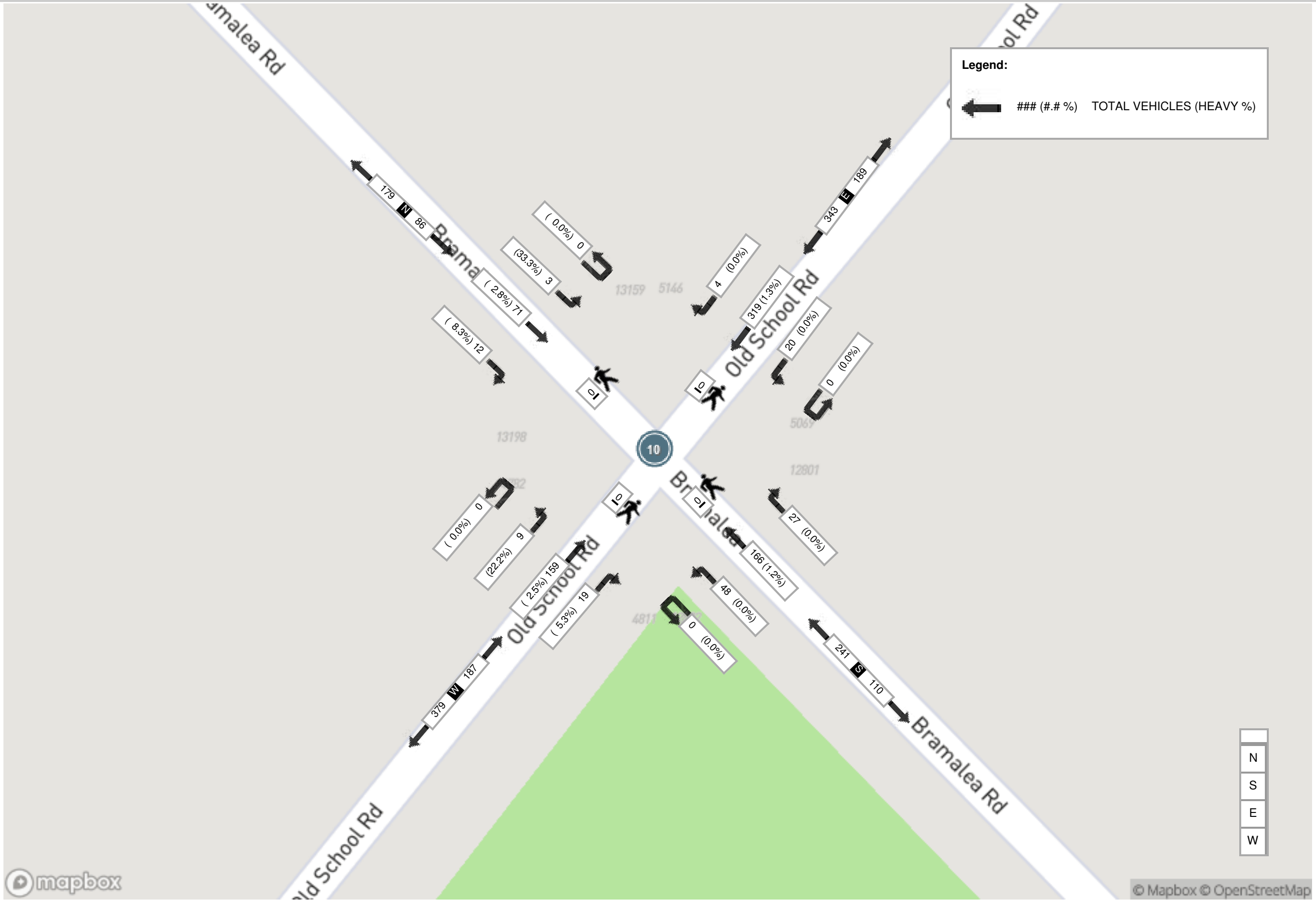
**Peak Hour: 07:30 AM - 08:30 AM Weather: Overcast Clouds (7.52 °C)**



Turning Movement Count
Location Name: OLD SCHOOL ROAD & BRAMLEA ROAD
Date: Wed, Nov 20, 2024 Deployment Lead: Rey Fernandez

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

**Peak Hour: 04:15 PM - 05:15 PM Weather: Mist (8.21 °C)**



Spectrum

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

## Turning Movement Count (3 . TORBRAM ROAD & OLD SCHOOL ROAD) MioID: 1250776

| Start Time | N Approach TORBRAM ROAD | | | | | | E Approach OLD SCHOOL ROAD | | | | | | S Approach TORBRAM ROAD | | | | | | W Approach OLD SCHOOL ROAD | | | | | | Int. Total (15 min) | Int. Total (1 hr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right N:W | Thru N:S | Left N:E | U-Turn N:N | Peds N: | Approach Total | Right E:N | Thru E:W | Left E:S | U-Turn E:E | Peds E: | Approach Total | Right S:E | Thru S:N | Left S:W | U-Turn S:S | Peds S: | Approach Total | Right W:S | Thru W:E | Left W:N | U-Turn W:W | Peds W: | Approach Total | | |
| 2024-11-20 07:00:00 | 2 | 40 | 0 | 0 | 0 | 42 | 0 | 15 | 2 | 0 | 0 | 17 | 4 | 6 | 1 | 0 | 0 | 11 | 8 | 36 | 1 | 0 | 0 | 45 | 115 | |
| 2024-11-20 07:15:00 | 1 | 45 | 1 | 0 | 0 | 47 | 0 | 28 | 0 | 0 | 0 | 28 | 3 | 11 | 3 | 0 | 0 | 17 | 8 | 50 | 1 | 0 | 0 | 59 | 151 | |
| 2024-11-20 07:30:00 | 3 | 77 | 0 | 0 | 0 | 80 | 0 | 18 | 1 | 0 | 0 | 19 | 0 | 16 | 3 | 0 | 0 | 19 | 15 | 53 | 0 | 0 | 0 | 68 | 186 | |
| 2024-11-20 07:45:00 | 7 | 76 | 0 | 0 | 0 | 83 | 1 | 23 | 0 | 0 | 0 | 24 | 3 | 12 | 2 | 0 | 0 | 17 | 16 | 59 | 1 | 0 | 0 | 76 | 200 | 652 |
| 2024-11-20 08:00:00 | 4 | 59 | 1 | 0 | 0 | 64 | 1 | 13 | 3 | 0 | 0 | 17 | 1 | 14 | 1 | 0 | 0 | 16 | 13 | 49 | 2 | 0 | 0 | 64 | 161 | 698 |
| 2024-11-20 08:15:00 | 2 | 63 | 3 | 0 | 0 | 68 | 0 | 20 | 2 | 0 | 0 | 22 | 5 | 17 | 6 | 0 | 0 | 28 | 10 | 53 | 1 | 0 | 0 | 64 | 182 | 729 |
| 2024-11-20 08:30:00 | 3 | 38 | 2 | 0 | 0 | 43 | 0 | 13 | 0 | 0 | 0 | 13 | 5 | 14 | 2 | 0 | 0 | 21 | 12 | 47 | 3 | 0 | 0 | 62 | 139 | 682 |
| 2024-11-20 08:45:00 | 2 | 27 | 0 | 0 | 0 | 29 | 0 | 16 | 0 | 0 | 0 | 16 | 2 | 18 | 3 | 0 | 0 | 23 | 10 | 57 | 3 | 0 | 0 | 70 | 138 | 620 |
| 2024-11-20 09:00:00 | 0 | 35 | 2 | 0 | 0 | 37 | 0 | 11 | 1 | 0 | 0 | 12 | 3 | 17 | 1 | 0 | 0 | 21 | 1 | 30 | 0 | 0 | 0 | 31 | 101 | 560 |
| 2024-11-20 09:15:00 | 2 | 30 | 1 | 0 | 0 | 33 | 0 | 16 | 2 | 0 | 0 | 18 | 0 | 13 | 3 | 0 | 0 | 16 | 3 | 22 | 2 | 0 | 0 | 27 | 94 | 472 |
| 2024-11-20 09:30:00 | 0 | 25 | 2 | 0 | 0 | 27 | 0 | 13 | 1 | 0 | 0 | 14 | 3 | 11 | 2 | 0 | 0 | 16 | 5 | 31 | 1 | 0 | 0 | 37 | 94 | 427 |
| 2024-11-20 09:45:00 | 0 | 20 | 2 | 0 | 0 | 22 | 0 | 15 | 2 | 0 | 0 | 17 | 3 | 9 | 2 | 0 | 0 | 14 | 2 | 24 | 2 | 0 | 0 | 28 | 81 | 370 |
| ***BREAK*** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2024-11-20 16:00:00 | 1 | 18 | 1 | 0 | 0 | 20 | 1 | 64 | 6 | 0 | 0 | 71 | 2 | 61 | 9 | 0 | 0 | 72 | 3 | 30 | 3 | 0 | 0 | 36 | 199 | |
| 2024-11-20 16:15:00 | 4 | 20 | 1 | 0 | 0 | 25 | 0 | 71 | 2 | 0 | 0 | 73 | 1 | 60 | 8 | 0 | 0 | 69 | 5 | 29 | 6 | 0 | 0 | 40 | 207 | |
| 2024-11-20 16:30:00 | 1 | 22 | 0 | 0 | 0 | 23 | 0 | 82 | 5 | 0 | 0 | 87 | 7 | 60 | 6 | 0 | 0 | 73 | 4 | 41 | 2 | 0 | 0 | 47 | 230 | |
| 2024-11-20 16:45:00 | 3 | 28 | 0 | 0 | 0 | 31 | 3 | 64 | 5 | 0 | 0 | 72 | 4 | 72 | 9 | 0 | 0 | 85 | 3 | 41 | 3 | 0 | 0 | 47 | 235 | 871 |
| 2024-11-20 17:00:00 | 4 | 21 | 0 | 0 | 0 | 25 | 0 | 74 | 4 | 0 | 0 | 78 | 6 | 51 | 13 | 0 | 0 | 70 | 4 | 45 | 3 | 0 | 0 | 52 | 225 | 897 |
| 2024-11-20 17:15:00 | 1 | 21 | 0 | 0 | 0 | 22 | 1 | 64 | 2 | 0 | 0 | 67 | 6 | 54 | 15 | 0 | 0 | 75 | 1 | 18 | 2 | 0 | 0 | 21 | 185 | 875 |
| 2024-11-20 17:30:00 | 0 | 22 | 0 | 0 | 0 | 22 | 1 | 81 | 2 | 0 | 0 | 84 | 1 | 48 | 13 | 0 | 0 | 62 | 6 | 35 | 2 | 0 | 0 | 43 | 211 | 856 |
| 2024-11-20 17:45:00 | 1 | 15 | 1 | 0 | 0 | 17 | 1 | 58 | 2 | 0 | 0 | 61 | 3 | 41 | 11 | 0 | 0 | 55 | 6 | 24 | 3 | 0 | 0 | 33 | 166 | 787 |
| 2024-11-20 18:00:00 | 1 | 19 | 0 | 0 | 0 | 20 | 0 | 69 | 0 | 0 | 0 | 69 | 2 | 33 | 11 | 0 | 0 | 46 | 4 | 31 | 2 | 0 | 0 | 37 | 172 | 734 |
| 2024-11-20 18:15:00 | 0 | 17 | 1 | 0 | 0 | 18 | 2 | 66 | 5 | 0 | 0 | 73 | 0 | 28 | 11 | 0 | 0 | 39 | 2 | 33 | 3 | 0 | 0 | 38 | 168 | 717 |
| 2024-11-20 18:30:00 | 2 | 20 | 1 | 0 | 0 | 23 | 0 | 63 | 2 | 0 | 0 | 65 | 0 | 14 | 7 | 0 | 0 | 21 | 2 | 18 | 2 | 0 | 0 | 22 | 131 | 637 |
| 2024-11-20 18:45:00 | 1 | 9 | 0 | 0 | 0 | 10 | 0 | 44 | 2 | 0 | 0 | 46 | 1 | 22 | 4 | 0 | 0 | 27 | 4 | 18 | 0 | 0 | 0 | 22 | 105 | 576 |
| **Grand Total** | 45 | 767 | 19 | 0 | 0 | 831 | 11 | 1001 | 51 | 0 | 0 | 1063 | 65 | 702 | 146 | 0 | 0 | 913 | 147 | 874 | 48 | 0 | 0 | 1069 | **3876** | - |
| **Approach%** | 5.4% | 92.3% | 2.3% | 0% | | - | 1% | 94.2% | 4.8% | 0% | | - | 7.1% | 76.9% | 16% | 0% | | - | 13.8% | 81.8% | 4.5% | 0% | | - | - | - |
| **Totals %** | 1.2% | 19.8% | 0.5% | 0% | | 21.4% | 0.3% | 25.8% | 1.3% | 0% | | 27.4% | 1.7% | 18.1% | 3.8% | 0% | | 23.6% | 3.8% | 22.5% | 1.2% | 0% | | 27.6% | - | - |
| **Heavy** | 1 | 13 | 3 | 0 | | - | 1 | 18 | 0 | 0 | | - | 2 | 5 | 4 | 0 | | - | 5 | 23 | 1 | 0 | | - | - | - |
| **Heavy %** | 2.2% | 1.7% | 15.8% | 0% | | - | 9.1% | 1.8% | 0% | 0% | | - | 3.1% | 0.7% | 2.7% | 0% | | - | 3.4% | 2.6% | 2.1% | 0% | | - | - | - |
| **Bicycles** | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - |
| **Bicycle %** | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - |

Crozier & Associates
SUITE 301 211 YONGE
STREET
TORONTO ONTARIO, M5B 1M4
CANADA

**Peak Hour: 07:30 AM - 08:30 AM      Weather: Overcast Clouds (7.52 °C)**

| Start Time | N Approach TORBRAM ROAD | | | | | | E Approach OLD SCHOOL ROAD | | | | | | S Approach TORBRAM ROAD | | | | | | W Approach OLD SCHOOL ROAD | | | | | | Int. Total (15 min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | |
| 2024-11-20 07:30:00 | 3 | 77 | 0 | 0 | 0 | 80 | 0 | 18 | 1 | 0 | 0 | 19 | 0 | 16 | 3 | 0 | 0 | 19 | 15 | 53 | 0 | 0 | 0 | 68 | 186 |
| 2024-11-20 07:45:00 | 7 | 76 | 0 | 0 | 0 | 83 | 1 | 23 | 0 | 0 | 0 | 24 | 3 | 12 | 2 | 0 | 0 | 17 | 16 | 59 | 1 | 0 | 0 | 76 | 200 |
| 2024-11-20 08:00:00 | 4 | 59 | 1 | 0 | 0 | 64 | 1 | 13 | 3 | 0 | 0 | 17 | 1 | 14 | 1 | 0 | 0 | 16 | 13 | 49 | 2 | 0 | 0 | 64 | 161 |
| 2024-11-20 08:15:00 | 2 | 63 | 3 | 0 | 0 | 68 | 0 | 20 | 2 | 0 | 0 | 22 | 5 | 17 | 6 | 0 | 0 | 28 | 10 | 53 | 1 | 0 | 0 | 64 | 182 |
| **Grand Total** | 16 | 275 | 4 | 0 | 0 | 295 | 2 | 74 | 6 | 0 | 0 | 82 | 9 | 59 | 12 | 0 | 0 | 80 | 54 | 214 | 4 | 0 | 0 | 272 | **729** |
| **Approach%** | 5.4% | 93.2% | 1.4% | 0% | | - | 2.4% | 90.2% | 7.3% | 0% | | - | 11.3% | 73.8% | 15% | 0% | | - | 19.9% | 78.7% | 1.5% | 0% | | - | - |
| **Totals %** | 2.2% | 37.7% | 0.5% | 0% | | 40.5% | 0.3% | 10.2% | 0.8% | 0% | | 11.2% | 1.2% | 8.1% | 1.6% | 0% | | 11% | 7.4% | 29.4% | 0.5% | 0% | | 37.3% | - |
| **PHF** | 0.57 | 0.89 | 0.33 | 0 | | 0.89 | 0.5 | 0.8 | 0.5 | 0 | | 0.85 | 0.45 | 0.87 | 0.5 | 0 | | 0.71 | 0.84 | 0.91 | 0.5 | 0 | | 0.89 | 0.91 |
| **Heavy** | 0 | 1 | 1 | 0 | | 2 | 0 | 1 | 0 | 0 | | 1 | 1 | 1 | 2 | 0 | | 4 | 4 | 4 | 0 | 0 | | 8 | 15 |
| **Heavy %** | 0% | 0.4% | 25% | 0% | | 0.7% | 0% | 1.4% | 0% | 0% | | 1.2% | 11.1% | 1.7% | 16.7% | 0% | | 5% | 7.4% | 1.9% | 0% | 0% | | 2.9% | 2.1% |
| **Lights** | 16 | 274 | 3 | 0 | | 293 | 2 | 73 | 6 | 0 | | 81 | 8 | 58 | 10 | 0 | | 76 | 50 | 210 | 4 | 0 | | 264 | 714 |
| **Lights %** | 100% | 99.6% | 75% | 0% | | 99.3% | 100% | 98.6% | 100% | 0% | | 98.8% | 88.9% | 98.3% | 83.3% | 0% | | 95% | 92.6% | 98.1% | 100% | 0% | | 97.1% | 97.9% |
| **Single-Unit Trucks** | 0 | 0 | 0 | 0 | | 0 | 0 | 1 | 0 | 0 | | 1 | 0 | 0 | 0 | 0 | | 0 | 1 | 1 | 0 | 0 | | 2 | 3 |
| **Single-Unit Trucks %** | 0% | 0% | 0% | 0% | | 0% | 0% | 1.4% | 0% | 0% | | 1.2% | 0% | 0% | 0% | 0% | | 0% | 1.9% | 0.5% | 0% | 0% | | 0.7% | 0.4% |
| **Buses** | 0 | 1 | 1 | 0 | | 2 | 0 | 0 | 0 | 0 | | 0 | 1 | 1 | 2 | 0 | | 4 | 2 | 2 | 0 | 0 | | 4 | 10 |
| **Buses %** | 0% | 0.4% | 25% | 0% | | 0.7% | 0% | 0% | 0% | 0% | | 0% | 11.1% | 1.7% | 16.7% | 0% | | 5% | 3.7% | 0.9% | 0% | 0% | | 1.5% | 1.4% |
| **Articulated Trucks** | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 1 | 1 | 0 | 0 | | 2 | 2 |
| **Articulated Trucks %** | 0% | 0% | 0% | 0% | | 0% | 0% | 0% | 0% | 0% | | 0% | 0% | 0% | 0% | 0% | | 0% | 1.9% | 0.5% | 0% | 0% | | 0.7% | 0.3% |

Crozier & Associates
SUITE 301 211 YONGE STREET
TORONTO ONTARIO, M5B 1M4
CANADA

**Peak Hour: 04:15 PM - 05:15 PM Weather: Mist (8.21 °C)**

| Start Time | N Approach TORBRAM ROAD | | | | | | E Approach OLD SCHOOL ROAD | | | | | | S Approach TORBRAM ROAD | | | | | | W Approach OLD SCHOOL ROAD | | | | | | Int. Total (15 min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | Right | Thru | Left | U-Turn | Peds | Approach Total | |
| 2024-11-20 16:15:00 | 4 | 20 | 1 | 0 | 0 | 25 | 0 | 71 | 2 | 0 | 0 | 73 | 1 | 60 | 8 | 0 | 0 | 69 | 5 | 29 | 6 | 0 | 0 | 40 | 207 |
| 2024-11-20 16:30:00 | 1 | 22 | 0 | 0 | 0 | 23 | 0 | 82 | 5 | 0 | 0 | 87 | 7 | 60 | 6 | 0 | 0 | 73 | 4 | 41 | 2 | 0 | 0 | 47 | 230 |
| 2024-11-20 16:45:00 | 3 | 28 | 0 | 0 | 0 | 31 | 3 | 64 | 5 | 0 | 0 | 72 | 4 | 72 | 9 | 0 | 0 | 85 | 3 | 41 | 3 | 0 | 0 | 47 | 235 |
| 2024-11-20 17:00:00 | 4 | 21 | 0 | 0 | 0 | 25 | 0 | 74 | 4 | 0 | 0 | 78 | 6 | 51 | 13 | 0 | 0 | 70 | 4 | 45 | 3 | 0 | 0 | 52 | 225 |
| **Grand Total** | 12 | 91 | 1 | 0 | 0 | 104 | 3 | 291 | 16 | 0 | 0 | 310 | 18 | 243 | 36 | 0 | 0 | 297 | 16 | 156 | 14 | 0 | 0 | 186 | **897** |
| **Approach%** | 11.5% | 87.5% | 1% | 0% | | - | 1% | 93.9% | 5.2% | 0% | | - | 6.1% | 81.8% | 12.1% | 0% | | - | 8.6% | 83.9% | 7.5% | 0% | | - | - |
| **Totals %** | 1.3% | 10.1% | 0.1% | 0% | | 11.6% | 0.3% | 32.4% | 1.8% | 0% | | 34.6% | 2% | 27.1% | 4% | 0% | | 33.1% | 1.8% | 17.4% | 1.6% | 0% | | 20.7% | - |
| **PHF** | 0.75 | 0.81 | 0.25 | 0 | | 0.84 | 0.25 | 0.89 | 0.8 | 0 | | 0.89 | 0.64 | 0.84 | 0.69 | 0 | | 0.87 | 0.8 | 0.87 | 0.58 | 0 | | 0.89 | 0.95 |
| **Heavy** | 0 | 3 | 1 | 0 | | 4 | 0 | 4 | 0 | 0 | | 4 | 1 | 0 | 0 | 0 | | 1 | 0 | 5 | 0 | 0 | | 5 | 14 |
| **Heavy %** | 0% | 3.3% | 100% | 0% | | 3.8% | 0% | 1.4% | 0% | 0% | | 1.3% | 5.6% | 0% | 0% | 0% | | 0.3% | 0% | 3.2% | 0% | 0% | | 2.7% | 1.6% |
| **Lights** | 12 | 88 | 0 | 0 | | 100 | 3 | 287 | 16 | 0 | | 306 | 17 | 243 | 36 | 0 | | 296 | 16 | 151 | 14 | 0 | | 181 | 883 |
| **Lights %** | 100% | 96.7% | 0% | 0% | | 96.2% | 100% | 98.6% | 100% | 0% | | 98.7% | 94.4% | 100% | 100% | 0% | | 99.7% | 100% | 96.8% | 100% | 0% | | 97.3% | 98.4% |
| **Single-Unit Trucks** | 0 | 0 | 0 | 0 | | 0 | 0 | 2 | 0 | 0 | | 2 | 0 | 0 | 0 | 0 | | 0 | 0 | 2 | 0 | 0 | | 2 | 4 |
| **Single-Unit Trucks %** | 0% | 0% | 0% | 0% | | 0% | 0% | 0.7% | 0% | 0% | | 0.6% | 0% | 0% | 0% | 0% | | 0% | 0% | 1.3% | 0% | 0% | | 1.1% | 0.4% |
| **Buses** | 0 | 3 | 1 | 0 | | 4 | 0 | 2 | 0 | 0 | | 2 | 1 | 0 | 0 | 0 | | 1 | 0 | 3 | 0 | 0 | | 3 | 10 |
| **Buses %** | 0% | 3.3% | 100% | 0% | | 3.8% | 0% | 0.7% | 0% | 0% | | 0.6% | 5.6% | 0% | 0% | 0% | | 0.3% | 0% | 1.9% | 0% | 0% | | 1.6% | 1.1% |
| **Articulated Trucks** | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 |
| **Articulated Trucks %** | 0% | 0% | 0% | 0% | | 0% | 0% | 0% | 0% | 0% | | 0% | 0% | 0% | 0% | 0% | | 0% | 0% | 0% | 0% | 0% | | 0% | 0% |

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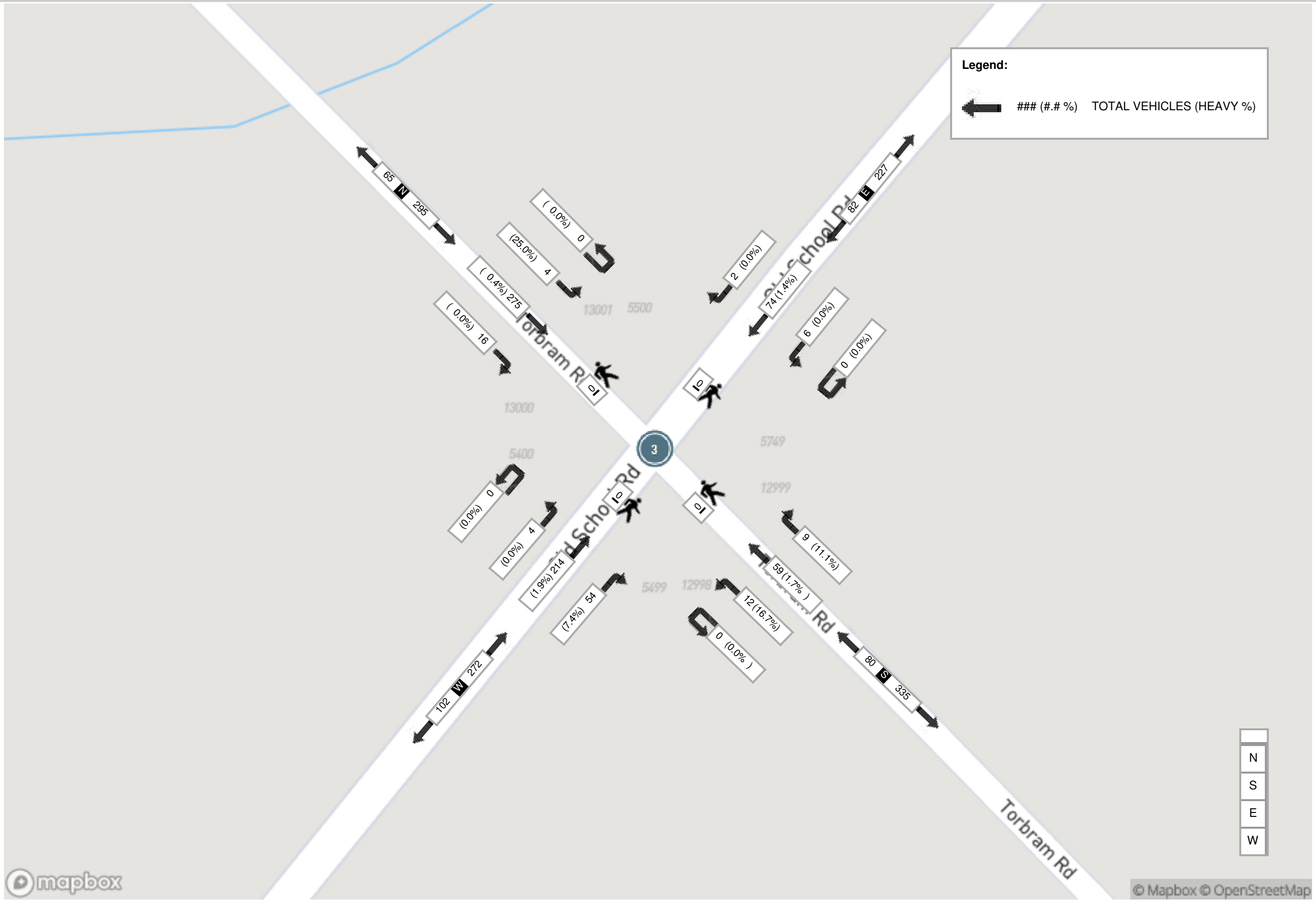
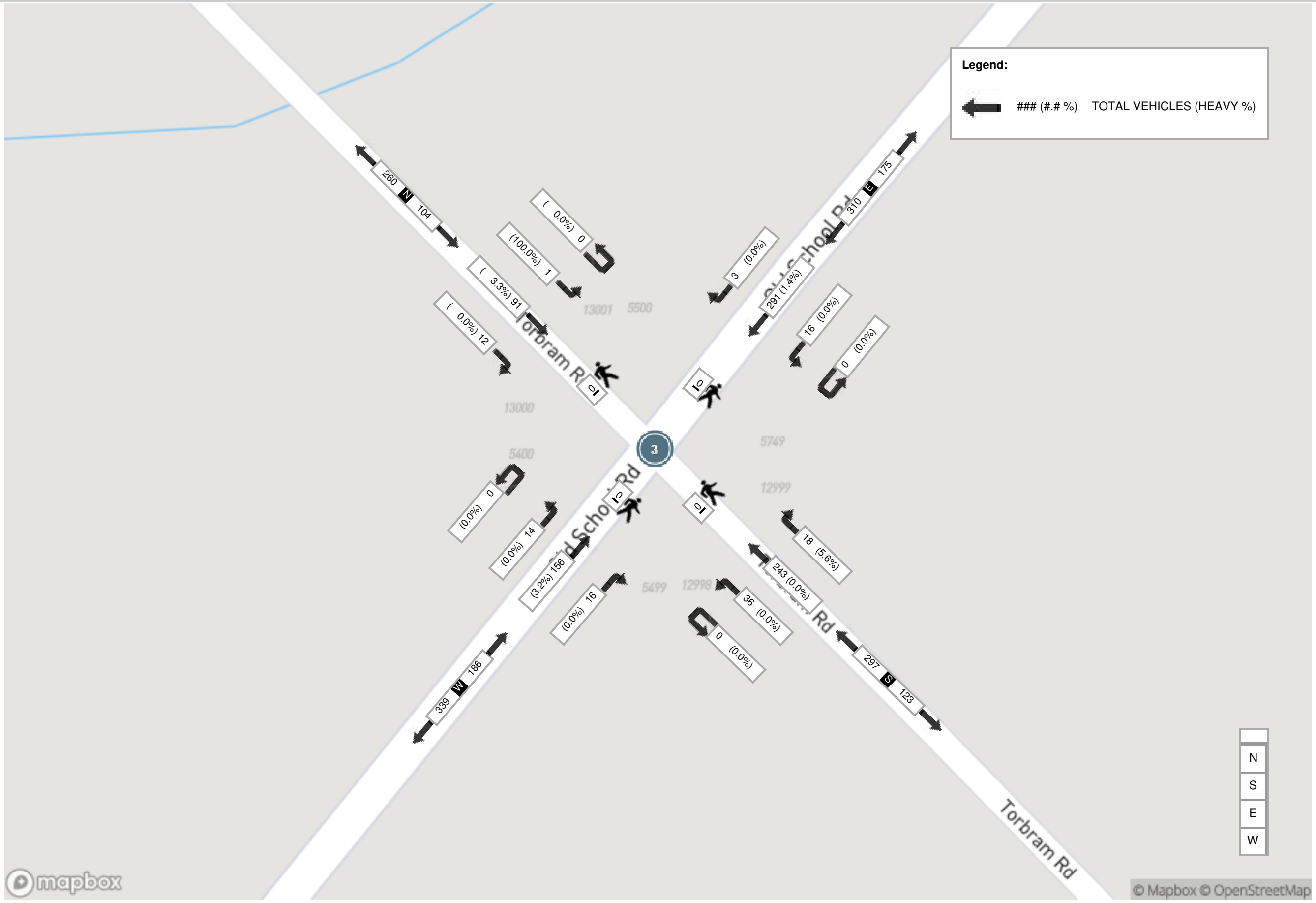
**Peak Hour: 07:30 AM - 08:30 AM Weather: Overcast Clouds (7.52 °C)**



**Peak Hour: 04:15 PM - 05:15 PM Weather: Mist (8.21 °C)**



# REGIONAL MUNICIPALITY OF PEEL

**Traffic Signal Timing Parameters**

| | | | |
|---|---|---|---|
| **Database Date** | **Oct. 16, 2024** | **Prepared Date** | **Oct. 16, 2024** |
| **Database Rev** | **MaxView** | **Completed By** | **A.P** |
| **Timing Card / Field rev** | **N/A** | **Checked By** | **S.A** |

**Location:** **Airport Road @ Street "A"**

| Phase # | Street Name - Direction | Vehicle Minimum (s) | Pedestrian Minimum (s) | | Amber (s) | All Red (s) | TIME PERIOD (s) (Green+Amber+All Red) | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | WALK | FDWALK | | | AM SPLITS | OFF SPLITS | PM SPLITS |
| 1 | Not in Use | - | - | - | - | - | - | - | - |
| 2 | Airport Road - SB | 12 | 8 | 21 | 4.6 | 2 | 82 | 62 | 82 |
| 3 | Not in Use | - | - | - | - | - | - | - | - |
| 4 | Street "A" | 12 | 8 | 20 | 4 | 4.2 | 38 | 38 | 38 |
| 5 | Not in Use | - | - | - | - | - | - | - | - |
| 6 | Airport Road - NB | 12 | 8 | 21 | 4.6 | 2 | 82 | 62 | 82 |
| 7 | Not in Use | - | - | - | - | - | - | - | - |
| 8 | Computer Phase | 12 | 8 | 20 | 4 | 4.2 | 38 | 38 | 38 |

**System Control**
No

**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 | 100 | 77 |
| 15:00 - 19:00 | PM | 120 | 58 |

# REGIONAL MUNICIPALITY OF PEEL

**Traffic Signal Timing Parameters**

| | | | |
|---|---|---|---|
| **Database Date** | **Nov. 07, 2024** | **Prepared Date** | **Nov. 07, 2024** |
| **Database Rev** | **Rev. 2** | **Completed By** | **A.P** |
| **Timing Card / Field rev** | **N/A** | **Checked By** | **M.H** |

**Location** — **Airport Road @ Old School Road/ 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 | Airport Road - SB | 12.0 | 10.0 | 5.0 | 4.6 | 3.1 | 70.0 | 40.0 | 60.0 |
| 3 | Old School Road - EB + OL SB RT | 8.0 | 10.0 | 10.0 | 4.2 | 2.0 | 25.0 | 15.0 | 28.0 |
| 4 | Healey Road - WB + OL NB RT | 8.0 | 10.0 | 10.0 | 4.2 | 2.0 | 25.0 | 25.0 | 42.0 |
| 5 | Not in Use | - | - | - | - | - | - | - | - |
| 6 | Airport Road - NB | 12.0 | 10.0 | 5.0 | 4.6 | 3.1 | 70.0 | 40.0 | 60.0 |
| 7 | Not in Use | - | - | - | - | - | - | - | - |
| 8 | Computer Phase | 8.0 | 10.0 | 10.0 | 4.2 | 2.0 | 50.0 | 40.0 | 70.0 |

**System Control**

No

**Semi-Actuated Mode**

Yes

| TIME (M-F) | PEAK | CYCLE LENGTH (s) | OFFSET (s) |
|---|---|---|---|
| 06:00 - 09:00 | AM | 120 | 0 |
| 09:00 - 15:00 | OFF | 80 | 0 |
| 15:00 - 19:00 | PM | 130 | 0 |

# REGIONAL MUNICIPALITY OF PEEL

**Traffic Signal Timing Parameters**

| | | | |
|---|---|---|---|
| **Database Date** | **Oct. 08, 2024** | **Prepared Date** | **Oct. 08, 2024** |
| **Database Rev** | **MaxView** | **Completed By** | **A.P** |
| **Timing Card / Field rev** | **N/A** | **Checked By** | **S.A** |

**Location** — **Airport Road @ Mayfield 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** | Airport Road - NB P.P. LT. | 5.0 | 0.0 | 0.0 | 3.0 | 0.0 | 12.0 | 12.0 | 12.0 |
| **2** | Airport Road - SB | 12.0 | 12.0 | 23.0 | 4.0 | 2.9 | 43.0 | 43.0 | 43.0 |
| **3** | Mayfield Road - EB P.P. LT. | 5.0 | 0.0 | 0.0 | 3.0 | 0.0 | 15.0 | 15.0 | 25.0 |
| **4** | Mayfield Road - WB | 12.0 | 12.0 | 27.0 | 4.0 | 3.1 | 50.0 | 50.0 | 55.0 |
| **5** | Airport Road - SB P.P.LT. | 5.0 | 0.0 | 0.0 | 3.0 | 0.0 | 12.0 | 12.0 | 12.0 |
| **6** | Airport Road - NB | 12.0 | 12.0 | 23.0 | 4.0 | 2.9 | 43.0 | 43.0 | 43.0 |
| **7** | Mayfield Road - WB P.P. LT. | 5.0 | 0.0 | 0.0 | 3.0 | 0.0 | 15.0 | 15.0 | 25.0 |
| **8** | Mayfield Road - EB | 12.0 | 12.0 | 27.0 | 4.0 | 3.1 | 50.0 | 50.0 | 55.0 |

**System Control**

Yes

**Semi-Actuated Mode**

Yes

| TIME (M-F) | PEAK | CYCLE LENGTH (s) | OFFSET (s) |
|---|---|---|---|
| 06:30 - 09:00 | AM | 120 | 30 |
| 09:00 - 15:00 | OFF | 120 | 94 |
| 15:00 - 19:30 | PM | 135 | 65 |

# REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

| | | | | |
|---|---|---|---|---|
| **Database Date** | **Oct. 08, 2024** | | **Prepared Date** | **Oct. 08, 2024** |
| **Database Rev** | **MaxView** | | **Completed By** | **A.P** |
| **Timing Card / Field rev** | **N/A** | | **Checked By** | **S.A** |

**Location** — **Mayfield Road @ Torbram 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 | Mayfield Road - WB P.P. LT. | 5.0 | 0.0 | 0.0 | 3.0 | 0.0 | 10.0 | 10.0 | 10.0 |
| 2 | Mayfield Road - EB | 16.0 | 8.0 | 35.0 | 4.6 | 2.7 | 60.0 | 40.0 | 75.0 |
| 3 | Not in Use | - | - | - | - | - | - | - | - |
| 4 | Torbram Road - NB | 12.0 | 8.0 | 28.0 | 4.2 | 2.9 | 50.0 | 50.0 | 50.0 |
| 5 | Mayfield Road - EB P.P. LT. | 5.0 | 0.0 | 0.0 | 3.0 | 0.0 | 10.0 | 10.0 | 10.0 |
| 6 | Mayfield Road - WB | 16.0 | 8.0 | 35.0 | 4.6 | 2.7 | 60.0 | 40.0 | 75.0 |
| 7 | Not in Use | - | - | - | - | - | - | - | - |
| 8 | Torbram Road - SB | 12.0 | 8.0 | 28.0 | 4.2 | 2.9 | 50.0 | 50.0 | 50.0 |

**System Control**

Yes

**Semi-Actuated Mode**

Yes

| TIME (M-F) | PEAK | CYCLE LENGTH (s) | OFFSET (s) |
|---|---|---|---|
| 06:00 - 09:00 | AM | 120 | 35 |
| 09:00 - 15:00 | OFF | 100 | 0 |
| 15:00 - 19:00 | PM | 135 | 43 |

# REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

| | | | | |
|---|---|---|---|---|
| **Database Date** | **Oct. 08, 2024** | | **Prepared Date** | **Oct. 08, 2024** |
| **Database Rev** | **iNet** | | **Completed By** | **A.P** |
| **Timing Card / Field rev** | **N/A** | | **Checked By** | **S.A** |

**Location** — **Airport Road @ Old Church 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 | Airport Road - SB | 8.0 | 8.0 | 17.0 | 4.0 | 3.1 | 42.0 | 49.1 | 42.0 |
| 3 | Not in Use | - | - | - | - | - | - | - | - |
| 4 | Old Church Road - WB | 8.0 | 8.0 | 10.0 | 4.0 | 2.6 | 28.0 | 56.6 | 28.0 |
| 5 | Not in Use | - | - | - | - | - | - | - | - |
| 6 | Airport Road - EB | 8.0 | 8.0 | 17.0 | 4.0 | 3.1 | 42.0 | 49.1 | 42.0 |
| 7 | Not in Use | - | - | - | - | - | - | - | - |
| 8 | Old Church Road - EB | 8.0 | 8.0 | 10.0 | 4.0 | 2.6 | 28.0 | 56.6 | 28.0 |

**System Control**

Yes

**Semi-Actuated Mode**

Yes

| TIME (M-F) | PEAK | CYCLE LENGTH (s) | OFFSET (s) |
|---|---|---|---|
| 06:00 - 09:00 | AM | 70 | 19 |
| 09:00 - 15:00<br>18:00 - 00:00 | OFF | Free | Free |
| 15:00 - 18:30 | PM | 70 | 45 |

Region of Peel
working with you

**Date:** October 16, 2024
**Requestor:** My-Linh Yee, Crozier
**Request Type:** Growth Rate Data Request
**Location:** Airport Road between Mayfield Road and Old School Road

My-Linh Yee,

See below the forecasted compound annual growth rate values for Airport Road between Mayfield Road and Old School Road.

| 2011 to 2021 | 2021 to 2031 | 2031 to 2041 |
|---|---|---|
| 2.0% | 1.5% | 0.5% |

These growth rates do not account for the accelerated growth rate targets set out by Bill 23, as those forecasts are not yet approved by the Regional Council. These growth rates are estimated using several sources including socioeconomic data and results from the Region of Peel's Travel Demand Forecasting Model. These rates assume a road widening occurring between 2021 and 2031. It is important to exercise professional judgment when using these values.

If you require further assistance, please contact me at transportationplanningdata@peelregion.ca

Regards,

**Karan Bedi**
Intermediate Planner, Transportation Planning
Transportation Division | Public Works | Region of Peel
10 Peel Centre Drive, Suite B, 4th Floor
Brampton, ON L6T 4B9

Region of Peel
working with you

**Date:** October 16, 2024
**Requestor:** My-Linh Yee, Crozier
**Request Type:** Growth Rate Data Request
**Location:** Mayfield Road between Torbram Road and Airport Road

My-Linh Yee,

See below the forecasted compound annual growth rate values for Mayfield Road between Torbram Road and Airport Road.

| 2011 to 2021 | 2021 to 2031 | 2031 to 2041 |
|---|---|---|
| 1.0% | 1.0% | 0.5% |

These growth rates do not account for the accelerated growth rate targets set out by Bill 23, as those forecasts are not yet approved by the Regional Council. These growth rates are estimated using several sources including socioeconomic data and results from the Region of Peel's Travel Demand Forecasting Model. These rates assume a road widening occurring between 2021 and 2031. It is important to exercise professional judgment when using these values.

If you require further assistance, please contact me at transportationplanningdata@peelregion.ca

Regards,

**Karan Bedi**
Intermediate Planner, Transportation Planning
Transportation Division | Public Works | Region of Peel
10 Peel Centre Drive, Suite B, 4th Floor
Brampton, ON L6T 4B9

# APPENDIX D:

## Level of Service Definitions

Level of Service Definitions

Two-Way Stop Controlled Intersections

| **Level of Service** | **Control Delay per Vehicle (seconds)** | **Interpretation** |
|---|---|---|
| A | ≤ 10 | EXCELLENT. Large and frequent gaps in traffic on the main roadway. Queuing on the minor street is rare. |
| B | > 10 and ≤ 15 | VERY GOOD. Many gaps exist in traffic on the main roadway. Queuing on the minor street is minimal. |
| C | > 15 and ≤ 25 | GOOD. Fewer gaps exist in traffic on the main roadway. Delay on minor approach becomes more noticeable. |
| D | > 25 and ≤ 35 | FAIR. Infrequent and shorter gaps in traffic on the main roadway. Queue lengths develop on the minor street. |
| E | > 35 and ≤ 50 | POOR. Very infrequent gaps in traffic on the main roadway. Queue lengths become noticeable. |
| F | > 50 | UNSATISFACTORY. Very few gaps in traffic on the main roadway. Excessive delay with significant queue lengths on the minor street. |

Adapted from Highway Capacity Manual 2000, Transportation Research Board

Signalized Intersections

| Level of Service | Control Delay per Vehicle (seconds) | Interpretation |
|---|---|---|
| A | ≤ 10 | EXCELLENT. Extremely favourable progression with most vehicles arriving during the green phase. Most vehicles do not stop and short cycle lengths may contribute to low delay. |
| B | > 10 and ≤ 20 | VERY GOOD. Very good progression and/or short cycle lengths with slightly more vehicles stopping than LOS "A" causing slightly higher levels of average delay. |
| C | > 20 and ≤ 35 | GOOD. Fair progression and longer cycle lengths lead to a greater number of vehicles stopping than LOS "B". |
| D | > 35 and ≤ 55 | FAIR. Congestion becomes noticeable with higher average delays resulting from a combination of long cycle lengths, high volume-to-capacity ratios and unfavourable progression. |
| E | > 55 and ≤ 80 | POOR. Lengthy delays values are indicative of poor progression, long cycle lengths and high volume-to-capacity ratios. Individual cycle failures are common with individual movement failures also common. |
| F | > 80 | UNSATISFACTORY. Indicative of oversaturated conditions with vehicular demand greater than the capacity of the intersection. |

Adapted from Highway Capacity Manual 2000, Transportation Research Board

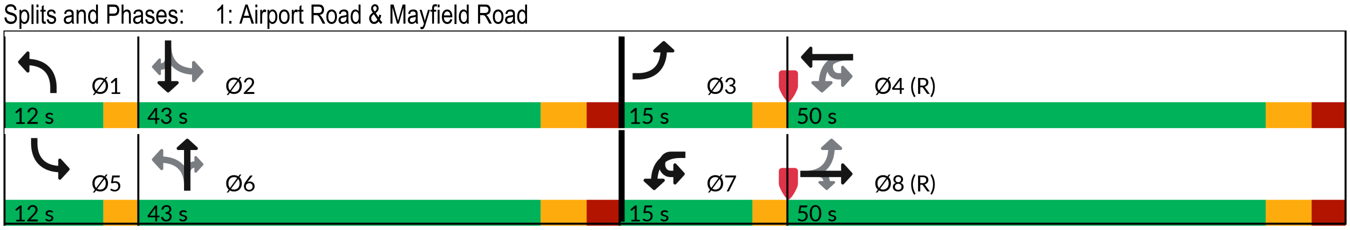
# APPENDIX E:

## Detailed Capacity Analyses

| Lane Group | EBL | EBT | EBR | WBU | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 163 | 622 | 380 | 1 | 78 | 414 | 184 | 195 | 82 | 68 | 422 | 106 |
| Future Volume (vph) | 163 | 622 | 380 | 1 | 78 | 414 | 184 | 195 | 82 | 68 | 422 | 106 |
| Turn Type | pm+pt | NA | Perm | pm+pt | pm+pt | NA | pm+pt | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | 3 | 8 | | 7 | 7 | 4 | 1 | 6 | | 5 | 2 | |
| Permitted Phases | 8 | | 8 | 4 | 4 | | 6 | | 6 | 2 | | 2 |
| Detector Phase | 3 | 8 | 8 | 7 | 7 | 4 | 1 | 6 | 6 | 5 | 2 | 2 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 12.0 | 12.0 | 5.0 | 5.0 | 12.0 | 5.0 | 12.0 | 12.0 | 5.0 | 12.0 | 12.0 |
| Minimum Split (s) | 8.0 | 46.1 | 46.1 | 8.0 | 8.0 | 46.1 | 8.0 | 41.9 | 41.9 | 8.0 | 41.9 | 41.9 |
| Total Split (s) | 15.0 | 50.0 | 50.0 | 15.0 | 15.0 | 50.0 | 12.0 | 43.0 | 43.0 | 12.0 | 43.0 | 43.0 |
| Total Split (%) | 12.5% | 41.7% | 41.7% | 12.5% | 12.5% | 41.7% | 10.0% | 35.8% | 35.8% | 10.0% | 35.8% | 35.8% |
| Yellow Time (s) | 3.0 | 4.0 | 4.0 | 3.0 | 3.0 | 4.0 | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | 4.0 |
| All-Red Time (s) | 0.0 | 3.1 | 3.1 | 0.0 | 0.0 | 3.1 | 0.0 | 2.9 | 2.9 | 0.0 | 2.9 | 2.9 |
| Lost Time Adjust (s) | 0.0 | 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 | 7.1 | 7.1 | | 3.0 | 7.1 | 3.0 | 6.9 | 6.9 | 3.0 | 6.9 | 6.9 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lead | Lag | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Recall Mode | None | C-Max | C-Max | None | None | C-Max | None | None | None | None | None | None |
| Act Effct Green (s) | 76.8 | 64.1 | 64.1 | | 71.2 | 59.7 | 35.0 | 23.9 | 23.9 | 32.8 | 21.1 | 21.1 |
| Actuated g/C Ratio | 0.64 | 0.53 | 0.53 | | 0.59 | 0.50 | 0.29 | 0.20 | 0.20 | 0.27 | 0.18 | 0.18 |
| v/c Ratio | 0.32 | 0.34 | 0.40 | | 0.21 | 0.31 | 0.74 | 0.31 | 0.28 | 0.23 | 0.74 | 0.36 |
| Control Delay (s/veh) | 12.6 | 21.0 | 13.8 | | 10.7 | 19.3 | 51.0 | 42.7 | 9.0 | 31.0 | 54.6 | 11.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 12.6 | 21.0 | 13.8 | | 10.7 | 19.3 | 51.0 | 42.7 | 9.0 | 31.0 | 54.6 | 11.0 |
| LOS | B | C | B | | B | B | D | D | A | C | D | B |
| Approach Delay (s/veh) | | 17.5 | | | | 18.0 | | 40.0 | | | 44.2 | |
| Approach LOS | | B | | | | B | | D | | | D | |

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 30 (25%), Referenced to phase 4:WBTL and 8:EBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay (s/veh): 27.1 Intersection LOS: C
Intersection Capacity Utilization 84.4% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 1: Airport Road & Mayfield Road



| Movement | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 163 | 622 | 380 | 1 | 78 | 414 | 50 | 184 | 195 | 82 | 68 | 422 |
| Future Volume (vph) | 163 | 622 | 380 | 1 | 78 | 414 | 50 | 184 | 195 | 82 | 68 | 422 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.5 | 3.5 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 |
| Total Lost time (s) | 3.0 | 7.1 | 7.1 | | 3.0 | 7.1 | | 3.0 | 6.9 | 6.9 | 3.0 | 6.9 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1474 | 3380 | 1463 | | 1344 | 3046 | | 1715 | 3120 | 1082 | 1431 | 3259 |
| Flt Permitted | 0.44 | 1.00 | 1.00 | | 0.40 | 1.00 | | 0.31 | 1.00 | 1.00 | 0.63 | 1.00 |
| Satd. Flow (perm) | 687 | 3380 | 1463 | | 571 | 3046 | | 564 | 3120 | 1082 | 948 | 3259 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 163 | 622 | 380 | 1 | 78 | 414 | 50 | 184 | 195 | 82 | 68 | 422 |
| RTOR Reduction (vph) | 0 | 0 | 181 | 0 | 0 | 6 | 0 | 0 | 0 | 66 | 0 | 0 |
| Lane Group Flow (vph) | 163 | 622 | 199 | 0 | 79 | 458 | 0 | 184 | 195 | 16 | 68 | 422 |
| Confl. Peds. (#/hr) | 5 | | 9 | | 9 | | 5 | 5 | | 12 | 12 | |
| Heavy Vehicles (%) | 21% | 8% | 7% | 2% | 33% | 15% | 40% | 4% | 17% | 44% | 24% | 12% |
| Turn Type | pm+pt | NA | Perm | pm+pt | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA |
| Protected Phases | 3 | 8 | | 7 | 7 | 4 | | 1 | 6 | | 5 | 2 |
| Permitted Phases | 8 | | 8 | 4 | 4 | | | 6 | | 6 | 2 | |
| Actuated Green, G (s) | 72.3 | 62.9 | 62.9 | | 65.5 | 59.1 | | 32.9 | 23.9 | 23.9 | 28.5 | 21.7 |
| Effective Green, g (s) | 72.3 | 62.9 | 62.9 | | 65.5 | 59.1 | | 32.9 | 23.9 | 23.9 | 28.5 | 21.7 |
| Actuated g/C Ratio | 0.60 | 0.52 | 0.52 | | 0.55 | 0.49 | | 0.27 | 0.20 | 0.20 | 0.24 | 0.18 |
| Clearance Time (s) | 3.0 | 7.1 | 7.1 | | 3.0 | 7.1 | | 3.0 | 6.9 | 6.9 | 3.0 | 6.9 |
| 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) | 480 | 1771 | 766 | | 352 | 1500 | | 240 | 621 | 215 | 252 | 589 |
| v/s Ratio Prot | c0.03 | c0.18 | | | 0.01 | 0.15 | | c0.06 | 0.06 | | 0.02 | 0.13 |
| v/s Ratio Perm | 0.18 | | 0.14 | | 0.11 | | | c0.15 | | 0.02 | 0.05 | |
| v/c Ratio | 0.34 | 0.35 | 0.26 | | 0.22 | 0.31 | | 0.77 | 0.31 | 0.08 | 0.27 | 0.72 |
| Uniform Delay, d1 | 10.8 | 16.7 | 15.7 | | 13.2 | 18.2 | | 37.1 | 41.0 | 39.1 | 36.6 | 46.3 |
| Progression Factor | 1.15 | 1.17 | 6.34 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.4 | 0.5 | 0.8 | | 0.3 | 0.5 | | 13.6 | 0.3 | 0.2 | 0.6 | 4.1 |
| Delay (s) | 12.8 | 20.0 | 100.5 | | 13.5 | 18.7 | | 50.7 | 41.3 | 39.2 | 37.2 | 50.4 |
| Level of Service | B | C | F | | B | B | | D | D | D | D | D |
| Approach Delay (s/veh) | | 45.3 | | | | 18.0 | | | 44.7 | | | 47.2 |
| Approach LOS | | D | | | | B | | | D | | | D |

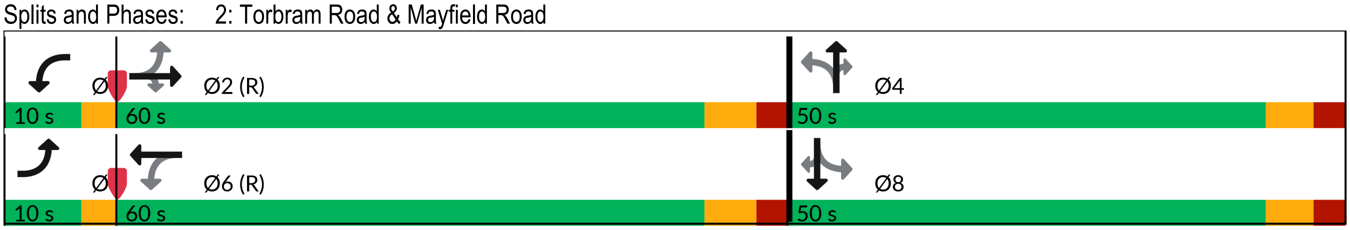
| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 40.2 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.50 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 84.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 106 |
| Future Volume (vph) | 106 |
| Ideal Flow (vphpl) | 1900 |
| Lane Width | 3.5 |
| Total Lost time (s) | 6.9 |
| Lane Util. Factor | 1.00 |
| Frpb, ped/bikes | 0.98 |
| Flpb, ped/bikes | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1172 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1172 |
| Peak-hour factor, PHF | 1.00 |
| Adj. Flow (vph) | 106 |
| RTOR Reduction (vph) | 87 |
| Lane Group Flow (vph) | 19 |
| Confl. Peds. (#/hr) | 5 |
| Heavy Vehicles (%) | 34% |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 2 |
| Actuated Green, G (s) | 21.7 |
| Effective Green, g (s) | 21.7 |
| Actuated g/C Ratio | 0.18 |
| Clearance Time (s) | 6.9 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 211 |
| v/s Ratio Prot | |
| v/s Ratio Perm | 0.02 |
| v/c Ratio | 0.09 |
| Uniform Delay, d1 | 40.9 |
| Progression Factor | 1.00 |
| Incremental Delay, d2 | 0.2 |
| Delay (s) | 41.1 |
| Level of Service | D |
| Approach Delay (s/veh) | |
| Approach LOS | |
| Intersection Summary | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (vph) | 19 | 1043 | 202 | 61 | 568 | 81 | 50 | 63 | 30 | 288 | 23 |
| Future Volume (vph) | 19 | 1043 | 202 | 61 | 568 | 81 | 50 | 63 | 30 | 288 | 23 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Perm | NA | Perm | Perm | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | 4 | | 4 | 8 | | 8 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 4 | 4 | 4 | 8 | 8 | 8 |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 16.0 | 16.0 | 5.0 | 16.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| Minimum Split (s) | 8.0 | 50.3 | 50.3 | 8.0 | 50.3 | 43.1 | 43.1 | 43.1 | 40.1 | 40.1 | 40.1 |
| Total Split (s) | 10.0 | 60.0 | 60.0 | 10.0 | 60.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 |
| Total Split (%) | 8.3% | 50.0% | 50.0% | 8.3% | 50.0% | 41.7% | 41.7% | 41.7% | 41.7% | 41.7% | 41.7% |
| Yellow Time (s) | 3.0 | 4.6 | 4.6 | 3.0 | 4.6 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 |
| All-Red Time (s) | 0.0 | 2.7 | 2.7 | 0.0 | 2.7 | 2.9 | 2.9 | 2.9 | 2.9 | 2.9 | 2.9 |
| Lost Time Adjust (s) | 0.0 | 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 | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | | | | | | |
| Recall Mode | None | C-Max | C-Max | None | C-Max | None | None | None | None | None | None |
| Act Effct Green (s) | 83.6 | 74.9 | 74.9 | 86.2 | 79.0 | 23.1 | 23.1 | 23.1 | 23.1 | 23.1 | 23.1 |
| Actuated g/C Ratio | 0.70 | 0.62 | 0.62 | 0.72 | 0.66 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 |
| v/c Ratio | 0.03 | 0.35 | 0.20 | 0.16 | 0.20 | 0.79 | 0.14 | 0.19 | 0.11 | 0.79 | 0.07 |
| Control Delay (s/veh) | 6.3 | 12.4 | 2.3 | 8.0 | 11.7 | 91.5 | 38.6 | 9.4 | 38.2 | 61.0 | 0.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 6.3 | 12.4 | 2.3 | 8.0 | 11.7 | 91.5 | 38.6 | 9.4 | 38.2 | 61.0 | 0.4 |
| LOS | A | B | A | A | B | F | D | A | D | E | A |
| Approach Delay (s/veh) | | 10.7 | | | 11.3 | | 51.2 | | | 54.9 | |
| Approach LOS | | B | | | B | | D | | | D | |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 35 (29%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green | |
| Natural Cycle: 105 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.79 | |
| Intersection Signal Delay (s/veh): 20.2 | Intersection LOS: C |
| Intersection Capacity Utilization 70.7% | ICU Level of Service C |
| Analysis Period (min) 15 | |

Splits and Phases: 2: Torbram Road & Mayfield Road



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 19 | 1043 | 202 | 61 | 568 | 16 | 81 | 50 | 63 | 30 | 288 | 23 |
| Future Volume (vph) | 19 | 1043 | 202 | 61 | 568 | 16 | 81 | 50 | 63 | 30 | 288 | 23 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 | 3.5 |
| Total Lost time (s) | 3.0 | 7.3 | 7.3 | 3.0 | 7.3 | | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | | 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 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1684 | 4812 | 1507 | 1716 | 4438 | | 1700 | 1847 | 1452 | 1785 | 1902 | 1465 |
| Flt Permitted | 0.42 | 1.00 | 1.00 | 0.24 | 1.00 | | 0.30 | 1.00 | 1.00 | 0.72 | 1.00 | 1.00 |
| Satd. Flow (perm) | 746 | 4812 | 1507 | 425 | 4438 | | 531 | 1847 | 1452 | 1361 | 1902 | 1465 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 19 | 1043 | 202 | 61 | 568 | 16 | 81 | 50 | 63 | 30 | 288 | 23 |
| RTOR Reduction (vph) | 0 | 0 | 77 | 0 | 1 | 0 | 0 | 0 | 51 | 0 | 0 | 19 |
| Lane Group Flow (vph) | 19 | 1043 | 125 | 61 | 583 | 0 | 81 | 50 | 12 | 30 | 288 | 4 |
| Heavy Vehicles (%) | 6% | 9% | 6% | 4% | 18% | 7% | 5% | 4% | 10% | 0% | 1% | 9% |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | | Perm | NA | Perm | Perm | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | | 4 | | 4 | 8 | | 8 |
| Actuated Green, G (s) | 76.6 | 74.3 | 74.3 | 82.4 | 77.2 | | 23.1 | 23.1 | 23.1 | 23.1 | 23.1 | 23.1 |
| Effective Green, g (s) | 76.6 | 74.3 | 74.3 | 82.4 | 77.2 | | 23.1 | 23.1 | 23.1 | 23.1 | 23.1 | 23.1 |
| Actuated g/C Ratio | 0.64 | 0.62 | 0.62 | 0.69 | 0.64 | | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 |
| Clearance Time (s) | 3.0 | 7.3 | 7.3 | 3.0 | 7.3 | | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 494 | 2979 | 933 | 347 | 2855 | | 102 | 355 | 279 | 261 | 366 | 282 |
| v/s Ratio Prot | 0.00 | c0.22 | | c0.01 | 0.13 | | | 0.03 | | | 0.15 | |
| v/s Ratio Perm | 0.02 | | 0.08 | 0.11 | | | c0.15 | | 0.01 | 0.02 | | 0.00 |
| v/c Ratio | 0.04 | 0.35 | 0.13 | 0.18 | 0.20 | | 0.79 | 0.14 | 0.04 | 0.11 | 0.79 | 0.02 |
| Uniform Delay, d1 | 7.9 | 11.1 | 9.5 | 6.4 | 8.8 | | 46.2 | 40.2 | 39.5 | 40.0 | 46.1 | 39.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.21 | 1.24 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.0 | 0.3 | 0.3 | 0.2 | 0.2 | | 33.3 | 0.2 | 0.1 | 0.2 | 10.7 | 0.0 |
| Delay (s) | 8.0 | 11.4 | 9.8 | 8.0 | 11.1 | | 79.5 | 40.4 | 39.5 | 40.2 | 56.8 | 39.3 |
| Level of Service | A | B | A | A | B | | E | D | D | D | E | D |
| Approach Delay (s/veh) | | 11.1 | | | 10.8 | | | 56.4 | | | 54.1 | |
| Approach LOS | | B | | | B | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 20.6 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.44 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 17.4 |
| Intersection Capacity Utilization | 70.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

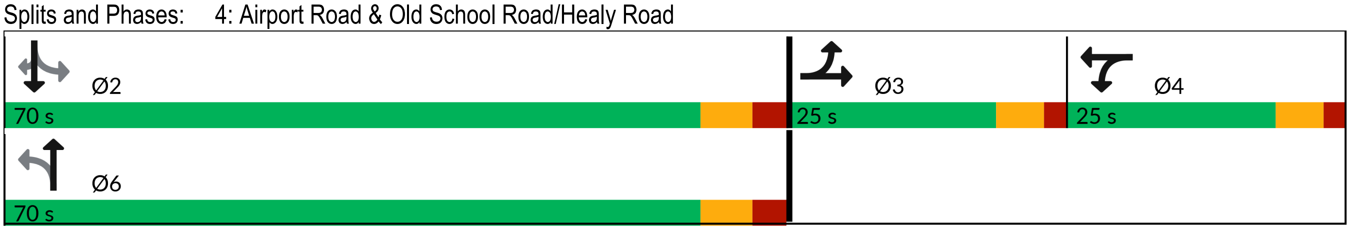
c Critical Lane Group

| Lane Group | EBT | WBT | NBL | NBT | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | |
| Traffic Volume (vph) | 158 | 79 | 7 | 148 | 12 | 439 | 6 |
| Future Volume (vph) | 158 | 79 | 7 | 148 | 12 | 439 | 6 |
| Turn Type | NA | NA | Perm | NA | Perm | NA | Perm |
| Protected Phases | 3 | 4 | | 6 | | 2 | |
| Permitted Phases | | | 6 | | 2 | | 2 |
| Detector Phase | 3 | 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 |
| Minimum Split (s) | 26.2 | 26.2 | 22.7 | 22.7 | 22.7 | 22.7 | 22.7 |
| Total Split (s) | 25.0 | 25.0 | 70.0 | 70.0 | 70.0 | 70.0 | 70.0 |
| Total Split (%) | 20.8% | 20.8% | 58.3% | 58.3% | 58.3% | 58.3% | 58.3% |
| Yellow Time (s) | 4.2 | 4.2 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 |
| All-Red Time (s) | 2.0 | 2.0 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Total Lost Time (s) | 6.2 | 6.2 | | 7.7 | | 7.7 | 7.7 |
| Lead/Lag | Lead | Lag | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | | | | |
| Recall Mode | None | None | Max | Max | Max | Max | Max |
| Act Effct Green (s) | 16.0 | 13.1 | | 62.5 | | 62.5 | 62.5 |
| Actuated g/C Ratio | 0.14 | 0.12 | | 0.56 | | 0.56 | 0.56 |
| v/c Ratio | 0.76 | 0.60 | | 0.31 | | 0.48 | 0.01 |
| Control Delay (s/veh) | 64.3 | 59.1 | | 12.9 | | 18.2 | 0.0 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Total Delay (s/veh) | 64.3 | 59.1 | | 12.9 | | 18.2 | 0.0 |
| LOS | E | E | | B | | B | A |
| Approach Delay (s/veh) | 64.3 | 59.1 | | 12.9 | | 18.0 | |
| Approach LOS | E | E | | B | | B | |

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 111.8
Natural Cycle: 80
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.76
Intersection Signal Delay (s/veh): 30.5 Intersection LOS: C
Intersection Capacity Utilization 60.0% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 4: Airport Road & Old School Road/Healy Road



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 14 | 158 | 29 | 44 | 79 | 4 | 7 | 148 | 113 | 12 | 439 | 6 |
| Future Volume (vph) | 14 | 158 | 29 | 44 | 79 | 4 | 7 | 148 | 113 | 12 | 439 | 6 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 |
| Total Lost time (s) | | 6.2 | | | 6.2 | | | 7.7 | | | 7.7 | 7.7 |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Frt | | 0.98 | | | 1.00 | | | 0.94 | | | 1.00 | 0.85 |
| Flt Protected | | 1.00 | | | 0.98 | | | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1810 | | | 1792 | | | 1545 | | | 1696 | 1396 |
| Flt Permitted | | 1.00 | | | 0.98 | | | 0.99 | | | 0.99 | 1.00 |
| Satd. Flow (perm) | | 1810 | | | 1792 | | | 1528 | | | 1681 | 1396 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 14 | 158 | 29 | 44 | 79 | 4 | 7 | 148 | 113 | 12 | 439 | 6 |
| RTOR Reduction (vph) | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 20 | 0 | 0 | 0 | 3 |
| Lane Group Flow (vph) | 0 | 196 | 0 | 0 | 126 | 0 | 0 | 248 | 0 | 0 | 451 | 3 |
| Heavy Vehicles (%) | 22% | 2% | 4% | 7% | 4% | 0% | 15% | 25% | 7% | 17% | 13% | 17% |
| Turn Type | Split | NA | | Split | NA | | Perm | NA | | Perm | NA | Perm |
| Protected Phases | 3 | 3 | | 4 | 4 | | | 6 | | | 2 | |
| Permitted Phases | | | | | | | 6 | | | 2 | | 2 |
| Actuated Green, G (s) | | 16.0 | | | 13.1 | | | 62.5 | | | 62.5 | 62.5 |
| Effective Green, g (s) | | 16.0 | | | 13.1 | | | 62.5 | | | 62.5 | 62.5 |
| Actuated g/C Ratio | | 0.14 | | | 0.12 | | | 0.56 | | | 0.56 | 0.56 |
| Clearance Time (s) | | 6.2 | | | 6.2 | | | 7.7 | | | 7.7 | 7.7 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 259 | | | 210 | | | 854 | | | 940 | 781 |
| v/s Ratio Prot | | c0.11 | | | c0.07 | | | | | | | |
| v/s Ratio Perm | | | | | | | | 0.16 | | | c0.27 | 0.00 |
| v/c Ratio | | 0.76 | | | 0.60 | | | 0.29 | | | 0.48 | 0.00 |
| Uniform Delay, d1 | | 46.0 | | | 46.8 | | | 12.9 | | | 14.8 | 10.9 |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 11.9 | | | 4.8 | | | 0.9 | | | 1.8 | 0.0 |
| Delay (s) | | 57.8 | | | 51.6 | | | 13.8 | | | 16.6 | 10.9 |
| Level of Service | | E | | | D | | | B | | | B | B |
| Approach Delay (s/veh) | | 57.8 | | | 51.6 | | | 13.8 | | | 16.5 | |
| Approach LOS | | E | | | D | | | B | | | B | |

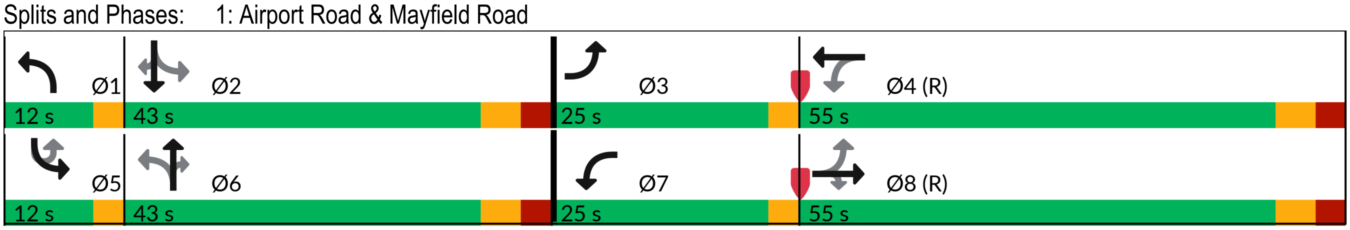
| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 27.9 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 111.7 | Sum of lost time (s) | 20.1 |
| Intersection Capacity Utilization | 60.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBU | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 148 | 504 | 158 | 92 | 639 | 240 | 486 | 91 | 1 | 79 | 259 | 232 |
| Future Volume (vph) | 148 | 504 | 158 | 92 | 639 | 240 | 486 | 91 | 1 | 79 | 259 | 232 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | pm+pt | NA | Perm | custom | pm+pt | NA | Perm |
| Protected Phases | 3 | 8 | | 7 | 4 | 1 | 6 | | | 5 | 2 | |
| Permitted Phases | 8 | | 8 | 4 | | 6 | | 6 | 5 | 2 | | 2 |
| Detector Phase | 3 | 8 | 8 | 7 | 4 | 1 | 6 | 6 | 5 | 5 | 2 | 2 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 12.0 | 12.0 | 5.0 | 12.0 | 5.0 | 12.0 | 12.0 | 5.0 | 5.0 | 12.0 | 12.0 |
| Minimum Split (s) | 8.0 | 46.1 | 46.1 | 8.0 | 46.1 | 8.0 | 41.9 | 41.9 | 8.0 | 8.0 | 41.9 | 41.9 |
| Total Split (s) | 25.0 | 55.0 | 55.0 | 25.0 | 55.0 | 12.0 | 43.0 | 43.0 | 12.0 | 12.0 | 43.0 | 43.0 |
| Total Split (%) | 18.5% | 40.7% | 40.7% | 18.5% | 40.7% | 8.9% | 31.9% | 31.9% | 8.9% | 8.9% | 31.9% | 31.9% |
| Yellow Time (s) | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | 3.0 | 4.0 | 4.0 | 3.0 | 3.0 | 4.0 | 4.0 |
| All-Red Time (s) | 0.0 | 3.1 | 3.1 | 0.0 | 3.1 | 0.0 | 2.9 | 2.9 | 0.0 | 0.0 | 2.9 | 2.9 |
| Lost Time Adjust (s) | 0.0 | 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 | 7.1 | 7.1 | 3.0 | 7.1 | 3.0 | 6.9 | 6.9 | | 3.0 | 6.9 | 6.9 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lead | Lag | Lag | Lead | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Recall Mode | None | C-Max | C-Max | None | C-Max | None | None | None | None | None | None | None |
| Act Effct Green (s) | 87.8 | 73.5 | 73.5 | 82.7 | 70.8 | 38.1 | 25.2 | 25.2 | | 37.0 | 24.7 | 24.7 |
| Actuated g/C Ratio | 0.65 | 0.54 | 0.54 | 0.61 | 0.52 | 0.28 | 0.19 | 0.19 | | 0.27 | 0.18 | 0.18 |
| v/c Ratio | 0.39 | 0.29 | 0.18 | 0.19 | 0.40 | 0.77 | 0.78 | 0.32 | | 0.47 | 0.42 | 0.53 |
| Control Delay (s/veh) | 25.5 | 30.5 | 15.2 | 10.8 | 21.3 | 58.1 | 61.4 | 11.3 | | 42.5 | 50.1 | 9.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 25.5 | 30.5 | 15.2 | 10.8 | 21.3 | 58.1 | 61.4 | 11.3 | | 42.5 | 50.1 | 9.9 |
| LOS | C | C | B | B | C | E | E | B | | D | D | A |
| Approach Delay (s/veh) | | 26.6 | | | 20.1 | | 54.9 | | | | 32.7 | |
| Approach LOS | | C | | | C | | D | | | | C | |

| Intersection Summary | |
|---|---|
| Cycle Length: 135 | |
| Actuated Cycle Length: 135 | |
| Offset: 65 (48%), Referenced to phase 4:WBTL and 8:EBTL, Start of Green | |
| Natural Cycle: 105 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.78 | |
| Intersection Signal Delay (s/veh): 33.8 | Intersection LOS: C |
| Intersection Capacity Utilization 86.3% | ICU Level of Service E |
| Analysis Period (min) 15 | |

Splits and Phases: 1: Airport Road & Mayfield Road



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBU | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 148 | 504 | 158 | 92 | 639 | 51 | 240 | 486 | 91 | 1 | 79 | 259 |
| Future Volume (vph) | 148 | 504 | 158 | 92 | 639 | 51 | 240 | 486 | 91 | 1 | 79 | 259 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.5 | 3.6 | 3.5 | 3.7 |
| Total Lost time (s) | 3.0 | 7.1 | 7.1 | 3.0 | 7.1 | | 3.0 | 6.9 | 6.9 | | 3.0 | 6.9 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.96 | | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 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 | 1.00 | 0.85 | | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (prot) | 1372 | 3174 | 1472 | 1472 | 3284 | | 1664 | 3318 | 1120 | | 1416 | 3349 |
| Flt Permitted | 0.33 | 1.00 | 1.00 | 0.46 | 1.00 | | 0.53 | 1.00 | 1.00 | | 0.27 | 1.00 |
| Satd. Flow (perm) | 472 | 3174 | 1472 | 715 | 3284 | | 924 | 3318 | 1120 | | 402 | 3349 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 148 | 504 | 158 | 92 | 639 | 51 | 240 | 486 | 91 | 1 | 79 | 259 |
| RTOR Reduction (vph) | 0 | 0 | 72 | 0 | 3 | 0 | 0 | 0 | 74 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 148 | 504 | 86 | 92 | 687 | 0 | 240 | 486 | 17 | 0 | 80 | 259 |
| Confl. Peds. (#/hr) | 4 | | 11 | 11 | | 4 | 7 | | 24 | | 24 | |
| Heavy Vehicles (%) | 30% | 15% | 6% | 21% | 6% | 57% | 7% | 10% | 37% | 0% | 26% | 9% |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | Perm | custom | pm+pt | NA |
| Protected Phases | 3 | 8 | | 7 | 4 | | 1 | 6 | | | 5 | 2 |
| Permitted Phases | 8 | | 8 | 4 | | | 6 | | 6 | 5 | 2 | |
| Actuated Green, G (s) | 84.0 | 73.5 | 73.5 | 78.6 | 70.8 | | 34.3 | 25.3 | 25.3 | | 33.1 | 24.7 |
| Effective Green, g (s) | 84.0 | 73.5 | 73.5 | 78.6 | 70.8 | | 34.3 | 25.3 | 25.3 | | 33.1 | 24.7 |
| Actuated g/C Ratio | 0.62 | 0.54 | 0.54 | 0.58 | 0.52 | | 0.25 | 0.19 | 0.19 | | 0.25 | 0.18 |
| Clearance Time (s) | 3.0 | 7.1 | 7.1 | 3.0 | 7.1 | | 3.0 | 6.9 | 6.9 | | 3.0 | 6.9 |
| 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) | 363 | 1728 | 801 | 460 | 1722 | | 284 | 621 | 209 | | 161 | 612 |
| v/s Ratio Prot | c0.03 | 0.16 | | 0.01 | 0.21 | | c0.06 | 0.15 | | | 0.03 | 0.08 |
| v/s Ratio Perm | c0.22 | | 0.06 | 0.10 | | | c0.16 | | 0.02 | | 0.09 | |
| v/c Ratio | 0.41 | 0.29 | 0.11 | 0.20 | 0.40 | | 0.85 | 0.78 | 0.08 | | 0.50 | 0.42 |
| Uniform Delay, d1 | 11.5 | 16.7 | 14.9 | 12.6 | 19.3 | | 46.3 | 52.2 | 45.3 | | 41.2 | 48.8 |
| Progression Factor | 2.23 | 1.68 | 5.24 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.7 | 0.4 | 0.3 | 0.2 | 0.7 | | 20.0 | 6.4 | 0.2 | | 2.4 | 0.5 |
| Delay (s) | 26.4 | 28.3 | 78.3 | 12.8 | 20.0 | | 66.3 | 58.6 | 45.4 | | 43.6 | 49.3 |
| Level of Service | C | C | E | B | B | | E | E | D | | D | D |
| Approach Delay (s/veh) | | 37.7 | | | 19.1 | | | 59.4 | | | | 47.5 |
| Approach LOS | | D | | | B | | | E | | | | D |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 40.7 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.55 | | |
| Actuated Cycle Length (s) | 135.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 86.3% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 232 |
| Future Volume (vph) | 232 |
| Ideal Flow (vphpl) | 1900 |
| Lane Width | 3.5 |
| Total Lost time (s) | 6.9 |
| Lane Util. Factor | 1.00 |
| Frpb, ped/bikes | 0.98 |
| Flpb, ped/bikes | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1361 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1361 |
| Peak-hour factor, PHF | 1.00 |
| Adj. Flow (vph) | 232 |
| RTOR Reduction (vph) | 190 |
| Lane Group Flow (vph) | 42 |
| Confl. Peds. (#/hr) | 7 |
| Heavy Vehicles (%) | 15% |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 2 |
| Actuated Green, G (s) | 24.7 |
| Effective Green, g (s) | 24.7 |
| Actuated g/C Ratio | 0.18 |
| Clearance Time (s) | 6.9 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 249 |
| v/s Ratio Prot | |
| v/s Ratio Perm | 0.03 |
| v/c Ratio | 0.17 |
| Uniform Delay, d1 | 46.5 |
| Progression Factor | 1.00 |
| Incremental Delay, d2 | 0.3 |
| Delay (s) | 46.8 |
| Level of Service | D |
| Approach Delay (s/veh) | |
| Approach LOS | |

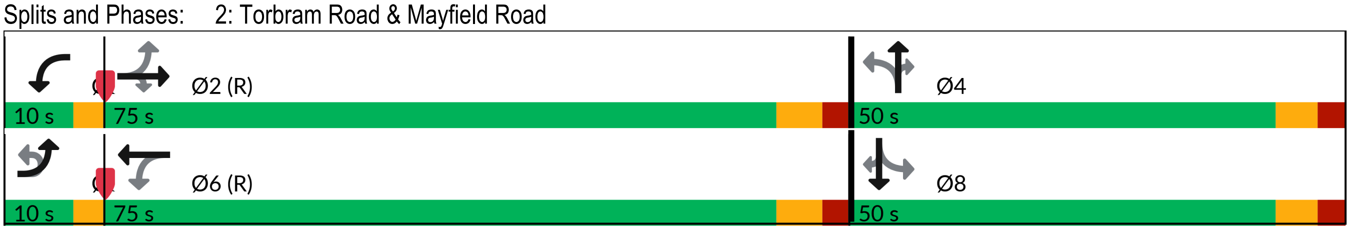
| Intersection Summary |
|---|

| Lane Group | EBU | EBL | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 4 | 51 | 874 | 158 | 100 | 973 | 159 | 166 | 78 | 7 | 92 | 16 |
| Future Volume (vph) | 4 | 51 | 874 | 158 | 100 | 973 | 159 | 166 | 78 | 7 | 92 | 16 |
| Turn Type | custom | pm+pt | NA | Perm | pm+pt | NA | Perm | NA | Perm | Perm | NA | Perm |
| Protected Phases | | 5 | 2 | | 1 | 6 | | 4 | | | 8 | |
| Permitted Phases | 5 | 2 | | 2 | 6 | | 4 | | 4 | 8 | | 8 |
| Detector Phase | 5 | 5 | 2 | 2 | 1 | 6 | 4 | 4 | 4 | 8 | 8 | 8 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | 16.0 | 16.0 | 5.0 | 16.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| Minimum Split (s) | 8.0 | 8.0 | 50.3 | 50.3 | 8.0 | 50.3 | 43.1 | 43.1 | 43.1 | 40.1 | 40.1 | 40.1 |
| Total Split (s) | 10.0 | 10.0 | 75.0 | 75.0 | 10.0 | 75.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 |
| Total Split (%) | 7.4% | 7.4% | 55.6% | 55.6% | 7.4% | 55.6% | 37.0% | 37.0% | 37.0% | 37.0% | 37.0% | 37.0% |
| Yellow Time (s) | 3.0 | 3.0 | 4.6 | 4.6 | 3.0 | 4.6 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 |
| All-Red Time (s) | 0.0 | 0.0 | 2.7 | 2.7 | 0.0 | 2.7 | 2.9 | 2.9 | 2.9 | 2.9 | 2.9 | 2.9 |
| Lost Time Adjust (s) | | 0.0 | 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 | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 |
| Lead/Lag | Lead | Lead | Lag | Lag | Lead | Lag | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | | | | | | |
| Recall Mode | None | None | C-Max | C-Max | None | C-Max | None | None | None | None | None | None |
| Act Effct Green (s) | | 99.1 | 88.7 | 88.7 | 101.6 | 91.3 | 21.8 | 21.8 | 21.8 | 21.8 | 21.8 | 21.8 |
| Actuated g/C Ratio | | 0.73 | 0.66 | 0.66 | 0.75 | 0.68 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 |
| v/c Ratio | | 0.13 | 0.28 | 0.14 | 0.22 | 0.31 | 0.78 | 0.54 | 0.25 | 0.04 | 0.30 | 0.05 |
| Control Delay (s/veh) | | 5.7 | 10.9 | 2.1 | 10.2 | 16.3 | 78.4 | 57.0 | 10.8 | 43.9 | 50.3 | 0.3 |
| Queue Delay | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | | 5.7 | 10.9 | 2.1 | 10.2 | 16.3 | 78.4 | 57.0 | 10.8 | 43.9 | 50.3 | 0.3 |
| LOS | | A | B | A | B | B | E | E | B | D | D | A |
| Approach Delay (s/veh) | | | 9.3 | | | 15.8 | | 56.5 | | | 42.9 | |
| Approach LOS | | | A | | | B | | E | | | D | |

| Intersection Summary | |
|---|---|
| Cycle Length: 135 | |
| Actuated Cycle Length: 135 | |
| Offset: 43 (32%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green | |
| Natural Cycle: 105 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.78 | |
| Intersection Signal Delay (s/veh): 20.4 | Intersection LOS: C |
| Intersection Capacity Utilization 64.6% | ICU Level of Service C |
| Analysis Period (min) 15 | |

Splits and Phases: 2: Torbram Road & Mayfield Road



| Movement | EBU | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 4 | 51 | 874 | 158 | 100 | 973 | 19 | 159 | 166 | 78 | 7 | 92 |
| Future Volume (vph) | 4 | 51 | 874 | 158 | 100 | 973 | 19 | 159 | 166 | 78 | 7 | 92 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.6 | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 |
| Total Lost time (s) | | 3.0 | 7.3 | 7.3 | 3.0 | 7.3 | | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 |
| Lane Util. Factor | | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | | 1785 | 4725 | 1581 | 1716 | 4805 | | 1716 | 1921 | 1566 | 1785 | 1921 |
| Flt Permitted | | 0.27 | 1.00 | 1.00 | 0.30 | 1.00 | | 0.70 | 1.00 | 1.00 | 0.52 | 1.00 |
| Satd. Flow (perm) | | 509 | 4725 | 1581 | 536 | 4805 | | 1260 | 1921 | 1566 | 978 | 1921 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 4 | 51 | 874 | 158 | 100 | 973 | 19 | 159 | 166 | 78 | 7 | 92 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 54 | 0 | 1 | 0 | 0 | 0 | 65 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 55 | 874 | 104 | 100 | 991 | 0 | 159 | 166 | 13 | 7 | 92 |
| Heavy Vehicles (%) | 0% | 0% | 11% | 1% | 4% | 9% | 0% | 4% | 0% | 2% | 0% | 0% |
| Turn Type | custom | pm+pt | NA | Perm | pm+pt | NA | | Perm | NA | Perm | Perm | NA |
| Protected Phases | | 5 | 2 | | 1 | 6 | | | 4 | | | 8 |
| Permitted Phases | 5 | 2 | | 2 | 6 | | | 4 | | 4 | 8 | |
| Actuated Green, G (s) | | 93.8 | 88.8 | 88.8 | 97.8 | 90.8 | | 21.8 | 21.8 | 21.8 | 21.8 | 21.8 |
| Effective Green, g (s) | | 93.8 | 88.8 | 88.8 | 97.8 | 90.8 | | 21.8 | 21.8 | 21.8 | 21.8 | 21.8 |
| Actuated g/C Ratio | | 0.69 | 0.66 | 0.66 | 0.72 | 0.67 | | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 |
| Clearance Time (s) | | 3.0 | 7.3 | 7.3 | 3.0 | 7.3 | | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 |
| 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) | | 400 | 3108 | 1039 | 449 | 3231 | | 203 | 310 | 252 | 157 | 310 |
| v/s Ratio Prot | | 0.01 | 0.18 | | c0.01 | c0.21 | | | 0.09 | | | 0.05 |
| v/s Ratio Perm | | 0.09 | | 0.07 | 0.15 | | | c0.13 | | 0.01 | 0.01 | |
| v/c Ratio | | 0.14 | 0.28 | 0.10 | 0.22 | 0.31 | | 0.78 | 0.54 | 0.05 | 0.04 | 0.30 |
| Uniform Delay, d1 | | 6.5 | 9.7 | 8.5 | 5.5 | 9.1 | | 54.3 | 52.0 | 47.8 | 47.8 | 49.8 |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.85 | 1.61 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | | 17.7 | 1.8 | 0.1 | 0.1 | 0.5 |
| Delay (s) | | 6.7 | 9.9 | 8.7 | 10.5 | 14.9 | | 72.0 | 53.7 | 47.9 | 47.9 | 50.4 |
| Level of Service | | A | A | A | B | B | | E | D | D | D | D |
| Approach Delay (s/veh) | | | 9.6 | | | 14.5 | | | 59.8 | | | 49.8 |
| Approach LOS | | | A | | | B | | | E | | | D |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 20.8 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.39 | | |
| Actuated Cycle Length (s) | 135.0 | Sum of lost time (s) | 17.4 |
| Intersection Capacity Utilization | 64.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

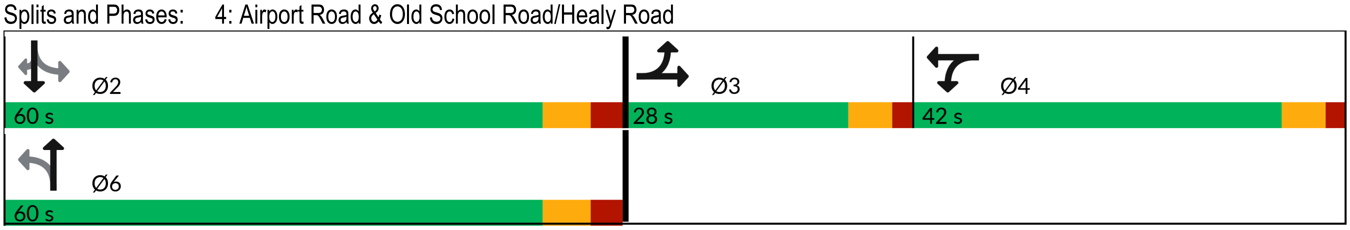
| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 16 |
| Future Volume (vph) | 16 |
| Ideal Flow (vphpl) | 1900 |
| Lane Width | 3.5 |
| Total Lost time (s) | 7.1 |
| Lane Util. Factor | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1597 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1597 |
| Peak-hour factor, PHF | 1.00 |
| Adj. Flow (vph) | 16 |
| RTOR Reduction (vph) | 13 |
| Lane Group Flow (vph) | 3 |
| Heavy Vehicles (%) | 0% |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 8 |
| Actuated Green, G (s) | 21.8 |
| Effective Green, g (s) | 21.8 |
| Actuated g/C Ratio | 0.16 |
| Clearance Time (s) | 7.1 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 257 |
| v/s Ratio Prot | |
| v/s Ratio Perm | 0.00 |
| v/c Ratio | 0.01 |
| Uniform Delay, d1 | 47.5 |
| Progression Factor | 1.00 |
| Incremental Delay, d2 | 0.0 |
| Delay (s) | 47.6 |
| Level of Service | D |
| Approach Delay (s/veh) | |
| Approach LOS | |

| Intersection Summary |
|---|

| Lane Group | EBT | WBT | NBL | NBT | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | |
| Traffic Volume (vph) | 131 | 254 | 27 | 427 | 10 | 214 | 20 |
| Future Volume (vph) | 131 | 254 | 27 | 427 | 10 | 214 | 20 |
| Turn Type | NA | NA | Perm | NA | Perm | NA | Perm |
| Protected Phases | 3 | 4 | | 6 | | 2 | |
| Permitted Phases | | | 6 | | 2 | | 2 |
| Detector Phase | 3 | 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 |
| Minimum Split (s) | 26.2 | 26.2 | 22.7 | 22.7 | 22.7 | 22.7 | 22.7 |
| Total Split (s) | 28.0 | 42.0 | 60.0 | 60.0 | 60.0 | 60.0 | 60.0 |
| Total Split (%) | 21.5% | 32.3% | 46.2% | 46.2% | 46.2% | 46.2% | 46.2% |
| Yellow Time (s) | 4.2 | 4.2 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 |
| All-Red Time (s) | 2.0 | 2.0 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Total Lost Time (s) | 6.2 | 6.2 | | 7.7 | | 7.7 | 7.7 |
| Lead/Lag | Lead | Lag | | | | | |
| Lead-Lag Optimize? | Yes | Yes | | | | | |
| Recall Mode | None | None | Max | Max | Max | Max | Max |
| Act Effct Green (s) | 15.9 | 27.0 | | 52.7 | | 52.7 | 52.7 |
| Actuated g/C Ratio | 0.14 | 0.23 | | 0.45 | | 0.45 | 0.45 |
| v/c Ratio | 0.70 | 0.83 | | 0.66 | | 0.32 | 0.03 |
| Control Delay (s/veh) | 62.5 | 59.9 | | 31.5 | | 24.1 | 0.1 |
| Queue Delay | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 |
| Total Delay (s/veh) | 62.5 | 59.9 | | 31.5 | | 24.1 | 0.1 |
| LOS | E | E | | C | | C | A |
| Approach Delay (s/veh) | 62.5 | 59.9 | | 31.5 | | 22.2 | |
| Approach LOS | E | E | | C | | C | |

| Intersection Summary | |
|---|---|
| Cycle Length: 130 | |
| Actuated Cycle Length: 115.9 | |
| Natural Cycle: 90 | |
| Control Type: Semi Act-Uncoord | |
| Maximum v/c Ratio: 0.83 | |
| Intersection Signal Delay (s/veh): 41.7 | Intersection LOS: D |
| Intersection Capacity Utilization 91.9% | ICU Level of Service F |
| Analysis Period (min) 15 | |

Splits and Phases: 4: Airport Road & Old School Road/Healy Road



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 21 | 131 | 22 | 96 | 254 | 9 | 27 | 427 | 71 | 10 | 214 | 20 |
| Future Volume (vph) | 21 | 131 | 22 | 96 | 254 | 9 | 27 | 427 | 71 | 10 | 214 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 |
| Total Lost time (s) | | 6.2 | | | 6.2 | | | 7.7 | | | 7.7 | 7.7 |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Frt | | 0.98 | | | 1.00 | | | 0.98 | | | 1.00 | 0.85 |
| Flt Protected | | 0.99 | | | 0.99 | | | 1.00 | | | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1784 | | | 1846 | | | 1775 | | | 1566 | 1555 |
| Flt Permitted | | 0.99 | | | 0.99 | | | 0.97 | | | 0.97 | 1.00 |
| Satd. Flow (perm) | | 1784 | | | 1846 | | | 1735 | | | 1525 | 1555 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 21 | 131 | 22 | 96 | 254 | 9 | 27 | 427 | 71 | 10 | 214 | 20 |
| RTOR Reduction (vph) | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 0 | 11 |
| Lane Group Flow (vph) | 0 | 170 | 0 | 0 | 358 | 0 | 0 | 521 | 0 | 0 | 224 | 9 |
| Heavy Vehicles (%) | 10% | 3% | 14% | 5% | 1% | 12% | 8% | 6% | 5% | 10% | 23% | 5% |
| Turn Type | Split | NA | | Split | NA | | Perm | NA | | Perm | NA | Perm |
| Protected Phases | 3 | 3 | | 4 | 4 | | | 6 | | | 2 | |
| Permitted Phases | | | | | | | 6 | | | 2 | | 2 |
| Actuated Green, G (s) | | 15.9 | | | 27.0 | | | 52.8 | | | 52.8 | 52.8 |
| Effective Green, g (s) | | 15.9 | | | 27.0 | | | 52.8 | | | 52.8 | 52.8 |
| Actuated g/C Ratio | | 0.14 | | | 0.23 | | | 0.46 | | | 0.46 | 0.46 |
| Clearance Time (s) | | 6.2 | | | 6.2 | | | 7.7 | | | 7.7 | 7.7 |
| Vehicle Extension (s) | | 3.0 | | | 3.0 | | | 3.0 | | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | | 244 | | | 430 | | | 791 | | | 695 | 709 |
| v/s Ratio Prot | | c0.10 | | | c0.19 | | | | | | | |
| v/s Ratio Perm | | | | | | | | c0.30 | | | 0.15 | 0.01 |
| v/c Ratio | | 0.70 | | | 0.83 | | | 0.66 | | | 0.32 | 0.01 |
| Uniform Delay, d1 | | 47.6 | | | 42.3 | | | 24.5 | | | 20.1 | 17.2 |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 8.3 | | | 13.0 | | | 4.3 | | | 1.2 | 0.0 |
| Delay (s) | | 56.0 | | | 55.2 | | | 28.8 | | | 21.3 | 17.3 |
| Level of Service | | E | | | E | | | C | | | C | B |
| Approach Delay (s/veh) | | 56.0 | | | 55.2 | | | 28.8 | | | 21.0 | |
| Approach LOS | | E | | | E | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 38.2 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.71 | | |
| Actuated Cycle Length (s) | 115.8 | Sum of lost time (s) | 20.1 |
| Intersection Capacity Utilization | 91.9% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 11.1 |
| Intersection LOS | B |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ✣ | | | ✣ | | | ✣ | | | ✣ | |
| Traffic Vol, veh/h | 4 | 214 | 54 | 6 | 74 | 2 | 12 | 59 | 9 | 4 | 275 | 16 |
| Future Vol, veh/h | 4 | 214 | 54 | 6 | 74 | 2 | 12 | 59 | 9 | 4 | 275 | 16 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles, % | 0 | 2 | 8 | 0 | 2 | 0 | 17 | 2 | 12 | 25 | 1 | 0 |
| Mvmt Flow | 4 | 214 | 54 | 6 | 74 | 2 | 12 | 59 | 9 | 4 | 275 | 16 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 1 | 1 |
| HCM Control Delay, s/veh | 10.8 | 9.1 | 9.3 | 12.4 |
| HCM LOS | B | A | A | B |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 15% | 1% | 7% | 1% |
| Vol Thru, % | 74% | 79% | 90% | 93% |
| Vol Right, % | 11% | 20% | 2% | 5% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 80 | 272 | 82 | 295 |
| LT Vol | 12 | 4 | 6 | 4 |
| Through Vol | 59 | 214 | 74 | 275 |
| RT Vol | 9 | 54 | 2 | 16 |
| Lane Flow Rate | 80 | 272 | 82 | 295 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.123 | 0.369 | 0.122 | 0.432 |
| Departure Headway (Hd) | 5.553 | 4.889 | 5.363 | 5.271 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 649 | 729 | 672 | 676 |
| Service Time | 3.557 | 2.971 | 3.367 | 3.364 |
| HCM Lane V/C Ratio | 0.123 | 0.373 | 0.122 | 0.436 |
| HCM Control Delay, s/veh | 9.3 | 10.8 | 9.1 | 12.4 |
| HCM Lane LOS | A | B | A | B |
| HCM 95th-tile Q | 0.4 | 1.7 | 0.4 | 2.2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 2 | 0 | 28 | 21 | 0 | 3 | 1 | 70 | 304 | 32 | 4 | 555 |
| Future Volume (Veh/h) | 2 | 0 | 28 | 21 | 0 | 3 | 1 | 70 | 304 | 32 | 4 | 555 |
| Sign Control | | Stop | | | Stop | | | | Free | | | Free |
| Grade | | 0% | | | 0% | | | | 0% | | | 0% |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 2 | 0 | 28 | 21 | 0 | 3 | 0 | 70 | 304 | 32 | 4 | 555 |
| Pedestrians | | 2 | | | 12 | | | | 1 | | | |
| Lane Width (m) | | 3.6 | | | 3.6 | | | | 3.6 | | | |
| Walking Speed (m/s) | | 1.2 | | | 1.2 | | | | 1.2 | | | |
| Percent Blockage | | 0 | | | 1 | | | | 0 | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | | None | | | None |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | 0.00 | | | | | |
| vC, conflicting volume | 860 | 1053 | 281 | 771 | 1024 | 164 | 0 | 560 | | | 348 | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 860 | 1053 | 281 | 771 | 1024 | 164 | 0 | 560 | | | 348 | |
| tC, single (s) | 9.5 | 6.5 | 8.4 | 8.8 | 6.5 | 8.9 | 0.0 | 4.5 | | | 5.1 | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 4.5 | 4.0 | 4.0 | 4.2 | 4.0 | 4.3 | 0.0 | 2.4 | | | 2.7 | |
| p0 queue free % | 98 | 100 | 95 | 88 | 100 | 100 | 0 | 92 | | | 100 | |
| cM capacity (veh/h) | 124 | 204 | 537 | 171 | 212 | 608 | 0 | 880 | | | 916 | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | NB 3 | NB 4 | SB 1 | SB 2 | SB 3 | SB 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Volume Total | 2 | 28 | 21 | 3 | 70 | 152 | 152 | 32 | 4 | 278 | 278 | 3 |
| Volume Left | 2 | 0 | 21 | 0 | 70 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| Volume Right | 0 | 28 | 0 | 3 | 0 | 0 | 0 | 32 | 0 | 0 | 0 | 3 |
| cSH | 124 | 537 | 171 | 608 | 880 | 1700 | 1700 | 1700 | 916 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.02 | 0.05 | 0.12 | 0.00 | 0.08 | 0.09 | 0.09 | 0.02 | 0.00 | 0.16 | 0.16 | 0.00 |
| Queue Length 95th (m) | 0.4 | 1.3 | 3.3 | 0.1 | 2.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 |
| Control Delay (s/veh) | 34.4 | 12.1 | 28.9 | 10.9 | 9.4 | 0.0 | 0.0 | 0.0 | 8.9 | 0.0 | 0.0 | 0.0 |
| Lane LOS | D | B | D | B | A | | | | A | | | |
| Approach Delay (s/veh) | 13.6 | | 26.7 | | 1.6 | | | | 0.1 | | | |
| Approach LOS | B | | D | | | | | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.7 | | |
| Intersection Capacity Utilization | 37.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (veh/h) | 3 |
| Future Volume (Veh/h) | 3 |
| Sign Control | |
| Grade | |
| Peak Hour Factor | 1.00 |
| Hourly flow rate (vph) | 3 |
| Pedestrians | |
| Lane Width (m) | |
| Walking Speed (m/s) | |
| Percent Blockage | |
| Right turn flare (veh) | |
| Median type | |
| Median storage veh) | |
| Upstream signal (m) | |
| pX, platoon unblocked | |
| vC, conflicting volume | |
| vC1, stage 1 conf vol | |
| vC2, stage 2 conf vol | |
| vCu, unblocked vol | |
| tC, single (s) | |
| tC, 2 stage (s) | |
| tF (s) | |
| p0 queue free % | |
| cM capacity (veh/h) | |

| Direction, Lane # |
|---|

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 12.7 |
| Intersection LOS | B |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 14 | 156 | 16 | 16 | 291 | 3 | 36 | 243 | 18 | 1 | 91 | 12 |
| Future Vol, veh/h | 14 | 156 | 16 | 16 | 291 | 3 | 36 | 243 | 18 | 1 | 91 | 12 |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Heavy Vehicles, % | 0 | 4 | 0 | 0 | 2 | 0 | 0 | 0 | 6 | 100 | 4 | 0 |
| Mvmt Flow | 14 | 156 | 16 | 16 | 291 | 3 | 36 | 243 | 18 | 1 | 91 | 12 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| Opposing Approach | WB | EB | SB | NB |
| Opposing Lanes | 1 | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB | WB |
| Conflicting Lanes Left | 1 | 1 | 1 | 1 |
| Conflicting Approach Right | NB | SB | WB | EB |
| Conflicting Lanes Right | 1 | 1 | 1 | 1 |
| HCM Control Delay, s/veh | 11 | 13.3 | 13.1 | 12.6 |
| HCM LOS | B | B | B | B |

| Lane | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|
| Vol Left, % | 12% | 8% | 5% | 1% |
| Vol Thru, % | 82% | 84% | 94% | 88% |
| Vol Right, % | 6% | 9% | 1% | 12% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 297 | 186 | 310 | 104 |
| LT Vol | 36 | 14 | 16 | 1 |
| Through Vol | 243 | 156 | 291 | 91 |
| RT Vol | 18 | 16 | 3 | 12 |
| Lane Flow Rate | 297 | 186 | 310 | 104 |
| Geometry Grp | 1 | 1 | 1 | 1 |
| Degree of Util (X) | 0.455 | 0.291 | 0.47 | 0.216 |
| Departure Headway (Hd) | 5.512 | 5.625 | 5.455 | 7.482 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 650 | 636 | 657 | 478 |
| Service Time | 3.565 | 3.683 | 3.507 | 5.55 |
| HCM Lane V/C Ratio | 0.457 | 0.292 | 0.472 | 0.218 |
| HCM Control Delay, s/veh | 13.1 | 11 | 13.3 | 12.6 |
| HCM Lane LOS | B | B | B | B |
| HCM 95th-tile Q | 2.4 | 1.2 | 2.5 | 0.8 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBU | SBL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 6 | 0 | 61 | 80 | 0 | 8 | 3 | 36 | 608 | 49 | 8 | 20 |
| Future Volume (Veh/h) | 6 | 0 | 61 | 80 | 0 | 8 | 3 | 36 | 608 | 49 | 8 | 20 |
| Sign Control | | Stop | | | Stop | | | | Free | | | |
| Grade | | 0% | | | 0% | | | | 0% | | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 6 | 0 | 61 | 80 | 0 | 8 | 0 | 36 | 608 | 49 | 0 | 20 |
| Pedestrians | | | | | 12 | | | | | | | |
| Lane Width (m) | | | | | 3.6 | | | | | | | |
| Walking Speed (m/s) | | | | | 1.2 | | | | | | | |
| Percent Blockage | | | | | 1 | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | | None | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | 0.00 | | | | 0.00 | |
| vC, conflicting volume | 805 | 1162 | 191 | 984 | 1116 | 316 | 0 | 384 | | | 0 | 669 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 805 | 1162 | 191 | 984 | 1116 | 316 | 0 | 384 | | | 0 | 669 |
| tC, single (s) | 7.5 | 6.5 | 7.1 | 7.7 | 6.5 | 7.2 | 0.0 | 5.4 | | | 0.0 | 5.9 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.4 | 3.6 | 4.0 | 3.4 | 0.0 | 2.8 | | | 0.0 | 3.1 |
| p0 queue free % | 98 | 100 | 92 | 51 | 100 | 99 | 0 | 96 | | | 0 | 96 |
| cM capacity (veh/h) | 255 | 176 | 789 | 164 | 188 | 642 | 0 | 828 | | | 0 | 505 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | NB 3 | NB 4 | SB 1 | SB 2 | SB 3 | SB 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Volume Total | 6 | 61 | 80 | 8 | 36 | 304 | 304 | 49 | 20 | 191 | 191 | 3 |
| Volume Left | 6 | 0 | 80 | 0 | 36 | 0 | 0 | 0 | 20 | 0 | 0 | 0 |
| Volume Right | 0 | 61 | 0 | 8 | 0 | 0 | 0 | 49 | 0 | 0 | 0 | 3 |
| cSH | 255 | 789 | 164 | 642 | 828 | 1700 | 1700 | 1700 | 505 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.02 | 0.08 | 0.49 | 0.01 | 0.04 | 0.18 | 0.18 | 0.03 | 0.04 | 0.11 | 0.11 | 0.00 |
| Queue Length 95th (m) | 0.6 | 2.0 | 18.7 | 0.3 | 1.1 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.0 | 0.0 |
| Control Delay (s/veh) | 19.5 | 9.9 | 46.2 | 10.7 | 9.5 | 0.0 | 0.0 | 0.0 | 12.4 | 0.0 | 0.0 | 0.0 |
| Lane LOS | C | A | E | B | A | | | | B | | | |
| Approach Delay (s/veh) | 10.8 | | 43.0 | | 0.5 | | | | 0.6 | | | |
| Approach LOS | B | | E | | | | | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 4.1 | | |
| Intersection Capacity Utilization | 41.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

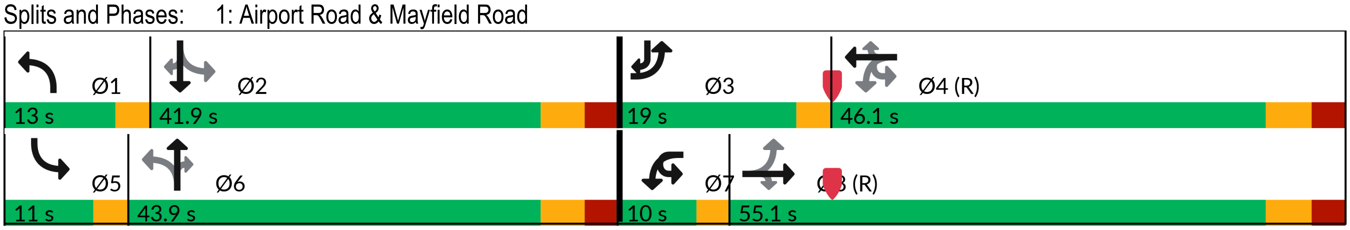
| Movement | SBT | SBR |
|---|---|---|
| Lane Configurations | | |
| Traffic Volume (veh/h) | 381 | 3 |
| Future Volume (Veh/h) | 381 | 3 |
| Sign Control | Free | |
| Grade | 0% | |
| Peak Hour Factor | 1.00 | 1.00 |
| Hourly flow rate (vph) | 381 | 3 |
| Pedestrians | | |
| Lane Width (m) | | |
| Walking Speed (m/s) | | |
| Percent Blockage | | |
| Right turn flare (veh) | | |
| Median type | None | |
| Median storage veh) | | |
| Upstream signal (m) | | |
| pX, platoon unblocked | | |
| vC, conflicting volume | | |
| vC1, stage 1 conf vol | | |
| vC2, stage 2 conf vol | | |
| vCu, unblocked vol | | |
| tC, single (s) | | |
| tC, 2 stage (s) | | |
| tF (s) | | |
| p0 queue free % | | |
| cM capacity (veh/h) | | |

| Direction, Lane # |
|---|

| Lane Group | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 371 | 1014 | 506 | 1 | 103 | 589 | 81 | 257 | 443 | 157 | 105 | 622 |
| Future Volume (vph) | 371 | 1014 | 506 | 1 | 103 | 589 | 81 | 257 | 443 | 157 | 105 | 622 |
| Turn Type | pm+pt | NA | Perm | pm+pt | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA |
| Protected Phases | 3 | 8 | | 7 | 7 | 4 | | 1 | 6 | | 5 | 2 |
| Permitted Phases | 8 | | 8 | 4 | 4 | | 4 | 6 | | 6 | 2 | |
| Detector Phase | 3 | 8 | 8 | 7 | 7 | 4 | 4 | 1 | 6 | 6 | 5 | 2 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 12.0 | 12.0 | 5.0 | 5.0 | 12.0 | 12.0 | 5.0 | 12.0 | 12.0 | 5.0 | 12.0 |
| Minimum Split (s) | 8.0 | 46.1 | 46.1 | 8.0 | 8.0 | 46.1 | 46.1 | 8.0 | 41.9 | 41.9 | 8.0 | 41.9 |
| Total Split (s) | 19.0 | 55.1 | 55.1 | 10.0 | 10.0 | 46.1 | 46.1 | 13.0 | 43.9 | 43.9 | 11.0 | 41.9 |
| Total Split (%) | 15.8% | 45.9% | 45.9% | 8.3% | 8.3% | 38.4% | 38.4% | 10.8% | 36.6% | 36.6% | 9.2% | 34.9% |
| Yellow Time (s) | 3.0 | 4.0 | 4.0 | 3.0 | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 |
| All-Red Time (s) | 0.0 | 3.1 | 3.1 | 0.0 | 0.0 | 3.1 | 3.1 | 0.0 | 2.9 | 2.9 | 0.0 | 2.9 |
| Lost Time Adjust (s) | 0.0 | 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 | 7.1 | 7.1 | | 3.0 | 7.1 | 7.1 | 3.0 | 6.9 | 6.9 | 3.0 | 6.9 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Recall Mode | None | C-Max | C-Max | None | None | C-Max | C-Max | None | Max | Max | None | Max |
| Act Effct Green (s) | 62.1 | 48.2 | 48.2 | | 49.9 | 39.0 | 39.0 | 51.1 | 37.4 | 37.4 | 46.5 | 35.0 |
| Actuated g/C Ratio | 0.52 | 0.40 | 0.40 | | 0.42 | 0.33 | 0.33 | 0.43 | 0.31 | 0.31 | 0.39 | 0.29 |
| v/c Ratio | 0.89 | 0.49 | 0.66 | | 0.48 | 0.37 | 0.19 | 0.87 | 0.46 | 0.31 | 0.35 | 0.67 |
| Control Delay (s/veh) | 32.5 | 12.4 | 16.8 | | 24.2 | 32.0 | 2.8 | 55.0 | 35.2 | 6.5 | 32.7 | 49.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 32.5 | 12.4 | 16.8 | | 24.2 | 32.0 | 2.8 | 55.0 | 35.2 | 6.5 | 32.7 | 49.1 |
| LOS | C | B | B | | C | C | A | D | D | A | C | D |
| Approach Delay (s/veh) | | 17.5 | | | | 27.9 | | | 35.9 | | | 40.8 |
| Approach LOS | | B | | | | C | | | D | | | D |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 30 (25%), Referenced to phase 4:WBTL and 8:EBTL, Start of Green | |
| Natural Cycle: 105 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.89 | |
| Intersection Signal Delay (s/veh): 27.8 | Intersection LOS: C |
| Intersection Capacity Utilization 114.8% | ICU Level of Service H |
| Analysis Period (min) 15 | |

Splits and Phases: 1: Airport Road & Mayfield Road



| Lane Group | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 232 |
| Future Volume (vph) | 232 |
| Turn Type | pm+ov |
| Protected Phases | 3 |
| Permitted Phases | 2 |
| Detector Phase | 3 |
| Switch Phase | |
| Minimum Initial (s) | 5.0 |
| Minimum Split (s) | 8.0 |
| Total Split (s) | 19.0 |
| Total Split (%) | 15.8% |
| Yellow Time (s) | 3.0 |
| All-Red Time (s) | 0.0 |
| Lost Time Adjust (s) | 0.0 |
| Total Lost Time (s) | 3.0 |
| Lead/Lag | Lead |
| Lead-Lag Optimize? | Yes |
| Recall Mode | None |
| Act Effct Green (s) | 54.9 |
| Actuated g/C Ratio | 0.46 |
| v/c Ratio | 0.39 |
| Control Delay (s/veh) | 22.1 |
| Queue Delay | 0.0 |
| Total Delay (s/veh) | 22.1 |
| LOS | C |
| Approach Delay (s/veh) | |
| Approach LOS | |

| Intersection Summary |
|---|

| Movement | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 371 | 1014 | 506 | 1 | 103 | 589 | 81 | 257 | 443 | 157 | 105 | 622 |
| Future Volume (vph) | 371 | 1014 | 506 | 1 | 103 | 589 | 81 | 257 | 443 | 157 | 105 | 622 |
| Ideal Flow (vphpl) | 1900 | 2000 | 1900 | 1900 | 1900 | 2000 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.5 | 3.6 | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 |
| Total Lost time (s) | 3.0 | 7.1 | 7.1 | | 3.0 | 7.1 | 7.1 | 3.0 | 6.9 | 6.9 | 3.0 | 6.9 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 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 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1512 | 5160 | 1476 | | 1430 | 4843 | 1091 | 1683 | 3093 | 1267 | 1391 | 3202 |
| Flt Permitted | 0.35 | 1.00 | 1.00 | | 0.25 | 1.00 | 1.00 | 0.26 | 1.00 | 1.00 | 0.45 | 1.00 |
| Satd. Flow (perm) | 557 | 5160 | 1476 | | 382 | 4843 | 1091 | 453 | 3093 | 1267 | 663 | 3202 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 371 | 1014 | 506 | 1 | 103 | 589 | 81 | 257 | 443 | 157 | 105 | 622 |
| RTOR Reduction (vph) | 0 | 0 | 168 | 0 | 0 | 0 | 55 | 0 | 0 | 108 | 0 | 0 |
| Lane Group Flow (vph) | 371 | 1014 | 338 | 0 | 104 | 589 | 26 | 257 | 443 | 49 | 105 | 622 |
| Confl. Peds. (#/hr) | 5 | | 9 | | 9 | | 5 | 5 | | 12 | 12 | |
| Heavy Vehicles (%) | 18% | 7% | 6% | 0% | 25% | 14% | 44% | 6% | 18% | 23% | 28% | 14% |
| Turn Type | pm+pt | NA | Perm | pm+pt | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA |
| Protected Phases | 3 | 8 | | 7 | 7 | 4 | | 1 | 6 | | 5 | 2 |
| Permitted Phases | 8 | | 8 | 4 | 4 | | 4 | 6 | | 6 | 2 | |
| Actuated Green, G (s) | 58.0 | 48.2 | 48.2 | | 45.8 | 39.0 | 39.0 | 47.4 | 37.4 | 37.4 | 42.6 | 35.0 |
| Effective Green, g (s) | 58.0 | 48.2 | 48.2 | | 45.8 | 39.0 | 39.0 | 47.4 | 37.4 | 37.4 | 42.6 | 35.0 |
| Actuated g/C Ratio | 0.48 | 0.40 | 0.40 | | 0.38 | 0.33 | 0.33 | 0.39 | 0.31 | 0.31 | 0.36 | 0.29 |
| Clearance Time (s) | 3.0 | 7.1 | 7.1 | | 3.0 | 7.1 | 7.1 | 3.0 | 6.9 | 6.9 | 3.0 | 6.9 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 396 | 2072 | 592 | | 205 | 1573 | 354 | 281 | 963 | 394 | 281 | 933 |
| v/s Ratio Prot | c0.12 | 0.20 | | | 0.03 | 0.12 | | c0.08 | 0.14 | | 0.02 | 0.19 |
| v/s Ratio Perm | c0.33 | | 0.23 | | 0.16 | | 0.02 | c0.28 | | 0.04 | 0.11 | |
| v/c Ratio | 0.94 | 0.49 | 0.57 | | 0.51 | 0.37 | 0.07 | 0.91 | 0.46 | 0.12 | 0.37 | 0.67 |
| Uniform Delay, d1 | 24.0 | 26.7 | 27.9 | | 24.8 | 31.1 | 28.0 | 30.8 | 33.2 | 29.6 | 27.0 | 37.4 |
| Progression Factor | 0.44 | 0.43 | 1.03 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.37 | 1.20 |
| Incremental Delay, d2 | 26.0 | 0.7 | 3.3 | | 2.0 | 0.7 | 0.4 | 32.0 | 1.6 | 0.6 | 0.8 | 3.6 |
| Delay (s) | 36.5 | 12.3 | 32.0 | | 26.7 | 31.8 | 28.4 | 62.9 | 34.8 | 30.2 | 37.8 | 48.6 |
| Level of Service | D | B | C | | C | C | C | E | C | C | D | D |
| Approach Delay (s/veh) | | 22.3 | | | | 30.8 | | | 42.4 | | | 46.6 |
| Approach LOS | | C | | | | C | | | D | | | D |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 32.8 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.97 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 114.8% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

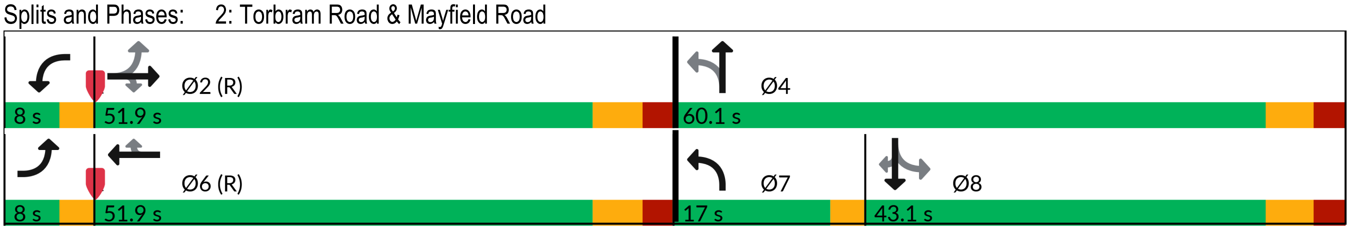
| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 232 |
| Future Volume (vph) | 232 |
| Ideal Flow (vphpl) | 1900 |
| Lane Width | 3.5 |
| Total Lost time (s) | 3.0 |
| Lane Util. Factor | 1.00 |
| Frpb, ped/bikes | 0.99 |
| Flpb, ped/bikes | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1178 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1178 |
| Peak-hour factor, PHF | 1.00 |
| Adj. Flow (vph) | 232 |
| RTOR Reduction (vph) | 60 |
| Lane Group Flow (vph) | 172 |
| Confl. Peds. (#/hr) | 5 |
| Heavy Vehicles (%) | 34% |
| Turn Type | pm+ov |
| Protected Phases | 3 |
| Permitted Phases | 2 |
| Actuated Green, G (s) | 51.0 |
| Effective Green, g (s) | 51.0 |
| Actuated g/C Ratio | 0.43 |
| Clearance Time (s) | 3.0 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 500 |
| v/s Ratio Prot | 0.05 |
| v/s Ratio Perm | 0.10 |
| v/c Ratio | 0.34 |
| Uniform Delay, d1 | 23.2 |
| Progression Factor | 1.93 |
| Incremental Delay, d2 | 0.4 |
| Delay (s) | 45.2 |
| Level of Service | D |
| Approach Delay (s/veh) | |
| Approach LOS | |

| Intersection Summary |
|---|

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (vph) | 174 | 1831 | 362 | 201 | 974 | 73 | 322 | 255 | 72 | 836 | 256 |
| Future Volume (vph) | 174 | 1831 | 362 | 201 | 974 | 73 | 322 | 255 | 72 | 836 | 256 |
| Turn Type | pm+pt | NA | Perm | Prot | NA | Perm | pm+pt | NA | Perm | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 7 | 4 | | 8 | |
| Permitted Phases | 2 | | 2 | | | 6 | 4 | | 8 | | 8 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 7 | 4 | 8 | 8 | 8 |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 16.0 | 16.0 | 5.0 | 16.0 | 16.0 | 5.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| Minimum Split (s) | 8.0 | 50.3 | 50.3 | 8.0 | 50.3 | 50.3 | 9.5 | 43.1 | 43.1 | 43.1 | 43.1 |
| Total Split (s) | 8.0 | 51.9 | 51.9 | 8.0 | 51.9 | 51.9 | 17.0 | 60.1 | 43.1 | 43.1 | 43.1 |
| Total Split (%) | 6.7% | 43.3% | 43.3% | 6.7% | 43.3% | 43.3% | 14.2% | 50.1% | 35.9% | 35.9% | 35.9% |
| Yellow Time (s) | 3.0 | 4.6 | 4.6 | 3.0 | 4.6 | 4.6 | 3.0 | 4.2 | 4.2 | 4.2 | 4.2 |
| All-Red Time (s) | 0.0 | 2.7 | 2.7 | 0.0 | 2.7 | 2.7 | 0.0 | 2.9 | 2.9 | 2.9 | 2.9 |
| Lost Time Adjust (s) | 0.0 | 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 | 3.0 | 7.1 | 7.1 | 7.1 | 7.1 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | | Lag | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | Yes |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | Max | Max | Max |
| Act Effct Green (s) | 53.9 | 44.6 | 44.6 | 5.0 | 44.6 | 44.6 | 57.1 | 53.0 | 36.0 | 36.0 | 36.0 |
| Actuated g/C Ratio | 0.45 | 0.37 | 0.37 | 0.04 | 0.37 | 0.37 | 0.48 | 0.44 | 0.30 | 0.30 | 0.30 |
| v/c Ratio | 0.75 | 1.03 | 0.48 | 1.43 | 0.59 | 0.11 | 1.09 | 0.27 | 0.25 | 0.77 | 0.45 |
| Control Delay (s/veh) | 43.3 | 67.8 | 8.2 | 270.4 | 22.1 | 2.4 | 105.7 | 15.6 | 34.7 | 44.0 | 19.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 43.3 | 67.8 | 8.2 | 270.4 | 22.1 | 2.4 | 105.7 | 15.6 | 34.7 | 44.0 | 19.5 |
| LOS | D | E | A | F | C | A | F | B | C | D | B |
| Approach Delay (s/veh) | | 56.9 | | | 60.9 | | | 55.2 | | 38.0 | |
| Approach LOS | | E | | | E | | | E | | D | |

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: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.43
Intersection Signal Delay (s/veh): 53.6    Intersection LOS: D
Intersection Capacity Utilization 100.7%    ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 2: Torbram Road & Mayfield Road



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 174 | 1831 | 362 | 201 | 974 | 73 | 322 | 255 | 156 | 72 | 836 | 256 |
| Future Volume (vph) | 174 | 1831 | 362 | 201 | 974 | 73 | 322 | 255 | 156 | 72 | 836 | 256 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.5 |
| Total Lost time (s) | 3.0 | 7.3 | 7.3 | 3.0 | 7.3 | 7.3 | 3.0 | 7.1 | | 7.1 | 7.1 | 7.1 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.94 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1767 | 4768 | 1536 | 3395 | 4445 | 1601 | 1750 | 3338 | | 1785 | 3614 | 1581 |
| Flt Permitted | 0.21 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.14 | 1.00 | | 0.51 | 1.00 | 1.00 |
| Satd. Flow (perm) | 391 | 4768 | 1536 | 3395 | 4445 | 1601 | 254 | 3338 | | 960 | 3614 | 1581 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 174 | 1831 | 362 | 201 | 974 | 73 | 322 | 255 | 156 | 72 | 836 | 256 |
| RTOR Reduction (vph) | 0 | 0 | 185 | 0 | 0 | 46 | 0 | 62 | 0 | 0 | 0 | 89 |
| Lane Group Flow (vph) | 174 | 1831 | 177 | 201 | 974 | 27 | 322 | 349 | 0 | 72 | 836 | 167 |
| Heavy Vehicles (%) | 1% | 10% | 4% | 2% | 18% | 2% | 2% | 2% | 5% | 0% | 1% | 1% |
| Turn Type | pm+pt | NA | Perm | Prot | NA | Perm | pm+pt | NA | | Perm | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 7 | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | | | 6 | 4 | | | 8 | | 8 |
| Actuated Green, G (s) | 49.6 | 44.6 | 44.6 | 5.0 | 44.6 | 44.6 | 53.0 | 53.0 | | 36.0 | 36.0 | 36.0 |
| Effective Green, g (s) | 49.6 | 44.6 | 44.6 | 5.0 | 44.6 | 44.6 | 53.0 | 53.0 | | 36.0 | 36.0 | 36.0 |
| Actuated g/C Ratio | 0.41 | 0.37 | 0.37 | 0.04 | 0.37 | 0.37 | 0.44 | 0.44 | | 0.30 | 0.30 | 0.30 |
| Clearance Time (s) | 3.0 | 7.3 | 7.3 | 3.0 | 7.3 | 7.3 | 3.0 | 7.1 | | 7.1 | 7.1 | 7.1 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 218 | 1772 | 570 | 141 | 1652 | 595 | 286 | 1474 | | 288 | 1084 | 474 |
| v/s Ratio Prot | 0.03 | c0.38 | | c0.06 | 0.22 | | c0.13 | 0.10 | | | 0.23 | |
| v/s Ratio Perm | 0.30 | | 0.12 | | | 0.02 | c0.37 | | | 0.08 | | 0.11 |
| v/c Ratio | 0.80 | 1.03 | 0.31 | 1.43 | 0.59 | 0.05 | 1.13 | 0.24 | | 0.25 | 0.77 | 0.35 |
| Uniform Delay, d1 | 28.2 | 37.7 | 26.8 | 57.5 | 30.3 | 24.1 | 29.4 | 20.9 | | 31.8 | 38.2 | 32.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.18 | 0.68 | 0.67 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 18.1 | 30.5 | 1.4 | 224.7 | 1.4 | 0.1 | 91.5 | 0.4 | | 2.1 | 5.3 | 2.1 |
| Delay (s) | 46.3 | 68.2 | 28.2 | 292.7 | 21.9 | 16.2 | 120.9 | 21.3 | | 33.9 | 43.6 | 34.9 |
| Level of Service | D | E | C | F | C | B | F | C | | C | D | C |
| Approach Delay (s/veh) | | 60.5 | | | 65.2 | | | 65.0 | | | 41.1 | |
| Approach LOS | | E | | | E | | | E | | | D | |

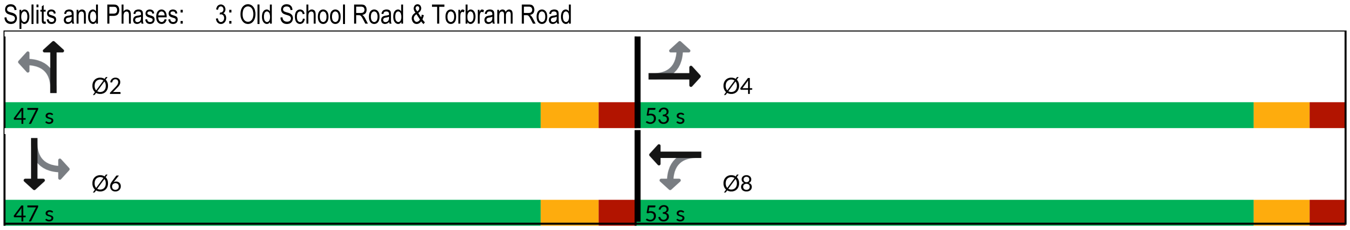
| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 58.0 | HCM 2000 Level of Service | E |
| HCM 2000 Volume to Capacity ratio | 1.13 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.4 |
| Intersection Capacity Utilization | 100.7% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | |
| Traffic Volume (vph) | 49 | 521 | 35 | 152 | 13 | 138 | 4 | 472 |
| Future Volume (vph) | 49 | 521 | 35 | 152 | 13 | 138 | 4 | 472 |
| Turn Type | Perm | NA | Perm | NA | Perm | NA | Perm | NA |
| Protected Phases | | 4 | | 8 | | 2 | | 6 |
| Permitted Phases | 4 | | 8 | | 2 | | 6 | |
| Detector Phase | 4 | 4 | 8 | 8 | 2 | 2 | 6 | 6 |
| Switch Phase | | | | | | | | |
| Minimum Initial (s) | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| Minimum Split (s) | 24.9 | 24.9 | 24.9 | 24.9 | 24.9 | 24.9 | 24.9 | 24.9 |
| Total Split (s) | 53.0 | 53.0 | 53.0 | 53.0 | 47.0 | 47.0 | 47.0 | 47.0 |
| Total Split (%) | 53.0% | 53.0% | 53.0% | 53.0% | 47.0% | 47.0% | 47.0% | 47.0% |
| Yellow Time (s) | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 |
| All-Red Time (s) | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 6.9 | 6.9 | 6.9 | 6.9 | 6.9 | 6.9 | 6.9 | 6.9 |
| Lead/Lag | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | |
| Recall Mode | Min | Min | Min | Min | Max | Max | Max | Max |
| Act Effct Green (s) | 16.7 | 16.7 | 16.7 | 16.7 | 40.2 | 40.2 | 40.2 | 40.2 |
| Actuated g/C Ratio | 0.24 | 0.24 | 0.24 | 0.24 | 0.57 | 0.57 | 0.57 | 0.57 |
| v/c Ratio | 0.17 | 0.69 | 0.24 | 0.18 | 0.03 | 0.08 | 0.01 | 0.24 |
| Control Delay (s/veh) | 22.5 | 28.5 | 26.0 | 21.4 | 8.3 | 7.0 | 8.0 | 8.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 22.5 | 28.5 | 26.0 | 21.4 | 8.3 | 7.0 | 8.0 | 8.4 |
| LOS | C | C | C | C | A | A | A | A |
| Approach Delay (s/veh) | | 28.0 | | 22.2 | | 7.1 | | 8.4 |
| Approach LOS | | C | | C | | A | | A |

| Intersection Summary | |
|---|---|
| Cycle Length: 100 | |
| Actuated Cycle Length: 70.7 | |
| Natural Cycle: 50 | |
| Control Type: Semi Act-Uncoord | |
| Maximum v/c Ratio: 0.69 | |
| Intersection Signal Delay (s/veh): 18.3 | Intersection LOS: B |
| Intersection Capacity Utilization 57.3% | ICU Level of Service B |
| Analysis Period (min) 15 | |

Splits and Phases: 3: Old School Road & Torbram Road



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 49 | 521 | 57 | 35 | 152 | 2 | 13 | 138 | 17 | 4 | 472 | 26 |
| Future Volume (vph) | 49 | 521 | 57 | 35 | 152 | 2 | 13 | 138 | 17 | 4 | 472 | 26 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 |
| Total Lost time (s) | 6.9 | 6.9 | | 6.9 | 6.9 | | 6.9 | 6.9 | | 6.9 | 6.9 | |
| 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 | 1.00 | | 1.00 | 0.98 | | 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) | 1785 | 3505 | | 1785 | 3572 | | 1539 | 3501 | | 1428 | 3588 | |
| Flt Permitted | 0.65 | 1.00 | | 0.33 | 1.00 | | 0.47 | 1.00 | | 0.65 | 1.00 | |
| Satd. Flow (perm) | 1229 | 3505 | | 617 | 3572 | | 761 | 3501 | | 983 | 3588 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 49 | 521 | 57 | 35 | 152 | 2 | 13 | 138 | 17 | 4 | 472 | 26 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 2 | 0 | 0 | 7 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 49 | 567 | 0 | 35 | 152 | 0 | 13 | 148 | 0 | 4 | 495 | 0 |
| Heavy Vehicles (%) | 0% | 2% | 8% | 0% | 2% | 0% | 16% | 2% | 7% | 25% | 1% | 0% |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 16.7 | 16.7 | | 16.7 | 16.7 | | 40.2 | 40.2 | | 40.2 | 40.2 | |
| Effective Green, g (s) | 16.7 | 16.7 | | 16.7 | 16.7 | | 40.2 | 40.2 | | 40.2 | 40.2 | |
| Actuated g/C Ratio | 0.24 | 0.24 | | 0.24 | 0.24 | | 0.57 | 0.57 | | 0.57 | 0.57 | |
| Clearance Time (s) | 6.9 | 6.9 | | 6.9 | 6.9 | | 6.9 | 6.9 | | 6.9 | 6.9 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 290 | 827 | | 145 | 843 | | 432 | 1990 | | 558 | 2040 | |
| v/s Ratio Prot | | c0.16 | | | 0.04 | | | 0.04 | | | c0.14 | |
| v/s Ratio Perm | 0.04 | | | 0.06 | | | 0.02 | | | 0.00 | | |
| v/c Ratio | 0.17 | 0.69 | | 0.24 | 0.18 | | 0.03 | 0.07 | | 0.01 | 0.24 | |
| Uniform Delay, d1 | 21.5 | 24.6 | | 21.9 | 21.5 | | 6.7 | 6.9 | | 6.6 | 7.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.3 | 2.4 | | 0.9 | 0.1 | | 0.1 | 0.1 | | 0.0 | 0.3 | |
| Delay (s) | 21.8 | 27.0 | | 22.7 | 21.6 | | 6.8 | 6.9 | | 6.6 | 7.9 | |
| Level of Service | C | C | | C | C | | A | A | | A | A | |
| Approach Delay (s/veh) | | 26.6 | | | 21.8 | | | 6.9 | | | 7.9 | |
| Approach LOS | | C | | | C | | | A | | | A | |

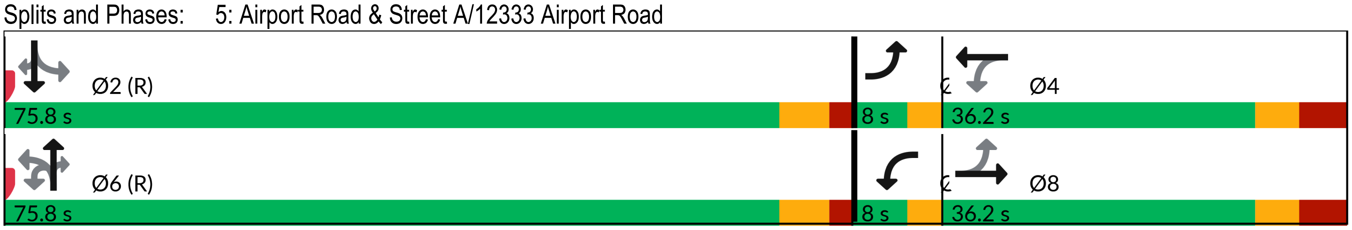
| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 17.4 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.37 | | |
| Actuated Cycle Length (s) | 70.7 | Sum of lost time (s) | 13.8 |
| Intersection Capacity Utilization | 57.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Lane Group | EBL | EBT | WBL | WBT | NBU | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (vph) | 23 | 0 | 42 | 0 | 2 | 127 | 543 | 46 | 8 | 832 | 91 |
| Future Volume (vph) | 23 | 0 | 42 | 0 | 2 | 127 | 543 | 46 | 8 | 832 | 91 |
| Turn Type | pm+pt | NA | pm+pt | NA | Perm | Perm | NA | Perm | Perm | NA | Perm |
| Protected Phases | 3 | 8 | 7 | 4 | | | 6 | | | 2 | |
| Permitted Phases | 8 | | 4 | | 6 | 6 | | 6 | 2 | | 2 |
| Detector Phase | 3 | 8 | 7 | 4 | 6 | 6 | 6 | 6 | 2 | 2 | 2 |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 12.0 | 5.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| Minimum Split (s) | 8.0 | 36.2 | 8.0 | 36.2 | 35.6 | 35.6 | 35.6 | 35.6 | 35.6 | 35.6 | 35.6 |
| Total Split (s) | 8.0 | 36.2 | 8.0 | 36.2 | 75.8 | 75.8 | 75.8 | 75.8 | 75.8 | 75.8 | 75.8 |
| Total Split (%) | 6.7% | 30.2% | 6.7% | 30.2% | 63.2% | 63.2% | 63.2% | 63.2% | 63.2% | 63.2% | 63.2% |
| Yellow Time (s) | 3.0 | 4.0 | 3.0 | 4.0 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 |
| All-Red Time (s) | 0.0 | 4.2 | 0.0 | 4.2 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 3.0 | 8.2 | 3.0 | 8.2 | | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 |
| Lead/Lag | Lead | Lag | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | | | | | | | |
| Recall Mode | None | None | None | None | C-Max | C-Max | C-Max | C-Max | C-Max | C-Max | C-Max |
| Act Effct Green (s) | 19.4 | 12.0 | 16.5 | 15.2 | | 92.2 | 92.2 | 92.2 | 92.2 | 92.2 | 92.2 |
| Actuated g/C Ratio | 0.16 | 0.10 | 0.14 | 0.13 | | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| v/c Ratio | 0.12 | 0.27 | 0.33 | 0.01 | | 0.38 | 0.23 | 0.05 | 0.02 | 0.34 | 0.09 |
| Control Delay (s/veh) | 40.0 | 2.1 | 52.0 | 0.0 | | 7.9 | 4.0 | 0.3 | 5.0 | 5.7 | 1.0 |
| 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) | 40.0 | 2.1 | 52.0 | 0.0 | | 7.9 | 4.0 | 0.3 | 5.0 | 5.7 | 1.0 |
| LOS | D | A | D | A | | A | A | A | A | A | A |
| Approach Delay (s/veh) | | 10.2 | | 48.5 | | | 4.5 | | | 5.2 | |
| Approach LOS | | B | | D | | | A | | | A | |

| 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 | |
| Maximum v/c Ratio: 0.38 | |
| Intersection Signal Delay (s/veh): 6.3 | Intersection LOS: A |
| Intersection Capacity Utilization 62.0% | ICU Level of Service B |
| Analysis Period (min) 15 | |

Splits and Phases: 5: Airport Road & Street A/12333 Airport Road



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 23 | 0 | 85 | 42 | 0 | 3 | 2 | 127 | 543 | 46 | 8 | 832 |
| Future Volume (vph) | 23 | 0 | 85 | 42 | 0 | 3 | 2 | 127 | 543 | 46 | 8 | 832 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.6 | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 |
| Total Lost time (s) | 3.0 | 8.2 | | 3.0 | 8.2 | | | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 0.96 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 |
| Frt | 1.00 | 0.85 | | 1.00 | 0.85 | | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1405 | 1228 | | 1152 | 1219 | | | 1318 | 3093 | 1209 | 1282 | 3174 |
| Flt Permitted | 0.63 | 1.00 | | 0.70 | 1.00 | | | 0.32 | 1.00 | 1.00 | 0.45 | 1.00 |
| Satd. Flow (perm) | 938 | 1228 | | 851 | 1219 | | | 446 | 3093 | 1209 | 607 | 3174 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 23 | 0 | 85 | 42 | 0 | 3 | 2 | 127 | 543 | 46 | 8 | 832 |
| RTOR Reduction (vph) | 0 | 76 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 13 | 0 | 0 |
| Lane Group Flow (vph) | 23 | 9 | 0 | 42 | 0 | 0 | 0 | 129 | 543 | 33 | 8 | 832 |
| Confl. Peds. (#/hr) | | | | | | | | | | 9 | 9 | |
| Heavy Vehicles (%) | 27% | 0% | 33% | 55% | 0% | 34% | 0% | 36% | 18% | 27% | 38% | 15% |
| Turn Type | pm+pt | NA | | pm+pt | NA | | Perm | Perm | NA | Perm | Perm | NA |
| Protected Phases | 3 | 8 | | 7 | 4 | | | | 6 | | | 2 |
| Permitted Phases | 8 | | | 4 | | | 6 | 6 | | 6 | 2 | |
| Actuated Green, G (s) | 18.4 | 12.4 | | 14.4 | 10.4 | | | 85.8 | 85.8 | 85.8 | 85.8 | 85.8 |
| Effective Green, g (s) | 18.4 | 12.4 | | 14.4 | 10.4 | | | 85.8 | 85.8 | 85.8 | 85.8 | 85.8 |
| Actuated g/C Ratio | 0.15 | 0.10 | | 0.12 | 0.09 | | | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 |
| Clearance Time (s) | 3.0 | 8.2 | | 3.0 | 8.2 | | | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 |
| 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) | 167 | 126 | | 112 | 105 | | | 318 | 2211 | 864 | 434 | 2269 |
| v/s Ratio Prot | c0.01 | 0.01 | | c0.01 | 0.00 | | | | 0.18 | | | 0.26 |
| v/s Ratio Perm | 0.01 | | | c0.03 | | | | c0.29 | | 0.03 | 0.01 | |
| v/c Ratio | 0.14 | 0.07 | | 0.38 | 0.00 | | | 0.41 | 0.25 | 0.04 | 0.02 | 0.37 |
| Uniform Delay, d1 | 43.7 | 48.6 | | 48.2 | 50.1 | | | 6.9 | 5.9 | 5.0 | 4.9 | 6.6 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.65 | 0.70 | 0.51 | 0.94 | 0.89 |
| Incremental Delay, d2 | 0.4 | 0.2 | | 2.1 | 0.0 | | | 3.7 | 0.3 | 0.1 | 0.1 | 0.4 |
| Delay (s) | 44.1 | 48.8 | | 50.3 | 50.1 | | | 8.2 | 4.4 | 2.6 | 4.7 | 6.3 |
| Level of Service | D | D | | D | D | | | A | A | A | A | A |
| Approach Delay (s/veh) | | 47.8 | | | 50.3 | | | | 5.0 | | | 6.1 |
| Approach LOS | | D | | | D | | | | A | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 9.2 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.39 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 17.8 |
| Intersection Capacity Utilization | 62.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

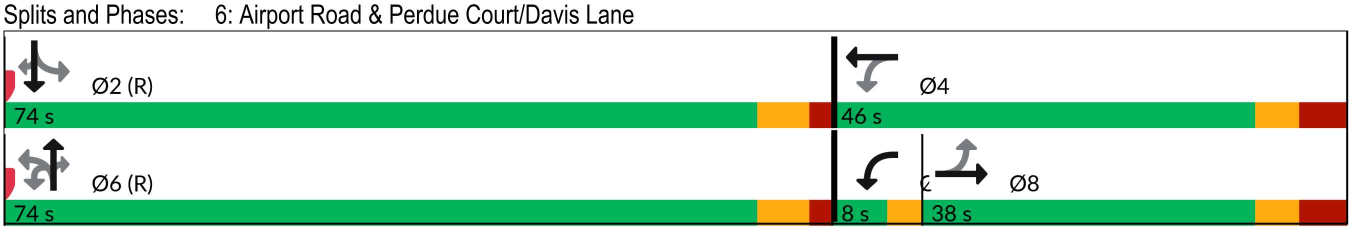
| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 91 |
| Future Volume (vph) | 91 |
| Ideal Flow (vphpl) | 1900 |
| Lane Width | 3.5 |
| Total Lost time (s) | 6.6 |
| Lane Util. Factor | 1.00 |
| Frpb, ped/bikes | 1.00 |
| Flpb, ped/bikes | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1238 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1238 |
| Peak-hour factor, PHF | 1.00 |
| Adj. Flow (vph) | 91 |
| RTOR Reduction (vph) | 26 |
| Lane Group Flow (vph) | 65 |
| Confl. Peds. (#/hr) | |
| Heavy Vehicles (%) | 29% |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 2 |
| Actuated Green, G (s) | 85.8 |
| Effective Green, g (s) | 85.8 |
| Actuated g/C Ratio | 0.72 |
| Clearance Time (s) | 6.6 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 885 |
| v/s Ratio Prot | |
| v/s Ratio Perm | 0.05 |
| v/c Ratio | 0.07 |
| Uniform Delay, d1 | 5.1 |
| Progression Factor | 0.76 |
| Incremental Delay, d2 | 0.2 |
| Delay (s) | 4.1 |
| Level of Service | A |
| Approach Delay (s/veh) | |
| Approach LOS | |

| Intersection Summary |
|---|

| Lane Group | EBL | EBT | WBL | WBT | NBU | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (vph) | 2 | 0 | 21 | 0 | 2 | 70 | 733 | 32 | 4 | 946 | 3 |
| Future Volume (vph) | 2 | 0 | 21 | 0 | 2 | 70 | 733 | 32 | 4 | 946 | 3 |
| Turn Type | Perm | NA | pm+pt | NA | Perm | Perm | NA | Perm | Perm | NA | Perm |
| Protected Phases | | 8 | 7 | 4 | | | 6 | | | 2 | |
| Permitted Phases | 8 | | 4 | | 6 | 6 | | 6 | 2 | | 2 |
| Detector Phase | 8 | 8 | 7 | 4 | 6 | 6 | 6 | 6 | 2 | 2 | 2 |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | 12.0 | 12.0 | 5.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| Minimum Split (s) | 36.2 | 36.2 | 8.0 | 36.2 | 35.6 | 35.6 | 35.6 | 35.6 | 35.6 | 35.6 | 35.6 |
| Total Split (s) | 38.0 | 38.0 | 8.0 | 46.0 | 74.0 | 74.0 | 74.0 | 74.0 | 74.0 | 74.0 | 74.0 |
| Total Split (%) | 31.7% | 31.7% | 6.7% | 38.3% | 61.7% | 61.7% | 61.7% | 61.7% | 61.7% | 61.7% | 61.7% |
| Yellow Time (s) | 4.0 | 4.0 | 3.0 | 4.0 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 |
| All-Red Time (s) | 4.2 | 4.2 | 0.0 | 4.2 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 8.2 | 8.2 | 3.0 | 8.2 | | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 |
| 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 | C-Max | C-Max | C-Max |
| Act Effct Green (s) | 12.0 | 12.0 | 15.5 | 15.2 | | 100.7 | 100.7 | 100.7 | 100.7 | 100.7 | 100.7 |
| Actuated g/C Ratio | 0.10 | 0.10 | 0.13 | 0.13 | | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| v/c Ratio | 0.03 | 0.11 | 0.22 | 0.01 | | 0.19 | 0.29 | 0.03 | 0.01 | 0.36 | 0.00 |
| Control Delay (s/veh) | 50.0 | 0.9 | 46.5 | 0.0 | | 3.7 | 2.5 | 0.1 | 4.0 | 3.4 | 0.0 |
| 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) | 50.0 | 0.9 | 46.5 | 0.0 | | 3.7 | 2.5 | 0.1 | 4.0 | 3.4 | 0.0 |
| LOS | D | A | D | A | | A | A | A | A | A | A |
| Approach Delay (s/veh) | | 4.2 | | 40.7 | | | 2.5 | | | 3.4 | |
| Approach LOS | | A | | D | | | A | | | A | |

| 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 | |
| Maximum v/c Ratio: 0.36 | |
| Intersection Signal Delay (s/veh): 3.5 | Intersection LOS: A |
| Intersection Capacity Utilization 64.4% | ICU Level of Service C |
| Analysis Period (min) 15 | |

Splits and Phases: 6: Airport Road & Perdue Court/Davis Lane



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 2 | 0 | 28 | 21 | 0 | 3 | 2 | 70 | 733 | 32 | 4 | 946 |
| Future Volume (vph) | 2 | 0 | 28 | 21 | 0 | 3 | 2 | 70 | 733 | 32 | 4 | 946 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.6 | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 |
| Total Lost time (s) | 8.2 | 8.2 | | 3.0 | 8.2 | | | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 0.96 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 |
| Frt | 1.00 | 0.85 | | 1.00 | 0.85 | | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 892 | 921 | | 1068 | 816 | | | 1469 | 3042 | 1131 | 1179 | 3093 |
| Flt Permitted | 0.76 | 1.00 | | 0.52 | 1.00 | | | 0.29 | 1.00 | 1.00 | 0.37 | 1.00 |
| Satd. Flow (perm) | 710 | 921 | | 587 | 816 | | | 449 | 3042 | 1131 | 459 | 3093 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 2 | 0 | 28 | 21 | 0 | 3 | 2 | 70 | 733 | 32 | 4 | 946 |
| RTOR Reduction (vph) | 0 | 26 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 7 | 0 | 0 |
| Lane Group Flow (vph) | 2 | 2 | 0 | 21 | 0 | 0 | 0 | 72 | 733 | 25 | 4 | 946 |
| Confl. Peds. (#/hr) | | | 1 | 1 | | | | 2 | | 12 | 12 | |
| Heavy Vehicles (%) | 100% | 0% | 75% | 67% | 0% | 100% | 0% | 22% | 20% | 35% | 50% | 18% |
| Turn Type | Perm | NA | | pm+pt | NA | | Perm | Perm | NA | Perm | Perm | NA |
| Protected Phases | | 8 | | 7 | 4 | | | | 6 | | | 2 |
| Permitted Phases | 8 | | | 4 | | | 6 | 6 | | 6 | 2 | |
| Actuated Green, G (s) | 7.2 | 7.2 | | 12.2 | 12.2 | | | 93.0 | 93.0 | 93.0 | 93.0 | 93.0 |
| Effective Green, g (s) | 7.2 | 7.2 | | 12.2 | 12.2 | | | 93.0 | 93.0 | 93.0 | 93.0 | 93.0 |
| Actuated g/C Ratio | 0.06 | 0.06 | | 0.10 | 0.10 | | | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 |
| Clearance Time (s) | 8.2 | 8.2 | | 3.0 | 8.2 | | | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 |
| 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) | 42 | 55 | | 67 | 82 | | | 347 | 2357 | 876 | 355 | 2397 |
| v/s Ratio Prot | | 0.00 | | c0.01 | 0.00 | | | | 0.24 | | | c0.31 |
| v/s Ratio Perm | 0.00 | | | c0.03 | | | | 0.16 | | 0.02 | 0.01 | |
| v/c Ratio | 0.05 | 0.03 | | 0.31 | 0.00 | | | 0.21 | 0.31 | 0.03 | 0.01 | 0.39 |
| Uniform Delay, d1 | 53.2 | 53.1 | | 49.6 | 48.4 | | | 3.6 | 4.0 | 3.1 | 3.1 | 4.4 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.56 | 0.55 | 1.00 | 0.82 | 0.67 |
| Incremental Delay, d2 | 0.5 | 0.2 | | 2.7 | 0.0 | | | 1.1 | 0.3 | 0.0 | 0.1 | 0.5 |
| Delay (s) | 53.6 | 53.3 | | 52.3 | 48.5 | | | 3.1 | 2.5 | 3.2 | 2.6 | 3.4 |
| Level of Service | D | D | | D | D | | | A | A | A | A | A |
| Approach Delay (s/veh) | | 53.4 | | | 51.8 | | | | 2.5 | | | 3.4 |
| Approach LOS | | D | | | D | | | | A | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 4.5 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.40 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 17.8 |
| Intersection Capacity Utilization | 64.4% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

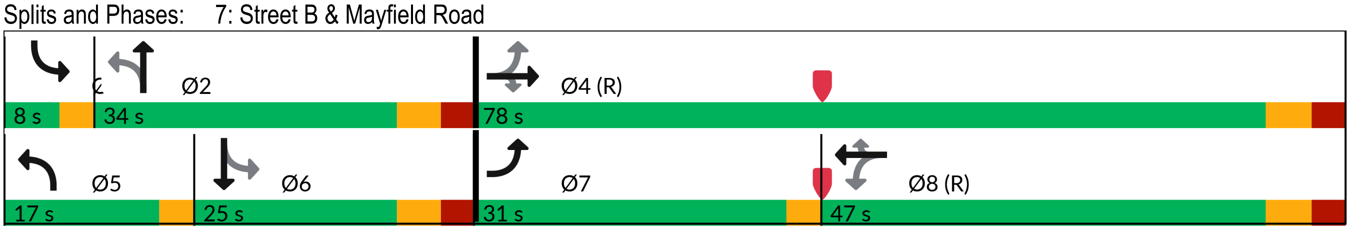
| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 3 |
| Future Volume (vph) | 3 |
| Ideal Flow (vphpl) | 1900 |
| Lane Width | 3.5 |
| Total Lost time (s) | 6.6 |
| Lane Util. Factor | 1.00 |
| Frpb, ped/bikes | 0.98 |
| Flpb, ped/bikes | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1559 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1559 |
| Peak-hour factor, PHF | 1.00 |
| Adj. Flow (vph) | 3 |
| RTOR Reduction (vph) | 1 |
| Lane Group Flow (vph) | 2 |
| Confl. Peds. (#/hr) | 2 |
| Heavy Vehicles (%) | 0% |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 2 |
| Actuated Green, G (s) | 93.0 |
| Effective Green, g (s) | 93.0 |
| Actuated g/C Ratio | 0.78 |
| Clearance Time (s) | 6.6 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 1208 |
| v/s Ratio Prot | |
| v/s Ratio Perm | 0.00 |
| v/c Ratio | 0.00 |
| Uniform Delay, d1 | 3.0 |
| Progression Factor | 1.00 |
| Incremental Delay, d2 | 0.0 |
| Delay (s) | 3.0 |
| Level of Service | A |
| Approach Delay (s/veh) | |
| Approach LOS | |

| Intersection Summary |
|---|

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | |
| Traffic Volume (vph) | 153 | 1895 | 110 | 14 | 1052 | 41 | 231 | 0 | 22 | 0 |
| Future Volume (vph) | 153 | 1895 | 110 | 14 | 1052 | 41 | 231 | 0 | 22 | 0 |
| Turn Type | pm+pt | NA | Perm | Perm | NA | Perm | pm+pt | NA | pm+pt | NA |
| Protected Phases | 7 | 4 | | | 8 | | 5 | 2 | 1 | 6 |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | 6 | |
| Detector Phase | 7 | 4 | 4 | 8 | 8 | 8 | 5 | 2 | 1 | 6 |
| Switch Phase | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 5.0 | 12.0 | 5.0 | 12.0 |
| Minimum Split (s) | 8.0 | 25.1 | 25.1 | 25.1 | 25.1 | 25.1 | 9.5 | 24.9 | 8.0 | 24.9 |
| Total Split (s) | 31.0 | 78.0 | 78.0 | 47.0 | 47.0 | 47.0 | 17.0 | 34.0 | 8.0 | 25.0 |
| Total Split (%) | 25.8% | 65.0% | 65.0% | 39.2% | 39.2% | 39.2% | 14.2% | 28.3% | 6.7% | 20.8% |
| Yellow Time (s) | 3.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 3.0 | 4.0 | 3.0 | 4.0 |
| All-Red Time (s) | 0.0 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 | 0.0 | 2.9 | 0.0 | 2.9 |
| 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 | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 | 3.0 | 6.9 | 3.0 | 6.9 |
| Lead/Lag | Lead | | | Lag | Lag | Lag | Lead | Lag | Lead | Lag |
| Lead-Lag Optimize? | Yes | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Recall Mode | None | C-Max | C-Max | C-Max | C-Max | C-Max | None | None | None | None |
| Act Effct Green (s) | 84.5 | 80.4 | 80.4 | 67.8 | 67.8 | 67.8 | 29.5 | 20.8 | 17.7 | 12.0 |
| Actuated g/C Ratio | 0.70 | 0.67 | 0.67 | 0.57 | 0.57 | 0.57 | 0.25 | 0.17 | 0.15 | 0.10 |
| v/c Ratio | 0.50 | 0.58 | 0.10 | 0.14 | 0.41 | 0.06 | 0.67 | 0.10 | 0.14 | 0.09 |
| Control Delay (s/veh) | 23.3 | 33.5 | 12.4 | 20.3 | 17.1 | 3.7 | 48.7 | 0.5 | 35.0 | 0.4 |
| 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) | 23.3 | 33.5 | 12.4 | 20.3 | 17.1 | 3.7 | 48.7 | 0.5 | 35.0 | 0.4 |
| LOS | C | C | B | C | B | A | D | A | C | A |
| Approach Delay (s/veh) | | 31.7 | | | 16.6 | | | 42.4 | | 11.2 |
| Approach LOS | | C | | | B | | | D | | B |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green | |
| Natural Cycle: 70 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.67 | |
| Intersection Signal Delay (s/veh): 27.5 | Intersection LOS: C |
| Intersection Capacity Utilization 83.7% | ICU Level of Service E |
| Analysis Period (min) 15 | |

Splits and Phases: 7: Street B & Mayfield Road



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 153 | 1895 | 110 | 14 | 1052 | 41 | 231 | 0 | 35 | 22 | 0 | 48 |
| Future Volume (vph) | 153 | 1895 | 110 | 14 | 1052 | 41 | 231 | 0 | 35 | 22 | 0 | 48 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 |
| Total Lost time (s) | 3.0 | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 | 3.0 | 6.9 | | 3.0 | 6.9 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 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 | 0.85 | | 1.00 | 0.85 | |
| 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) | 1373 | 4856 | 1597 | 1785 | 4521 | 1229 | 1785 | 1633 | | 1303 | 1256 | |
| Flt Permitted | 0.22 | 1.00 | 1.00 | 0.10 | 1.00 | 1.00 | 0.55 | 1.00 | | 0.73 | 1.00 | |
| Satd. Flow (perm) | 319 | 4856 | 1597 | 181 | 4521 | 1229 | 1039 | 1633 | | 1007 | 1256 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 153 | 1895 | 110 | 14 | 1052 | 41 | 231 | 0 | 35 | 22 | 0 | 48 |
| RTOR Reduction (vph) | 0 | 0 | 31 | 0 | 0 | 18 | 0 | 29 | 0 | 0 | 44 | 0 |
| Lane Group Flow (vph) | 153 | 1895 | 79 | 14 | 1052 | 23 | 231 | 6 | 0 | 22 | 4 | 0 |
| Heavy Vehicles (%) | 30% | 8% | 0% | 0% | 16% | 30% | 0% | 0% | 0% | 37% | 0% | 30% |
| Turn Type | pm+pt | NA | Perm | Perm | NA | Perm | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 79.0 | 79.0 | 79.0 | 66.4 | 66.4 | 66.4 | 27.0 | 21.0 | | 12.6 | 9.6 | |
| Effective Green, g (s) | 79.0 | 79.0 | 79.0 | 66.4 | 66.4 | 66.4 | 27.0 | 21.0 | | 12.6 | 9.6 | |
| Actuated g/C Ratio | 0.66 | 0.66 | 0.66 | 0.55 | 0.55 | 0.55 | 0.23 | 0.18 | | 0.11 | 0.08 | |
| Clearance Time (s) | 3.0 | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 | 3.0 | 6.9 | | 3.0 | 6.9 | |
| 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) | 294 | 3196 | 1051 | 100 | 2501 | 680 | 323 | 285 | | 113 | 100 | |
| v/s Ratio Prot | 0.04 | c0.39 | | | 0.23 | | c0.09 | 0.00 | | 0.00 | 0.00 | |
| v/s Ratio Perm | 0.30 | | 0.05 | 0.08 | | 0.02 | c0.08 | | | 0.02 | | |
| v/c Ratio | 0.52 | 0.59 | 0.08 | 0.14 | 0.42 | 0.03 | 0.72 | 0.02 | | 0.19 | 0.04 | |
| Uniform Delay, d1 | 8.7 | 11.5 | 7.4 | 13.0 | 15.6 | 12.2 | 41.4 | 41.0 | | 48.9 | 50.9 | |
| Progression Factor | 3.06 | 2.87 | 5.13 | 1.05 | 1.03 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.7 | 0.3 | 0.1 | 2.6 | 0.5 | 0.1 | 7.3 | 0.0 | | 0.8 | 0.2 | |
| Delay (s) | 27.2 | 33.3 | 37.9 | 16.2 | 16.6 | 12.3 | 48.8 | 41.0 | | 49.7 | 51.1 | |
| Level of Service | C | C | D | B | B | B | D | D | | D | D | |
| Approach Delay (s/veh) | | 33.1 | | | 16.4 | | | 47.8 | | | 50.7 | |
| Approach LOS | | C | | | B | | | D | | | D | |

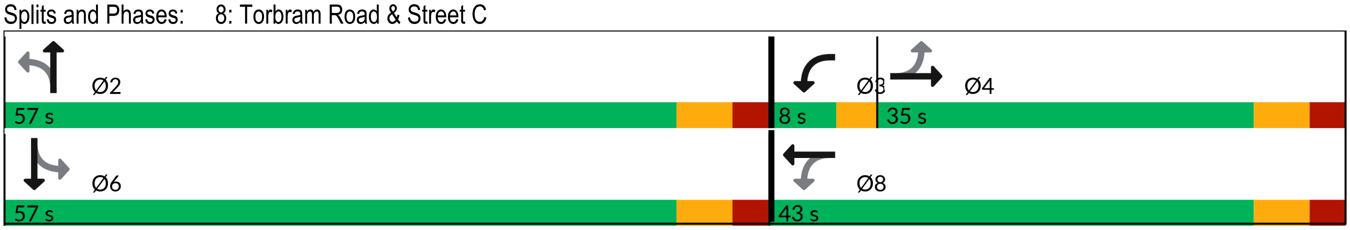
| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 29.4 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 83.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | |
| Traffic Volume (vph) | 10 | 0 | 65 | 0 | 175 | 168 | 28 | 560 |
| Future Volume (vph) | 10 | 0 | 65 | 0 | 175 | 168 | 28 | 560 |
| 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) | 12.0 | 12.0 | 5.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| Minimum Split (s) | 24.9 | 24.9 | 8.0 | 24.9 | 24.9 | 24.9 | 24.9 | 24.9 |
| Total Split (s) | 35.0 | 35.0 | 8.0 | 43.0 | 57.0 | 57.0 | 57.0 | 57.0 |
| Total Split (%) | 35.0% | 35.0% | 8.0% | 43.0% | 57.0% | 57.0% | 57.0% | 57.0% |
| Yellow Time (s) | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 |
| All-Red Time (s) | 2.7 | 2.7 | 0.0 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 6.9 | 6.9 | 3.0 | 6.9 | 6.9 | 6.9 | 6.9 | 6.9 |
| Lead/Lag | Lag | Lag | Lead | | | | | |
| Lead-Lag Optimize? | Yes | Yes | Yes | | | | | |
| Recall Mode | None | None | None | None | Max | Max | Max | Max |
| Act Effct Green (s) | 13.9 | 13.9 | 24.1 | 20.2 | 50.3 | 50.3 | 50.3 | 50.3 |
| Actuated g/C Ratio | 0.16 | 0.16 | 0.29 | 0.24 | 0.60 | 0.60 | 0.60 | 0.60 |
| v/c Ratio | 0.04 | 0.72 | 0.32 | 0.01 | 0.36 | 0.14 | 0.04 | 0.27 |
| Control Delay (s/veh) | 30.0 | 17.3 | 25.7 | 0.0 | 12.7 | 5.2 | 8.8 | 9.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 30.0 | 17.3 | 25.7 | 0.0 | 12.7 | 5.2 | 8.8 | 9.2 |
| LOS | C | B | C | A | B | A | A | A |
| Approach Delay (s/veh) | | 17.7 | | 23.2 | | 8.1 | | 9.2 |
| Approach LOS | | B | | C | | A | | A |

| Intersection Summary | |
|---|---|
| Cycle Length: 100 | |
| Actuated Cycle Length: 84.3 | |
| Natural Cycle: 60 | |
| Control Type: Semi Act-Uncoord | |
| Maximum v/c Ratio: 0.72 | |
| Intersection Signal Delay (s/veh): 11.6 | Intersection LOS: B |
| Intersection Capacity Utilization 73.3% | ICU Level of Service D |
| Analysis Period (min) 15 | |

Splits and Phases: 8: Torbram Road & Street C



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 10 | 0 | 365 | 65 | 0 | 7 | 175 | 168 | 111 | 28 | 560 | 15 |
| Future Volume (vph) | 10 | 0 | 365 | 65 | 0 | 7 | 175 | 168 | 111 | 28 | 560 | 15 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 |
| Total Lost time (s) | 6.9 | 6.9 | | 3.0 | 6.9 | | 6.9 | 6.9 | | 6.9 | 6.9 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frt | 1.00 | 0.85 | | 1.00 | 0.85 | | 1.00 | 0.94 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1785 | 1633 | | 1785 | 1633 | | 1785 | 3352 | | 1785 | 3566 | |
| Flt Permitted | 0.75 | 1.00 | | 0.24 | 1.00 | | 0.43 | 1.00 | | 0.58 | 1.00 | |
| Satd. Flow (perm) | 1415 | 1633 | | 445 | 1633 | | 817 | 3352 | | 1090 | 3566 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 10 | 0 | 365 | 65 | 0 | 7 | 175 | 168 | 111 | 28 | 560 | 15 |
| RTOR Reduction (vph) | 0 | 238 | 0 | 0 | 5 | 0 | 0 | 45 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 10 | 127 | 0 | 65 | 2 | 0 | 175 | 234 | 0 | 28 | 573 | 0 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 4% | 0% | 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) | 13.9 | 13.9 | | 20.8 | 20.8 | | 50.3 | 50.3 | | 50.3 | 50.3 | |
| Effective Green, g (s) | 13.9 | 13.9 | | 20.8 | 20.8 | | 50.3 | 50.3 | | 50.3 | 50.3 | |
| Actuated g/C Ratio | 0.16 | 0.16 | | 0.24 | 0.24 | | 0.59 | 0.59 | | 0.59 | 0.59 | |
| Clearance Time (s) | 6.9 | 6.9 | | 3.0 | 6.9 | | 6.9 | 6.9 | | 6.9 | 6.9 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 231 | 267 | | 170 | 400 | | 484 | 1985 | | 645 | 2112 | |
| v/s Ratio Prot | | c0.08 | | c0.02 | 0.00 | | | 0.07 | | | 0.16 | |
| v/s Ratio Perm | 0.01 | | | 0.08 | | | c0.21 | | | 0.03 | | |
| v/c Ratio | 0.04 | 0.47 | | 0.38 | 0.00 | | 0.36 | 0.12 | | 0.04 | 0.27 | |
| Uniform Delay, d1 | 29.9 | 32.2 | | 26.1 | 24.2 | | 9.0 | 7.6 | | 7.2 | 8.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.1 | 1.3 | | 1.4 | 0.0 | | 2.1 | 0.1 | | 0.1 | 0.3 | |
| Delay (s) | 30.0 | 33.5 | | 27.6 | 24.2 | | 11.1 | 7.7 | | 7.4 | 8.7 | |
| Level of Service | C | C | | C | C | | B | A | | A | A | |
| Approach Delay (s/veh) | | 33.4 | | | 27.2 | | | 9.0 | | | 8.7 | |
| Approach LOS | | C | | | C | | | A | | | A | |

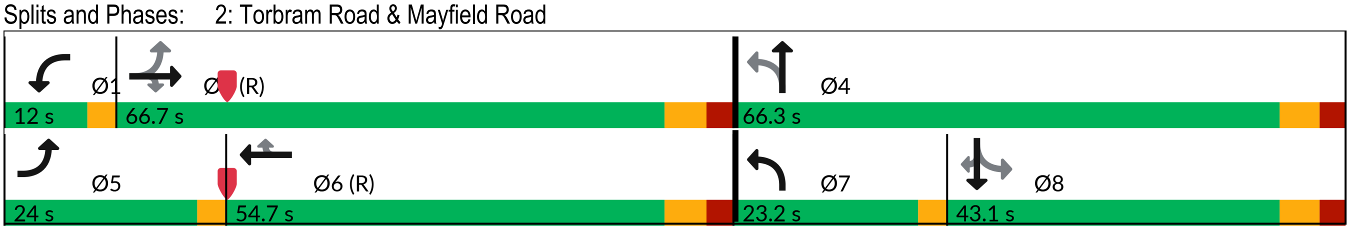
| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 15.8 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.39 | | |
| Actuated Cycle Length (s) | 84.9 | Sum of lost time (s) | 16.8 |
| Intersection Capacity Utilization | 73.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (vph) | 174 | 1831 | 362 | 201 | 974 | 73 | 322 | 255 | 72 | 836 | 256 |
| Future Volume (vph) | 174 | 1831 | 362 | 201 | 974 | 73 | 322 | 255 | 72 | 836 | 256 |
| Turn Type | pm+pt | NA | Perm | Prot | NA | Perm | pm+pt | NA | Perm | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 7 | 4 | | 8 | |
| Permitted Phases | 2 | | 2 | | | 6 | 4 | | 8 | | 8 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 7 | 4 | 8 | 8 | 8 |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 16.0 | 16.0 | 5.0 | 16.0 | 16.0 | 5.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| Minimum Split (s) | 8.0 | 50.3 | 50.3 | 8.0 | 50.3 | 50.3 | 9.5 | 43.1 | 43.1 | 43.1 | 43.1 |
| Total Split (s) | 24.0 | 66.7 | 66.7 | 12.0 | 54.7 | 54.7 | 23.2 | 66.3 | 43.1 | 43.1 | 43.1 |
| Total Split (%) | 16.6% | 46.0% | 46.0% | 8.3% | 37.7% | 37.7% | 16.0% | 45.7% | 29.7% | 29.7% | 29.7% |
| Yellow Time (s) | 3.0 | 4.6 | 4.6 | 3.0 | 4.6 | 4.6 | 3.0 | 4.2 | 4.2 | 4.2 | 4.2 |
| All-Red Time (s) | 0.0 | 2.7 | 2.7 | 0.0 | 2.7 | 2.7 | 0.0 | 2.9 | 2.9 | 2.9 | 2.9 |
| Lost Time Adjust (s) | 0.0 | 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 | 3.0 | 7.1 | 7.1 | 7.1 | 7.1 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | | Lag | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | Yes |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | Max | Max | Max |
| Act Effct Green (s) | 74.7 | 59.4 | 59.4 | 9.0 | 56.2 | 56.2 | 63.3 | 59.2 | 36.0 | 36.0 | 36.0 |
| Actuated g/C Ratio | 0.52 | 0.41 | 0.41 | 0.06 | 0.39 | 0.39 | 0.44 | 0.41 | 0.25 | 0.25 | 0.25 |
| v/c Ratio | 0.57 | 0.94 | 0.43 | 0.96 | 0.57 | 0.11 | 1.07 | 0.29 | 0.30 | 0.93 | 0.46 |
| Control Delay (s/veh) | 26.0 | 51.3 | 5.0 | 118.5 | 36.8 | 2.7 | 111.6 | 21.3 | 48.5 | 70.7 | 12.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 26.0 | 51.3 | 5.0 | 118.5 | 36.8 | 2.7 | 111.6 | 21.3 | 48.5 | 70.7 | 12.6 |
| LOS | C | D | A | F | D | A | F | C | D | E | B |
| Approach Delay (s/veh) | | 42.4 | | | 48.0 | | | 61.0 | | 56.6 | |
| Approach LOS | | D | | | D | | | E | | E | |

| Intersection Summary | |
|---|---|
| Cycle Length: 145 | |
| Actuated Cycle Length: 145 | |
| Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green | |
| Natural Cycle: 145 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 1.07 | |
| Intersection Signal Delay (s/veh): 49.1 | Intersection LOS: D |
| Intersection Capacity Utilization 100.7% | ICU Level of Service G |
| Analysis Period (min) 15 | |

Splits and Phases: 2: Torbram Road & Mayfield Road



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 174 | 1831 | 362 | 201 | 974 | 73 | 322 | 255 | 156 | 72 | 836 | 256 |
| Future Volume (vph) | 174 | 1831 | 362 | 201 | 974 | 73 | 322 | 255 | 156 | 72 | 836 | 256 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.5 |
| Total Lost time (s) | 3.0 | 7.3 | 7.3 | 3.0 | 7.3 | 7.3 | 3.0 | 7.1 | | 7.1 | 7.1 | 7.1 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.94 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1767 | 4768 | 1536 | 3395 | 4445 | 1601 | 1750 | 3338 | | 1785 | 3614 | 1581 |
| Flt Permitted | 0.20 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.10 | 1.00 | | 0.51 | 1.00 | 1.00 |
| Satd. Flow (perm) | 368 | 4768 | 1536 | 3395 | 4445 | 1601 | 189 | 3338 | | 960 | 3614 | 1581 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 174 | 1831 | 362 | 201 | 974 | 73 | 322 | 255 | 156 | 72 | 836 | 256 |
| RTOR Reduction (vph) | 0 | 0 | 204 | 0 | 0 | 45 | 0 | 64 | 0 | 0 | 0 | 159 |
| Lane Group Flow (vph) | 174 | 1831 | 158 | 201 | 974 | 28 | 322 | 347 | 0 | 72 | 836 | 97 |
| Heavy Vehicles (%) | 1% | 10% | 4% | 2% | 18% | 2% | 2% | 2% | 5% | 0% | 1% | 1% |
| Turn Type | pm+pt | NA | Perm | Prot | NA | Perm | pm+pt | NA | | Perm | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 7 | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | | | 6 | 4 | | | 8 | | 8 |
| Actuated Green, G (s) | 71.4 | 59.4 | 59.4 | 9.0 | 56.2 | 56.2 | 59.2 | 59.2 | | 36.0 | 36.0 | 36.0 |
| Effective Green, g (s) | 71.4 | 59.4 | 59.4 | 9.0 | 56.2 | 56.2 | 59.2 | 59.2 | | 36.0 | 36.0 | 36.0 |
| Actuated g/C Ratio | 0.49 | 0.41 | 0.41 | 0.06 | 0.39 | 0.39 | 0.41 | 0.41 | | 0.25 | 0.25 | 0.25 |
| Clearance Time (s) | 3.0 | 7.3 | 7.3 | 3.0 | 7.3 | 7.3 | 3.0 | 7.1 | | 7.1 | 7.1 | 7.1 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 298 | 1953 | 629 | 210 | 1722 | 620 | 294 | 1362 | | 238 | 897 | 392 |
| v/s Ratio Prot | c0.05 | c0.38 | | c0.06 | 0.22 | | c0.15 | 0.10 | | | 0.23 | |
| v/s Ratio Perm | 0.24 | | 0.10 | | | 0.02 | c0.29 | | | 0.08 | | 0.06 |
| v/c Ratio | 0.58 | 0.94 | 0.25 | 0.96 | 0.57 | 0.05 | 1.10 | 0.25 | | 0.30 | 0.93 | 0.25 |
| Uniform Delay, d1 | 22.3 | 41.0 | 28.2 | 67.8 | 34.8 | 27.7 | 45.1 | 28.3 | | 44.3 | 53.3 | 43.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.9 | 10.2 | 1.0 | 49.4 | 1.4 | 0.1 | 80.4 | 0.5 | | 3.2 | 17.5 | 1.5 |
| Delay (s) | 25.2 | 51.2 | 29.1 | 117.2 | 36.2 | 27.8 | 125.5 | 28.8 | | 47.5 | 70.8 | 45.2 |
| Level of Service | C | D | C | F | D | C | F | C | | D | E | D |
| Approach Delay (s/veh) | | 45.9 | | | 48.7 | | | 71.3 | | | 63.7 | |
| Approach LOS | | D | | | D | | | E | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 53.7 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 1.04 | | |
| Actuated Cycle Length (s) | 145.0 | Sum of lost time (s) | 20.4 |
| Intersection Capacity Utilization | 100.7% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBU | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 357 | 734 | 234 | 227 | 955 | 77 | 342 | 733 | 113 | 1 | 143 | 525 |
| Future Volume (vph) | 357 | 734 | 234 | 227 | 955 | 77 | 342 | 733 | 113 | 1 | 143 | 525 |
| Turn Type | pm+pt | NA | pm+ov | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | pm+pt | NA |
| Protected Phases | 3 | 8 | 1 | 7 | 4 | | 1 | 6 | | 5 | 5 | 2 |
| Permitted Phases | 8 | | 8 | 4 | | 4 | 6 | | 6 | 2 | 2 | |
| Detector Phase | 3 | 8 | 1 | 7 | 4 | 4 | 1 | 6 | 6 | 5 | 5 | 2 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 12.0 | 5.0 | 5.0 | 12.0 | 12.0 | 5.0 | 12.0 | 12.0 | 5.0 | 5.0 | 12.0 |
| Minimum Split (s) | 8.0 | 46.1 | 8.0 | 8.0 | 46.1 | 46.1 | 8.0 | 41.9 | 41.9 | 8.0 | 8.0 | 41.9 |
| Total Split (s) | 27.0 | 53.0 | 19.1 | 21.0 | 47.0 | 47.0 | 19.1 | 47.0 | 47.0 | 14.0 | 14.0 | 41.9 |
| Total Split (%) | 20.0% | 39.3% | 14.1% | 15.6% | 34.8% | 34.8% | 14.1% | 34.8% | 34.8% | 10.4% | 10.4% | 31.0% |
| Yellow Time (s) | 3.0 | 4.0 | 3.0 | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | 4.0 | 3.0 | 3.0 | 4.0 |
| All-Red Time (s) | 0.0 | 3.1 | 0.0 | 0.0 | 3.1 | 3.1 | 0.0 | 2.9 | 2.9 | 0.0 | 0.0 | 2.9 |
| Lost Time Adjust (s) | 0.0 | 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 | 7.1 | 3.0 | 3.0 | 7.1 | 7.1 | 3.0 | 6.9 | 6.9 | | 3.0 | 6.9 |
| Lead/Lag | Lead | Lag | Lead | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lead | Lag |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Recall Mode | None | C-Max | None | None | C-Max | C-Max | None | Max | Max | None | None | Max |
| Act Effct Green (s) | 71.0 | 49.4 | 69.6 | 58.5 | 39.9 | 39.9 | 58.0 | 40.6 | 40.6 | | 49.4 | 35.0 |
| Actuated g/C Ratio | 0.53 | 0.37 | 0.52 | 0.43 | 0.30 | 0.30 | 0.43 | 0.30 | 0.30 | | 0.37 | 0.26 |
| v/c Ratio | 1.01 | 0.41 | 0.28 | 0.60 | 0.61 | 0.20 | 0.96 | 0.74 | 0.26 | | 0.69 | 0.61 |
| Control Delay (s/veh) | 91.2 | 26.3 | 15.5 | 25.6 | 43.0 | 1.7 | 69.3 | 48.1 | 9.0 | | 43.9 | 47.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 |
| Total Delay (s/veh) | 91.2 | 26.3 | 15.5 | 25.6 | 43.0 | 1.7 | 69.3 | 48.1 | 9.0 | | 43.9 | 47.6 |
| LOS | F | C | B | C | D | A | E | D | A | | D | D |
| Approach Delay (s/veh) | | 41.9 | | | 37.3 | | | 50.4 | | | | 35.6 |
| Approach LOS | | D | | | D | | | D | | | | D |

Intersection Summary

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 0 (0%), Referenced to phase 4:WBTL and 8:EBTL, Start of Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

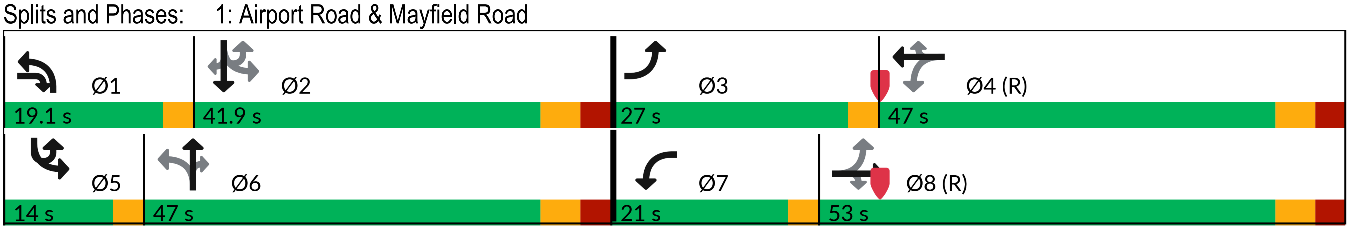
Maximum v/c Ratio: 1.01

Intersection Signal Delay (s/veh): 41.4 Intersection LOS: D

Intersection Capacity Utilization 118.7% ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 1: Airport Road & Mayfield Road



| Lane Group | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 432 |
| Future Volume (vph) | 432 |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 2 |
| Detector Phase | 2 |
| Switch Phase | |
| Minimum Initial (s) | 12.0 |
| Minimum Split (s) | 41.9 |
| Total Split (s) | 41.9 |
| Total Split (%) | 31.0% |
| Yellow Time (s) | 4.0 |
| All-Red Time (s) | 2.9 |
| Lost Time Adjust (s) | 0.0 |
| Total Lost Time (s) | 6.9 |
| Lead/Lag | Lag |
| Lead-Lag Optimize? | Yes |
| Recall Mode | Max |
| Act Effct Green (s) | 35.0 |
| Actuated g/C Ratio | 0.26 |
| v/c Ratio | 0.73 |
| Control Delay (s/veh) | 18.3 |
| Queue Delay | 0.0 |
| Total Delay (s/veh) | 18.3 |
| LOS | B |
| Approach Delay (s/veh) | |
| Approach LOS | |

| Intersection Summary |
|---|

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBU | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 357 | 734 | 234 | 227 | 955 | 77 | 342 | 733 | 113 | 1 | 143 | 525 |
| Future Volume (vph) | 357 | 734 | 234 | 227 | 955 | 77 | 342 | 733 | 113 | 1 | 143 | 525 |
| Ideal Flow (vphpl) | 1900 | 2000 | 1900 | 1900 | 2000 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 | 3.5 | 3.6 | 3.5 | 3.7 |
| Total Lost time (s) | 3.0 | 7.1 | 3.0 | 3.0 | 7.1 | 7.1 | 3.0 | 6.9 | 6.9 | | 3.0 | 6.9 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.96 | | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 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 | 0.85 | 1.00 | 1.00 | 0.85 | | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (prot) | 1487 | 4886 | 1480 | 1635 | 5258 | 1027 | 1683 | 3288 | 1180 | | 1416 | 3318 |
| Flt Permitted | 0.16 | 1.00 | 1.00 | 0.36 | 1.00 | 1.00 | 0.29 | 1.00 | 1.00 | | 0.23 | 1.00 |
| Satd. Flow (perm) | 252 | 4886 | 1480 | 622 | 5258 | 1027 | 507 | 3288 | 1180 | | 346 | 3318 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 357 | 734 | 234 | 227 | 955 | 77 | 342 | 733 | 113 | 1 | 143 | 525 |
| RTOR Reduction (vph) | 0 | 0 | 84 | 0 | 0 | 54 | 0 | 0 | 74 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 357 | 734 | 150 | 227 | 955 | 23 | 342 | 733 | 39 | 0 | 144 | 525 |
| Confl. Peds. (#/hr) | 4 | | 11 | 11 | | 4 | 7 | | 24 | | 24 | |
| Heavy Vehicles (%) | 20% | 13% | 6% | 9% | 5% | 53% | 6% | 11% | 30% | 0% | 26% | 10% |
| Turn Type | pm+pt | NA | pm+ov | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | pm+pt | NA |
| Protected Phases | 3 | 8 | 1 | 7 | 4 | | 1 | 6 | | 5 | 5 | 2 |
| Permitted Phases | 8 | | 8 | 4 | | 4 | 6 | | 6 | 2 | 2 | |
| Actuated Green, G (s) | 66.9 | 49.4 | 65.5 | 54.4 | 39.9 | 39.9 | 54.1 | 40.6 | 40.6 | | 45.5 | 35.0 |
| Effective Green, g (s) | 66.9 | 49.4 | 65.5 | 54.4 | 39.9 | 39.9 | 54.1 | 40.6 | 40.6 | | 45.5 | 35.0 |
| Actuated g/C Ratio | 0.50 | 0.37 | 0.49 | 0.40 | 0.30 | 0.30 | 0.40 | 0.30 | 0.30 | | 0.34 | 0.26 |
| Clearance Time (s) | 3.0 | 7.1 | 3.0 | 3.0 | 7.1 | 7.1 | 3.0 | 6.9 | 6.9 | | 3.0 | 6.9 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 344 | 1787 | 718 | 359 | 1554 | 303 | 343 | 988 | 354 | | 199 | 860 |
| v/s Ratio Prot | c0.18 | 0.15 | 0.02 | 0.07 | 0.18 | | c0.12 | 0.22 | | | 0.06 | 0.16 |
| v/s Ratio Perm | c0.33 | | 0.08 | 0.19 | | 0.02 | c0.28 | | 0.03 | | 0.19 | |
| v/c Ratio | 1.04 | 0.41 | 0.21 | 0.63 | 0.61 | 0.08 | 1.00 | 0.74 | 0.11 | | 0.72 | 0.61 |
| Uniform Delay, d1 | 34.0 | 31.9 | 19.9 | 27.9 | 40.9 | 34.3 | 35.5 | 42.5 | 34.1 | | 33.9 | 44.0 |
| Progression Factor | 1.44 | 0.79 | 2.61 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 56.5 | 0.6 | 0.1 | 3.6 | 1.8 | 0.5 | 47.5 | 5.0 | 0.6 | | 12.2 | 3.2 |
| Delay (s) | 105.6 | 25.9 | 52.1 | 31.6 | 42.8 | 34.7 | 83.0 | 47.5 | 34.8 | | 46.1 | 47.2 |
| Level of Service | F | C | D | C | D | C | F | D | C | | D | D |
| Approach Delay (s/veh) | | 52.0 | | | 40.2 | | | 56.5 | | | | 47.7 |
| Approach LOS | | D | | | D | | | E | | | | D |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 49.1 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 1.06 | | |
| Actuated Cycle Length (s) | 135.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 118.7% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

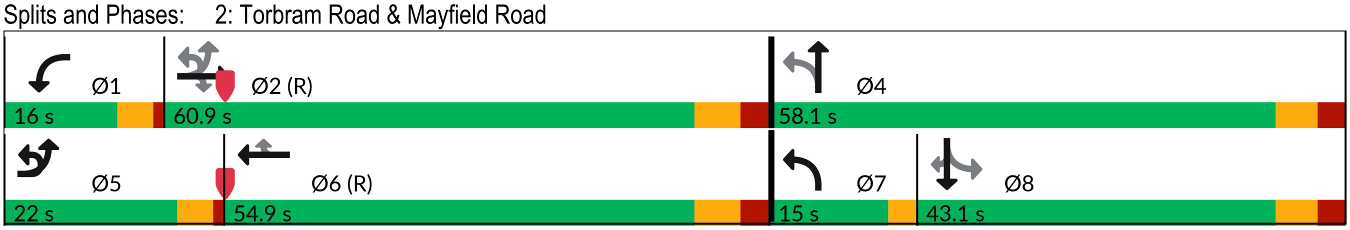
| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 432 |
| Future Volume (vph) | 432 |
| Ideal Flow (vphpl) | 1900 |
| Lane Width | 3.5 |
| Total Lost time (s) | 6.9 |
| Lane Util. Factor | 1.00 |
| Frpb, ped/bikes | 0.98 |
| Flpb, ped/bikes | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1315 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1315 |
| Peak-hour factor, PHF | 1.00 |
| Adj. Flow (vph) | 432 |
| RTOR Reduction (vph) | 251 |
| Lane Group Flow (vph) | 181 |
| Confl. Peds. (#/hr) | 7 |
| Heavy Vehicles (%) | 19% |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 2 |
| Actuated Green, G (s) | 35.0 |
| Effective Green, g (s) | 35.0 |
| Actuated g/C Ratio | 0.26 |
| Clearance Time (s) | 6.9 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 340 |
| v/s Ratio Prot | |
| v/s Ratio Perm | 0.14 |
| v/c Ratio | 0.53 |
| Uniform Delay, d1 | 43.0 |
| Progression Factor | 1.00 |
| Incremental Delay, d2 | 5.9 |
| Delay (s) | 48.8 |
| Level of Service | D |
| Approach Delay (s/veh) | |
| Approach LOS | |

| Intersection Summary |
|---|

| Lane Group | EBU | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 4 | 323 | 1421 | 333 | 163 | 1720 | 48 | 414 | 661 | 52 | 420 | 230 |
| Future Volume (vph) | 4 | 323 | 1421 | 333 | 163 | 1720 | 48 | 414 | 661 | 52 | 420 | 230 |
| Turn Type | pm+pt | pm+pt | NA | Perm | Prot | NA | Perm | pm+pt | NA | Perm | NA | Perm |
| Protected Phases | 5 | 5 | 2 | | 1 | 6 | | 7 | 4 | | 8 | |
| Permitted Phases | 2 | 2 | | 2 | | | 6 | 4 | | 8 | | 8 |
| Detector Phase | 5 | 5 | 2 | 2 | 1 | 6 | 6 | 7 | 4 | 8 | 8 | 8 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | 16.0 | 16.0 | 5.0 | 16.0 | 16.0 | 5.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| Minimum Split (s) | 9.5 | 9.5 | 50.3 | 50.3 | 9.5 | 50.3 | 50.3 | 8.0 | 43.1 | 43.1 | 43.1 | 43.1 |
| Total Split (s) | 22.0 | 22.0 | 60.9 | 60.9 | 16.0 | 54.9 | 54.9 | 15.0 | 58.1 | 43.1 | 43.1 | 43.1 |
| Total Split (%) | 16.3% | 16.3% | 45.1% | 45.1% | 11.9% | 40.7% | 40.7% | 11.1% | 43.0% | 31.9% | 31.9% | 31.9% |
| Yellow Time (s) | 3.5 | 3.5 | 4.6 | 4.6 | 3.5 | 4.6 | 4.6 | 3.0 | 4.2 | 4.2 | 4.2 | 4.2 |
| All-Red Time (s) | 1.0 | 1.0 | 2.7 | 2.7 | 1.0 | 2.7 | 2.7 | 0.0 | 2.9 | 2.9 | 2.9 | 2.9 |
| Lost Time Adjust (s) | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | | 4.5 | 7.3 | 7.3 | 4.5 | 7.3 | 7.3 | 3.0 | 7.1 | 7.1 | 7.1 | 7.1 |
| Lead/Lag | Lead | Lead | Lag | Lag | Lead | Lag | Lag | Lead | | Lag | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | Yes |
| Recall Mode | None | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | Max | Max | Max |
| Act Effct Green (s) | | 72.4 | 54.9 | 54.9 | 10.2 | 47.6 | 47.6 | 55.1 | 51.0 | 36.0 | 36.0 | 36.0 |
| Actuated g/C Ratio | | 0.54 | 0.41 | 0.41 | 0.08 | 0.35 | 0.35 | 0.41 | 0.38 | 0.27 | 0.27 | 0.27 |
| v/c Ratio | | 1.13 | 0.74 | 0.40 | 0.64 | 1.04 | 0.07 | 1.09 | 0.63 | 0.37 | 0.43 | 0.40 |
| Control Delay (s/veh) | | 127.9 | 37.1 | 4.8 | 63.4 | 69.1 | 1.7 | 107.4 | 35.5 | 49.8 | 42.7 | 9.5 |
| Queue Delay | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | | 127.9 | 37.1 | 4.8 | 63.4 | 69.1 | 1.7 | 107.4 | 35.5 | 49.8 | 42.7 | 9.5 |
| LOS | | F | D | A | E | E | A | F | D | D | D | A |
| Approach Delay (s/veh) | | | 46.2 | | | 67.0 | | | 59.0 | | 32.3 | |
| Approach LOS | | | D | | | E | | | E | | C | |

| Intersection Summary | |
|---|---|
| Cycle Length: 135 | |
| Actuated Cycle Length: 135 | |
| Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green | |
| Natural Cycle: 125 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 1.13 | |
| Intersection Signal Delay (s/veh): 54.0 | Intersection LOS: D |
| Intersection Capacity Utilization 107.6% | ICU Level of Service G |
| Analysis Period (min) 15 | |

Splits and Phases: 2: Torbram Road & Mayfield Road



| Movement | EBU | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 4 | 323 | 1421 | 333 | 163 | 1720 | 48 | 414 | 661 | 192 | 52 | 420 |
| Future Volume (vph) | 4 | 323 | 1421 | 333 | 163 | 1720 | 48 | 414 | 661 | 192 | 52 | 420 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.6 | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 |
| Total Lost time (s) | | 4.5 | 7.3 | 7.3 | 4.5 | 7.3 | 7.3 | 3.0 | 7.1 | | 7.1 | 7.1 |
| Lane Util. Factor | | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 |
| Frt | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 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) | | 1785 | 4725 | 1581 | 3362 | 4683 | 1633 | 1750 | 3519 | | 1785 | 3650 |
| Flt Permitted | | 0.08 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.38 | 1.00 | | 0.28 | 1.00 |
| Satd. Flow (perm) | | 144 | 4725 | 1581 | 3362 | 4683 | 1633 | 699 | 3519 | | 522 | 3650 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 4 | 323 | 1421 | 333 | 163 | 1720 | 48 | 414 | 661 | 192 | 52 | 420 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 189 | 0 | 0 | 31 | 0 | 20 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 327 | 1421 | 144 | 163 | 1720 | 17 | 414 | 833 | 0 | 52 | 420 |
| Heavy Vehicles (%) | 0% | 0% | 11% | 1% | 3% | 12% | 0% | 2% | 0% | 1% | 0% | 0% |
| Turn Type | pm+pt | pm+pt | NA | Perm | Prot | NA | Perm | pm+pt | NA | | Perm | NA |
| Protected Phases | 5 | 5 | 2 | | 1 | 6 | | 7 | 4 | | | 8 |
| Permitted Phases | 2 | 2 | | 2 | | | 6 | 4 | | | 8 | |
| Actuated Green, G (s) | | 69.6 | 54.9 | 54.9 | 10.2 | 47.6 | 47.6 | 51.0 | 51.0 | | 36.0 | 36.0 |
| Effective Green, g (s) | | 69.6 | 54.9 | 54.9 | 10.2 | 47.6 | 47.6 | 51.0 | 51.0 | | 36.0 | 36.0 |
| Actuated g/C Ratio | | 0.52 | 0.41 | 0.41 | 0.08 | 0.35 | 0.35 | 0.38 | 0.38 | | 0.27 | 0.27 |
| Clearance Time (s) | | 4.5 | 7.3 | 7.3 | 4.5 | 7.3 | 7.3 | 3.0 | 7.1 | | 7.1 | 7.1 |
| 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) | | 286 | 1921 | 642 | 254 | 1651 | 575 | 357 | 1329 | | 139 | 973 |
| v/s Ratio Prot | | c0.15 | 0.30 | | 0.05 | 0.37 | | c0.10 | 0.24 | | | 0.12 |
| v/s Ratio Perm | | c0.44 | | 0.09 | | | 0.01 | c0.33 | | | 0.10 | |
| v/c Ratio | | 1.14 | 0.74 | 0.22 | 0.64 | 1.04 | 0.03 | 1.16 | 0.63 | | 0.37 | 0.43 |
| Uniform Delay, d1 | | 43.5 | 34.0 | 26.1 | 60.6 | 43.7 | 28.6 | 39.6 | 34.2 | | 40.3 | 41.0 |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 0.88 | 0.85 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 97.7 | 2.6 | 0.8 | 4.7 | 32.4 | 0.1 | 98.5 | 2.2 | | 7.5 | 1.4 |
| Delay (s) | | 141.2 | 36.6 | 26.9 | 58.0 | 69.6 | 28.7 | 138.2 | 36.5 | | 47.9 | 42.4 |
| Level of Service | | F | D | C | E | E | C | F | D | | D | D |
| Approach Delay (s/veh) | | | 51.5 | | | 67.6 | | | 69.7 | | | 41.8 |
| Approach LOS | | | D | | | E | | | E | | | D |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 59.4 | HCM 2000 Level of Service | E |
| HCM 2000 Volume to Capacity ratio | 1.20 | | |
| Actuated Cycle Length (s) | 135.0 | Sum of lost time (s) | 21.9 |
| Intersection Capacity Utilization | 107.6% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

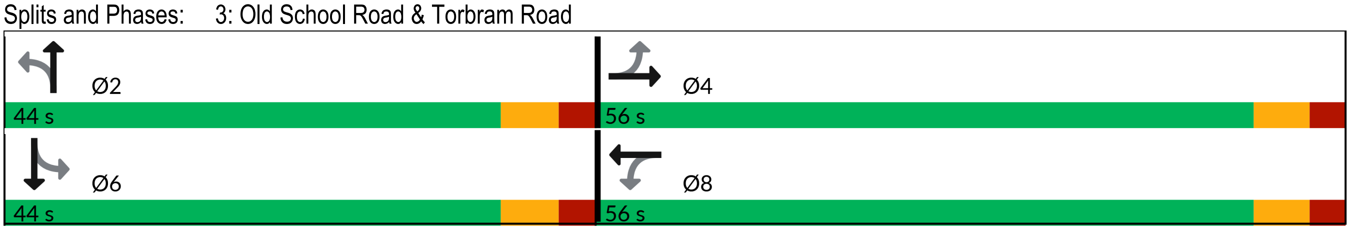
| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 230 |
| Future Volume (vph) | 230 |
| Ideal Flow (vphpl) | 1900 |
| Lane Width | 3.5 |
| Total Lost time (s) | 7.1 |
| Lane Util. Factor | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1597 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1597 |
| Peak-hour factor, PHF | 1.00 |
| Adj. Flow (vph) | 230 |
| RTOR Reduction (vph) | 150 |
| Lane Group Flow (vph) | 80 |
| Heavy Vehicles (%) | 0% |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 8 |
| Actuated Green, G (s) | 36.0 |
| Effective Green, g (s) | 36.0 |
| Actuated g/C Ratio | 0.27 |
| Clearance Time (s) | 7.1 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 425 |
| v/s Ratio Prot | |
| v/s Ratio Perm | 0.05 |
| v/c Ratio | 0.19 |
| Uniform Delay, d1 | 38.2 |
| Progression Factor | 1.00 |
| Incremental Delay, d2 | 1.0 |
| Delay (s) | 39.2 |
| Level of Service | D |
| Approach Delay (s/veh) | |
| Approach LOS | |

| Intersection Summary |
|---|

| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | |
| Traffic Volume (vph) | 44 | 304 | 25 | 649 | 40 | 425 | 1 | 211 |
| Future Volume (vph) | 44 | 304 | 25 | 649 | 40 | 425 | 1 | 211 |
| Turn Type | Perm | NA | Perm | NA | Perm | NA | Perm | NA |
| Protected Phases | | 4 | | 8 | | 2 | | 6 |
| Permitted Phases | 4 | | 8 | | 2 | | 6 | |
| Detector Phase | 4 | 4 | 8 | 8 | 2 | 2 | 6 | 6 |
| Switch Phase | | | | | | | | |
| Minimum Initial (s) | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| Minimum Split (s) | 24.9 | 24.9 | 24.9 | 24.9 | 24.9 | 24.9 | 24.9 | 24.9 |
| Total Split (s) | 56.0 | 56.0 | 56.0 | 56.0 | 44.0 | 44.0 | 44.0 | 44.0 |
| Total Split (%) | 56.0% | 56.0% | 56.0% | 56.0% | 44.0% | 44.0% | 44.0% | 44.0% |
| Yellow Time (s) | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 |
| All-Red Time (s) | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 6.9 | 6.9 | 6.9 | 6.9 | 6.9 | 6.9 | 6.9 | 6.9 |
| Lead/Lag | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | |
| Recall Mode | Min | Min | Min | Min | Max | Max | Max | Max |
| Act Effct Green (s) | 17.7 | 17.7 | 17.7 | 17.7 | 37.2 | 37.2 | 37.2 | 37.2 |
| Actuated g/C Ratio | 0.26 | 0.26 | 0.26 | 0.26 | 0.54 | 0.54 | 0.54 | 0.54 |
| v/c Ratio | 0.32 | 0.35 | 0.09 | 0.71 | 0.07 | 0.25 | 0.00 | 0.16 |
| Control Delay (s/veh) | 27.1 | 21.2 | 19.7 | 27.6 | 9.1 | 9.0 | 9.0 | 6.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 27.1 | 21.2 | 19.7 | 27.6 | 9.1 | 9.0 | 9.0 | 6.9 |
| LOS | C | C | B | C | A | A | A | A |
| Approach Delay (s/veh) | | 21.9 | | 27.3 | | 9.0 | | 6.9 |
| Approach LOS | | C | | C | | A | | A |

| Intersection Summary | |
|---|---|
| Cycle Length: 100 | |
| Actuated Cycle Length: 68.8 | |
| Natural Cycle: 50 | |
| Control Type: Semi Act-Uncoord | |
| Maximum v/c Ratio: 0.71 | |
| Intersection Signal Delay (s/veh): 17.8 | Intersection LOS: B |
| Intersection Capacity Utilization 74.9% | ICU Level of Service D |
| Analysis Period (min) 15 | |

Splits and Phases: 3: Old School Road & Torbram Road



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 44 | 304 | 17 | 25 | 649 | 3 | 40 | 425 | 65 | 1 | 211 | 82 |
| Future Volume (vph) | 44 | 304 | 17 | 25 | 649 | 3 | 40 | 425 | 65 | 1 | 211 | 82 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 |
| Total Lost time (s) | 6.9 | 6.9 | | 6.9 | 6.9 | | 6.9 | 6.9 | | 6.9 | 6.9 | |
| 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 | 1.00 | | 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) | 1785 | 3489 | | 1785 | 3576 | | 1785 | 3568 | | 892 | 3423 | |
| Flt Permitted | 0.29 | 1.00 | | 0.56 | 1.00 | | 0.57 | 1.00 | | 0.47 | 1.00 | |
| Satd. Flow (perm) | 540 | 3489 | | 1047 | 3576 | | 1076 | 3568 | | 445 | 3423 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 44 | 304 | 17 | 25 | 649 | 3 | 40 | 425 | 65 | 1 | 211 | 82 |
| RTOR Reduction (vph) | 0 | 6 | 0 | 0 | 1 | 0 | 0 | 9 | 0 | 0 | 30 | 0 |
| Lane Group Flow (vph) | 44 | 315 | 0 | 25 | 651 | 0 | 40 | 481 | 0 | 1 | 263 | 0 |
| Heavy Vehicles (%) | 0% | 4% | 0% | 0% | 2% | 0% | 0% | 0% | 2% | 100% | 3% | 0% |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 17.7 | 17.7 | | 17.7 | 17.7 | | 37.2 | 37.2 | | 37.2 | 37.2 | |
| Effective Green, g (s) | 17.7 | 17.7 | | 17.7 | 17.7 | | 37.2 | 37.2 | | 37.2 | 37.2 | |
| Actuated g/C Ratio | 0.26 | 0.26 | | 0.26 | 0.26 | | 0.54 | 0.54 | | 0.54 | 0.54 | |
| Clearance Time (s) | 6.9 | 6.9 | | 6.9 | 6.9 | | 6.9 | 6.9 | | 6.9 | 6.9 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 139 | 898 | | 269 | 921 | | 582 | 1932 | | 240 | 1853 | |
| v/s Ratio Prot | | 0.09 | | | c0.18 | | | c0.13 | | | 0.08 | |
| v/s Ratio Perm | 0.08 | | | 0.02 | | | 0.04 | | | 0.00 | | |
| v/c Ratio | 0.32 | 0.35 | | 0.09 | 0.71 | | 0.07 | 0.25 | | 0.00 | 0.14 | |
| Uniform Delay, d1 | 20.6 | 20.8 | | 19.4 | 23.1 | | 7.5 | 8.3 | | 7.2 | 7.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.3 | 0.2 | | 0.2 | 2.5 | | 0.2 | 0.3 | | 0.0 | 0.2 | |
| Delay (s) | 21.9 | 21.0 | | 19.5 | 25.6 | | 7.7 | 8.7 | | 7.3 | 8.0 | |
| Level of Service | C | C | | B | C | | A | A | | A | A | |
| Approach Delay (s/veh) | | 21.2 | | | 25.4 | | | 8.6 | | | 8.0 | |
| Approach LOS | | C | | | C | | | A | | | A | |

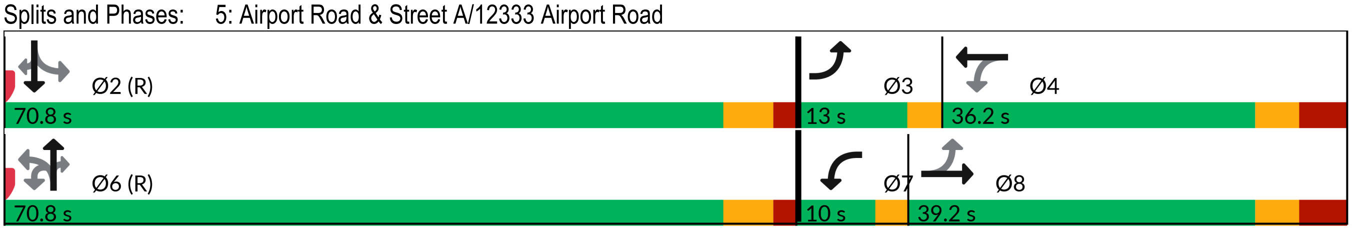
| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 17.1 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.40 | | |
| Actuated Cycle Length (s) | 68.7 | Sum of lost time (s) | 13.8 |
| Intersection Capacity Utilization | 74.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Lane Group | EBL | EBT | WBL | WBT | NBU | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (vph) | 141 | 0 | 45 | 0 | 4 | 68 | 977 | 27 | 3 | 753 | 29 |
| Future Volume (vph) | 141 | 0 | 45 | 0 | 4 | 68 | 977 | 27 | 3 | 753 | 29 |
| Turn Type | pm+pt | NA | pm+pt | NA | Perm | Perm | NA | Perm | Perm | NA | Perm |
| Protected Phases | 3 | 8 | 7 | 4 | | | 6 | | | 2 | |
| Permitted Phases | 8 | | 4 | | 6 | 6 | | 6 | 2 | | 2 |
| Detector Phase | 3 | 8 | 7 | 4 | 6 | 6 | 6 | 6 | 2 | 2 | 2 |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 12.0 | 5.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| Minimum Split (s) | 9.5 | 36.2 | 9.5 | 36.2 | 35.6 | 35.6 | 35.6 | 35.6 | 35.6 | 35.6 | 35.6 |
| Total Split (s) | 13.0 | 39.2 | 10.0 | 36.2 | 70.8 | 70.8 | 70.8 | 70.8 | 70.8 | 70.8 | 70.8 |
| Total Split (%) | 10.8% | 32.7% | 8.3% | 30.2% | 59.0% | 59.0% | 59.0% | 59.0% | 59.0% | 59.0% | 59.0% |
| Yellow Time (s) | 3.0 | 4.0 | 3.0 | 4.0 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 |
| All-Red Time (s) | 0.0 | 4.2 | 0.0 | 4.2 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 3.0 | 8.2 | 3.0 | 8.2 | | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 |
| Lead/Lag | Lead | Lag | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | | | | | | | |
| Recall Mode | None | None | None | None | C-Max | C-Max | C-Max | C-Max | C-Max | C-Max | C-Max |
| Act Effct Green (s) | 25.8 | 12.6 | 10.1 | 12.0 | | 84.6 | 84.6 | 84.6 | 84.6 | 84.6 | 84.6 |
| Actuated g/C Ratio | 0.22 | 0.11 | 0.08 | 0.10 | | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 |
| v/c Ratio | 0.49 | 0.26 | 0.41 | 0.02 | | 0.22 | 0.41 | 0.04 | 0.01 | 0.34 | 0.03 |
| Control Delay (s/veh) | 46.8 | 1.8 | 58.8 | 0.1 | | 6.7 | 5.8 | 0.1 | 5.3 | 5.4 | 0.1 |
| 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) | 46.8 | 1.8 | 58.8 | 0.1 | | 6.7 | 5.8 | 0.1 | 5.3 | 5.4 | 0.1 |
| LOS | D | A | E | A | | A | A | A | A | A | A |
| Approach Delay (s/veh) | | 29.5 | | 50.9 | | | 5.7 | | | 5.2 | |
| Approach LOS | | C | | D | | | A | | | A | |

| 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: 85 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.49 | |
| Intersection Signal Delay (s/veh): 9.2 | Intersection LOS: A |
| Intersection Capacity Utilization 69.3% | ICU Level of Service C |
| Analysis Period (min) 15 | |

Splits and Phases: 5: Airport Road & Street A/12333 Airport Road



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 141 | 0 | 88 | 45 | 0 | 7 | 4 | 68 | 977 | 27 | 3 | 753 |
| Future Volume (vph) | 141 | 0 | 88 | 45 | 0 | 7 | 4 | 68 | 977 | 27 | 3 | 753 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.6 | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 |
| Total Lost time (s) | 3.0 | 8.2 | | 3.0 | 8.2 | | | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | | 1.00 | 0.85 | | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1373 | 1201 | | 1275 | 1633 | | | 1323 | 3349 | 1044 | 1330 | 3147 |
| Flt Permitted | 0.74 | 1.00 | | 1.00 | 1.00 | | | 0.34 | 1.00 | 1.00 | 0.25 | 1.00 |
| Satd. Flow (perm) | 1071 | 1201 | | 1342 | 1633 | | | 475 | 3349 | 1044 | 357 | 3147 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 141 | 0 | 88 | 45 | 0 | 7 | 4 | 68 | 977 | 27 | 3 | 753 |
| RTOR Reduction (vph) | 0 | 74 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lane Group Flow (vph) | 141 | 14 | 0 | 45 | 0 | 0 | 0 | 72 | 977 | 18 | 3 | 753 |
| Confl. Peds. (#/hr) | | | | | | | | | | 3 | 3 | |
| Heavy Vehicles (%) | 30% | 0% | 36% | 40% | 0% | 0% | 0% | 37% | 9% | 49% | 34% | 16% |
| Turn Type | pm+pt | NA | | pm+pt | NA | | Perm | Perm | NA | Perm | Perm | NA |
| Protected Phases | 3 | 8 | | 7 | 4 | | | | 6 | | | 2 |
| Permitted Phases | 8 | | | 4 | | | 6 | 6 | | 6 | 2 | |
| Actuated Green, G (s) | 27.2 | 18.6 | | 8.0 | 2.4 | | | 78.0 | 78.0 | 78.0 | 78.0 | 78.0 |
| Effective Green, g (s) | 27.2 | 18.6 | | 8.0 | 2.4 | | | 78.0 | 78.0 | 78.0 | 78.0 | 78.0 |
| Actuated g/C Ratio | 0.23 | 0.16 | | 0.07 | 0.02 | | | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 |
| Clearance Time (s) | 3.0 | 8.2 | | 3.0 | 8.2 | | | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 |
| 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) | 297 | 186 | | 86 | 32 | | | 308 | 2176 | 678 | 232 | 2045 |
| v/s Ratio Prot | c0.09 | 0.01 | | c0.02 | 0.00 | | | | c0.29 | | | 0.24 |
| v/s Ratio Perm | c0.02 | | | 0.01 | | | | 0.15 | | 0.02 | 0.01 | |
| v/c Ratio | 0.47 | 0.07 | | 0.52 | 0.00 | | | 0.23 | 0.45 | 0.03 | 0.01 | 0.37 |
| Uniform Delay, d1 | 40.0 | 43.3 | | 54.2 | 57.6 | | | 8.7 | 10.4 | 7.5 | 7.4 | 9.7 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.71 | 0.67 | 1.00 | 0.83 | 0.68 |
| Incremental Delay, d2 | 1.2 | 0.2 | | 5.6 | 0.1 | | | 1.6 | 0.6 | 0.1 | 0.1 | 0.5 |
| Delay (s) | 41.2 | 43.5 | | 59.8 | 57.7 | | | 7.8 | 7.6 | 7.5 | 6.3 | 7.0 |
| Level of Service | D | D | | E | E | | | A | A | A | A | A |
| Approach Delay (s/veh) | | 42.1 | | | 59.5 | | | | 7.6 | | | 7.1 |
| Approach LOS | | D | | | E | | | | A | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 12.3 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 17.8 |
| Intersection Capacity Utilization | 69.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

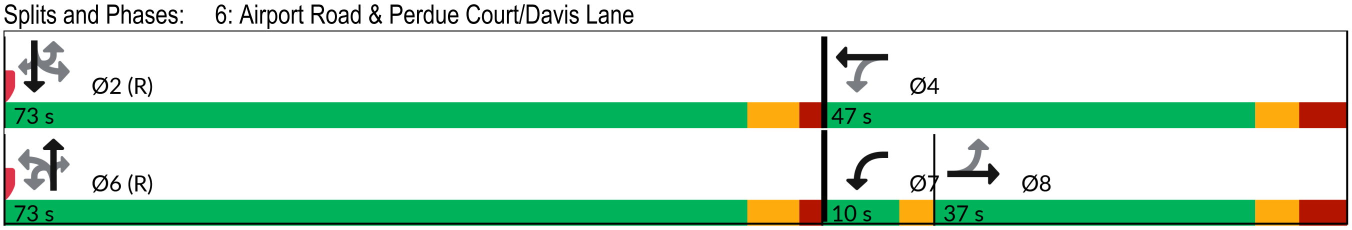
| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 29 |
| Future Volume (vph) | 29 |
| Ideal Flow (vphpl) | 1900 |
| Lane Width | 3.5 |
| Total Lost time (s) | 6.6 |
| Lane Util. Factor | 1.00 |
| Frpb, ped/bikes | 1.00 |
| Flpb, ped/bikes | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1248 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1248 |
| Peak-hour factor, PHF | 1.00 |
| Adj. Flow (vph) | 29 |
| RTOR Reduction (vph) | 10 |
| Lane Group Flow (vph) | 19 |
| Confl. Peds. (#/hr) | |
| Heavy Vehicles (%) | 28% |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 2 |
| Actuated Green, G (s) | 78.0 |
| Effective Green, g (s) | 78.0 |
| Actuated g/C Ratio | 0.65 |
| Clearance Time (s) | 6.6 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 811 |
| v/s Ratio Prot | |
| v/s Ratio Perm | 0.02 |
| v/c Ratio | 0.02 |
| Uniform Delay, d1 | 7.5 |
| Progression Factor | 1.00 |
| Incremental Delay, d2 | 0.1 |
| Delay (s) | 7.5 |
| Level of Service | A |
| Approach Delay (s/veh) | |
| Approach LOS | |

| Intersection Summary |
|---|

| Lane Group | EBL | EBT | WBL | WBT | NBU | NBL | NBT | NBR | SBU | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 6 | 0 | 80 | 0 | 6 | 36 | 1114 | 49 | 8 | 20 | 876 | 9 |
| Future Volume (vph) | 6 | 0 | 80 | 0 | 6 | 36 | 1114 | 49 | 8 | 20 | 876 | 9 |
| Turn Type | Perm | NA | pm+pt | NA | Perm | Perm | NA | Perm | Perm | Perm | NA | Perm |
| Protected Phases | | 8 | 7 | 4 | | | 6 | | | | 2 | |
| Permitted Phases | 8 | | 4 | | 6 | 6 | | 6 | 2 | 2 | | 2 |
| Detector Phase | 8 | 8 | 7 | 4 | 6 | 6 | 6 | 6 | 2 | 2 | 2 | 2 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 12.0 | 12.0 | 5.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| Minimum Split (s) | 36.2 | 36.2 | 9.5 | 37.2 | 35.6 | 35.6 | 35.6 | 35.6 | 35.6 | 35.6 | 35.6 | 35.6 |
| Total Split (s) | 37.0 | 37.0 | 10.0 | 47.0 | 73.0 | 73.0 | 73.0 | 73.0 | 73.0 | 73.0 | 73.0 | 73.0 |
| Total Split (%) | 30.8% | 30.8% | 8.3% | 39.2% | 60.8% | 60.8% | 60.8% | 60.8% | 60.8% | 60.8% | 60.8% | 60.8% |
| Yellow Time (s) | 4.0 | 4.0 | 3.0 | 4.0 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 |
| All-Red Time (s) | 4.2 | 4.2 | 0.0 | 4.2 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 8.2 | 8.2 | 3.0 | 8.2 | | 6.6 | 6.6 | 6.6 | | 6.6 | 6.6 | 6.6 |
| 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 | C-Max | C-Max | C-Max | C-Max |
| Act Effct Green (s) | 12.0 | 12.0 | 23.1 | 20.0 | | 90.6 | 90.6 | 90.6 | | 90.6 | 90.6 | 90.6 |
| Actuated g/C Ratio | 0.10 | 0.10 | 0.19 | 0.17 | | 0.76 | 0.76 | 0.76 | | 0.76 | 0.76 | 0.76 |
| v/c Ratio | 0.04 | 0.19 | 0.36 | 0.03 | | 0.15 | 0.45 | 0.08 | | 0.14 | 0.37 | 0.01 |
| Control Delay (s/veh) | 49.8 | 1.4 | 43.7 | 0.1 | | 8.0 | 8.1 | 0.8 | | 5.5 | 4.0 | 0.0 |
| 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) | 49.8 | 1.4 | 43.7 | 0.1 | | 8.0 | 8.1 | 0.8 | | 5.5 | 4.0 | 0.0 |
| LOS | D | A | D | A | | A | A | A | | A | A | A |
| Approach Delay (s/veh) | | 5.7 | | 39.7 | | | 7.8 | | | | 4.1 | |
| Approach LOS | | A | | D | | | A | | | | A | |

| 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: 85 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.45 | |
| Intersection Signal Delay (s/veh): 7.5 | Intersection LOS: A |
| Intersection Capacity Utilization 62.0% | ICU Level of Service B |
| Analysis Period (min) 15 | |

Splits and Phases: 6: Airport Road & Perdue Court/Davis Lane



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBU | SBL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 6 | 0 | 61 | 80 | 0 | 8 | 6 | 36 | 1114 | 49 | 8 | 20 |
| Future Volume (vph) | 6 | 0 | 61 | 80 | 0 | 8 | 6 | 36 | 1114 | 49 | 8 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.6 | 3.5 | 3.7 | 3.5 | 3.6 | 3.5 |
| Total Lost time (s) | 8.2 | 8.2 | | 3.0 | 8.2 | | | 6.6 | 6.6 | 6.6 | | 6.6 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.95 | 1.00 | | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 0.96 | | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | | 1.00 |
| Frt | 1.00 | 0.85 | | 1.00 | 0.85 | | | 1.00 | 1.00 | 0.85 | | 1.00 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.95 | 1.00 | 1.00 | | 0.95 |
| Satd. Flow (prot) | 1785 | 1458 | | 1638 | 1445 | | | 1153 | 3259 | 829 | | 1082 |
| Flt Permitted | 0.75 | 1.00 | | 0.55 | 1.00 | | | 0.31 | 1.00 | 1.00 | | 0.23 |
| Satd. Flow (perm) | 1414 | 1458 | | 942 | 1445 | | | 372 | 3259 | 829 | | 260 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 6 | 0 | 61 | 80 | 0 | 8 | 6 | 36 | 1114 | 49 | 8 | 20 |
| RTOR Reduction (vph) | 0 | 56 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 13 | 0 | 0 |
| Lane Group Flow (vph) | 6 | 5 | 0 | 80 | 1 | 0 | 0 | 42 | 1114 | 36 | 0 | 28 |
| Confl. Peds. (#/hr) | | | | | | | | | | 12 | | 12 |
| Heavy Vehicles (%) | 0% | 0% | 12% | 9% | 0% | 13% | 0% | 64% | 12% | 84% | 0% | 90% |
| Turn Type | Perm | NA | | pm+pt | NA | | Perm | Perm | NA | Perm | Perm | Perm |
| Protected Phases | | 8 | | 7 | 4 | | | | 6 | | | |
| Permitted Phases | 8 | | | 4 | | | 6 | 6 | | 6 | 2 | 2 |
| Actuated Green, G (s) | 9.6 | 9.6 | | 18.2 | 18.2 | | | 87.0 | 87.0 | 87.0 | | 87.0 |
| Effective Green, g (s) | 9.6 | 9.6 | | 18.2 | 18.2 | | | 87.0 | 87.0 | 87.0 | | 87.0 |
| Actuated g/C Ratio | 0.08 | 0.08 | | 0.15 | 0.15 | | | 0.73 | 0.73 | 0.73 | | 0.73 |
| Clearance Time (s) | 8.2 | 8.2 | | 3.0 | 8.2 | | | 6.6 | 6.6 | 6.6 | | 6.6 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | 3.0 | 3.0 | | 3.0 |
| Lane Grp Cap (vph) | 113 | 116 | | 175 | 219 | | | 269 | 2362 | 601 | | 188 |
| v/s Ratio Prot | | 0.00 | | c0.02 | 0.00 | | | | c0.34 | | | |
| v/s Ratio Perm | 0.00 | | | c0.05 | | | | 0.11 | | 0.04 | | 0.11 |
| v/c Ratio | 0.05 | 0.04 | | 0.46 | 0.01 | | | 0.16 | 0.47 | 0.06 | | 0.15 |
| Uniform Delay, d1 | 51.0 | 51.0 | | 45.4 | 43.2 | | | 5.1 | 6.9 | 4.7 | | 5.1 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | | 0.58 |
| Incremental Delay, d2 | 0.2 | 0.1 | | 1.9 | 0.0 | | | 1.2 | 0.7 | 0.2 | | 1.6 |
| Delay (s) | 51.2 | 51.1 | | 47.3 | 43.2 | | | 6.4 | 7.6 | 4.9 | | 4.6 |
| Level of Service | D | D | | D | D | | | A | A | A | | A |
| Approach Delay (s/veh) | | 51.1 | | | 47.0 | | | | 7.4 | | | |
| Approach LOS | | D | | | D | | | | A | | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 8.8 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.48 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 17.8 |
| Intersection Capacity Utilization | 62.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

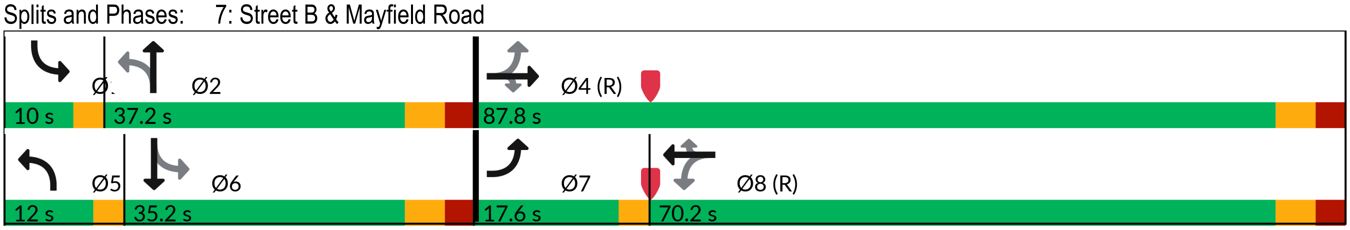
| Movement | SBT | SBR |
|---|---|---|
| Lane Configurations | | |
| Traffic Volume (vph) | 876 | 9 |
| Future Volume (vph) | 876 | 9 |
| Ideal Flow (vphpl) | 1900 | 1900 |
| Lane Width | 3.7 | 3.5 |
| Total Lost time (s) | 6.6 | 6.6 |
| Lane Util. Factor | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 |
| Satd. Flow (prot) | 3147 | 845 |
| Flt Permitted | 1.00 | 1.00 |
| Satd. Flow (perm) | 3147 | 845 |
| Peak-hour factor, PHF | 1.00 | 1.00 |
| Adj. Flow (vph) | 876 | 9 |
| RTOR Reduction (vph) | 0 | 2 |
| Lane Group Flow (vph) | 876 | 7 |
| Confl. Peds. (#/hr) | | |
| Heavy Vehicles (%) | 16% | 89% |
| Turn Type | NA | Perm |
| Protected Phases | 2 | |
| Permitted Phases | | 2 |
| Actuated Green, G (s) | 87.0 | 87.0 |
| Effective Green, g (s) | 87.0 | 87.0 |
| Actuated g/C Ratio | 0.73 | 0.73 |
| Clearance Time (s) | 6.6 | 6.6 |
| Vehicle Extension (s) | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 2281 | 612 |
| v/s Ratio Prot | 0.28 | |
| v/s Ratio Perm | | 0.01 |
| v/c Ratio | 0.38 | 0.01 |
| Uniform Delay, d1 | 6.3 | 4.6 |
| Progression Factor | 0.53 | 1.00 |
| Incremental Delay, d2 | 0.5 | 0.0 |
| Delay (s) | 3.8 | 4.6 |
| Level of Service | A | A |
| Approach Delay (s/veh) | 3.8 | |
| Approach LOS | A | |

| Intersection Summary |
|---|

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | |
| Traffic Volume (vph) | 55 | 1522 | 98 | 41 | 1694 | 20 | 104 | 0 | 32 | 0 |
| Future Volume (vph) | 55 | 1522 | 98 | 41 | 1694 | 20 | 104 | 0 | 32 | 0 |
| Turn Type | pm+pt | NA | Perm | Perm | NA | Perm | pm+pt | NA | pm+pt | NA |
| Protected Phases | 7 | 4 | | | 8 | | 5 | 2 | 1 | 6 |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | 6 | |
| Detector Phase | 7 | 4 | 4 | 8 | 8 | 8 | 5 | 2 | 1 | 6 |
| Switch Phase | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 5.0 | 12.0 | 5.0 | 12.0 |
| Minimum Split (s) | 9.5 | 25.1 | 25.1 | 25.1 | 25.1 | 25.1 | 9.5 | 24.9 | 9.5 | 24.9 |
| Total Split (s) | 17.6 | 87.8 | 87.8 | 70.2 | 70.2 | 70.2 | 12.0 | 37.2 | 10.0 | 35.2 |
| Total Split (%) | 13.0% | 65.0% | 65.0% | 52.0% | 52.0% | 52.0% | 8.9% | 27.6% | 7.4% | 26.1% |
| Yellow Time (s) | 3.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 3.0 | 4.0 | 3.0 | 4.0 |
| All-Red Time (s) | 0.0 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 | 0.0 | 2.9 | 0.0 | 2.9 |
| 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 | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 | 3.0 | 6.9 | 3.0 | 6.9 |
| Lead/Lag | Lead | | | Lag | Lag | Lag | Lead | Lag | Lead | Lag |
| Lead-Lag Optimize? | Yes | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Recall Mode | None | C-Max | C-Max | C-Max | C-Max | C-Max | None | None | None | None |
| Act Effct Green (s) | 101.3 | 97.2 | 97.2 | 89.6 | 89.6 | 89.6 | 27.1 | 17.8 | 22.6 | 12.0 |
| Actuated g/C Ratio | 0.75 | 0.72 | 0.72 | 0.66 | 0.66 | 0.66 | 0.20 | 0.13 | 0.17 | 0.09 |
| v/c Ratio | 0.33 | 0.45 | 0.08 | 0.21 | 0.54 | 0.02 | 0.56 | 0.07 | 0.17 | 0.56 |
| Control Delay (s/veh) | 17.4 | 10.9 | 6.4 | 10.3 | 11.7 | 0.1 | 57.6 | 0.5 | 46.2 | 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) | 17.4 | 10.9 | 6.4 | 10.3 | 11.7 | 0.1 | 57.6 | 0.5 | 46.2 | 9.2 |
| LOS | B | B | A | B | B | A | E | A | D | A |
| Approach Delay (s/veh) | | 10.9 | | | 11.5 | | | 47.3 | | 14.9 |
| Approach LOS | | B | | | B | | | D | | B |

| Intersection Summary | |
|---|---|
| Cycle Length: 135 | |
| Actuated Cycle Length: 135 | |
| Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green | |
| Natural Cycle: 80 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.56 | |
| Intersection Signal Delay (s/veh): 12.6 | Intersection LOS: B |
| Intersection Capacity Utilization 77.0% | ICU Level of Service D |
| Analysis Period (min) 15 | |

Splits and Phases: 7: Street B & Mayfield Road



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 55 | 1522 | 98 | 41 | 1694 | 20 | 104 | 0 | 23 | 32 | 0 | 176 |
| Future Volume (vph) | 55 | 1522 | 98 | 41 | 1694 | 20 | 104 | 0 | 23 | 32 | 0 | 176 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 |
| Total Lost time (s) | 3.0 | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 | 3.0 | 6.9 | | 3.0 | 6.9 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 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 | 0.85 | | 1.00 | 0.85 | |
| 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) | 1373 | 4683 | 1597 | 1785 | 4768 | 1229 | 1785 | 1633 | | 1322 | 1237 | |
| Flt Permitted | 0.10 | 1.00 | 1.00 | 0.15 | 1.00 | 1.00 | 0.28 | 1.00 | | 0.74 | 1.00 | |
| Satd. Flow (perm) | 147 | 4683 | 1597 | 290 | 4768 | 1229 | 517 | 1633 | | 1033 | 1237 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 55 | 1522 | 98 | 41 | 1694 | 20 | 104 | 0 | 23 | 32 | 0 | 176 |
| RTOR Reduction (vph) | 0 | 0 | 16 | 0 | 0 | 7 | 0 | 20 | 0 | 0 | 159 | 0 |
| Lane Group Flow (vph) | 55 | 1522 | 82 | 41 | 1694 | 13 | 104 | 3 | 0 | 32 | 17 | 0 |
| Heavy Vehicles (%) | 30% | 12% | 0% | 0% | 10% | 30% | 0% | 0% | 0% | 35% | 0% | 32% |
| Turn Type | pm+pt | NA | Perm | Perm | NA | Perm | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 96.0 | 96.0 | 96.0 | 87.8 | 87.8 | 87.8 | 25.0 | 17.8 | | 17.4 | 13.2 | |
| Effective Green, g (s) | 96.0 | 96.0 | 96.0 | 87.8 | 87.8 | 87.8 | 25.0 | 17.8 | | 17.4 | 13.2 | |
| Actuated g/C Ratio | 0.71 | 0.71 | 0.71 | 0.65 | 0.65 | 0.65 | 0.19 | 0.13 | | 0.13 | 0.10 | |
| Clearance Time (s) | 3.0 | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 | 3.0 | 6.9 | | 3.0 | 6.9 | |
| 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) | 151 | 3330 | 1135 | 188 | 3100 | 799 | 178 | 215 | | 142 | 120 | |
| v/s Ratio Prot | 0.01 | c0.33 | | | c0.36 | | c0.04 | 0.00 | | 0.01 | 0.01 | |
| v/s Ratio Perm | 0.24 | | 0.05 | 0.14 | | 0.01 | c0.07 | | | 0.02 | | |
| v/c Ratio | 0.36 | 0.46 | 0.07 | 0.22 | 0.55 | 0.02 | 0.58 | 0.01 | | 0.23 | 0.14 | |
| Uniform Delay, d1 | 8.1 | 8.3 | 5.9 | 9.6 | 12.8 | 8.3 | 47.9 | 51.0 | | 52.5 | 55.7 | |
| Progression Factor | 3.05 | 1.34 | 2.34 | 0.78 | 0.91 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.0 | 0.3 | 0.1 | 1.9 | 0.5 | 0.0 | 4.8 | 0.0 | | 0.8 | 0.6 | |
| Delay (s) | 25.8 | 11.5 | 14.0 | 9.4 | 12.1 | 8.4 | 52.8 | 51.0 | | 53.3 | 56.3 | |
| Level of Service | C | B | B | A | B | A | D | D | | D | E | |
| Approach Delay (s/veh) | | 12.1 | | | 12.0 | | | 52.4 | | | 55.8 | |
| Approach LOS | | B | | | B | | | D | | | E | |

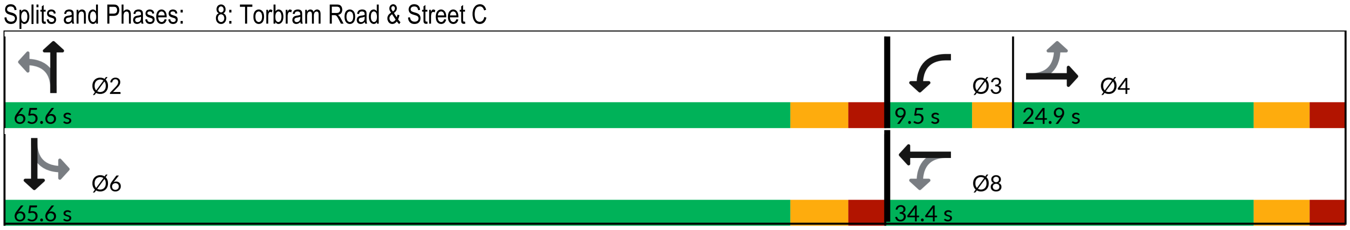
| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 15.8 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.56 | | |
| Actuated Cycle Length (s) | 135.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 77.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | |
| Traffic Volume (vph) | 10 | 0 | 109 | 0 | 540 | 500 | 9 | 226 |
| Future Volume (vph) | 10 | 0 | 109 | 0 | 540 | 500 | 9 | 226 |
| 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) | 12.0 | 12.0 | 5.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| Minimum Split (s) | 24.9 | 24.9 | 9.5 | 24.9 | 24.9 | 24.9 | 24.9 | 24.9 |
| Total Split (s) | 24.9 | 24.9 | 9.5 | 34.4 | 65.6 | 65.6 | 65.6 | 65.6 |
| Total Split (%) | 24.9% | 24.9% | 9.5% | 34.4% | 65.6% | 65.6% | 65.6% | 65.6% |
| Yellow Time (s) | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 |
| All-Red Time (s) | 2.7 | 2.7 | 0.0 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 6.9 | 6.9 | 3.0 | 6.9 | 6.9 | 6.9 | 6.9 | 6.9 |
| Lead/Lag | Lag | Lag | Lead | | | | | |
| Lead-Lag Optimize? | Yes | Yes | Yes | | | | | |
| Recall Mode | None | None | None | None | Max | Max | Max | Max |
| Act Effct Green (s) | 12.0 | 12.0 | 25.4 | 21.5 | 58.7 | 58.7 | 58.7 | 58.7 |
| Actuated g/C Ratio | 0.13 | 0.13 | 0.27 | 0.23 | 0.62 | 0.62 | 0.62 | 0.62 |
| v/c Ratio | 0.06 | 0.31 | 0.49 | 0.07 | 0.78 | 0.25 | 0.02 | 0.12 |
| Control Delay (s/veh) | 37.1 | 1.0 | 34.7 | 0.2 | 22.9 | 7.9 | 6.9 | 6.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 37.1 | 1.0 | 34.7 | 0.2 | 22.9 | 7.9 | 6.9 | 6.5 |
| LOS | D | A | C | A | C | A | A | A |
| Approach Delay (s/veh) | | 2.5 | | 24.3 | | 15.3 | | 6.5 |
| Approach LOS | | A | | C | | B | | A |

| Intersection Summary | |
|---|---|
| Cycle Length: 100 | |
| Actuated Cycle Length: 94 | |
| Natural Cycle: 90 | |
| Control Type: Semi Act-Uncoord | |
| Maximum v/c Ratio: 0.78 | |
| Intersection Signal Delay (s/veh): 13.0 | Intersection LOS: B |
| Intersection Capacity Utilization 82.9% | ICU Level of Service E |
| Analysis Period (min) 15 | |

Splits and Phases: 8: Torbram Road & Street C



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 10 | 0 | 235 | 109 | 0 | 47 | 540 | 500 | 51 | 9 | 226 | 35 |
| Future Volume (vph) | 10 | 0 | 235 | 109 | 0 | 47 | 540 | 500 | 51 | 9 | 226 | 35 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 |
| Total Lost time (s) | 6.9 | 6.9 | | 3.0 | 6.9 | | 6.9 | 6.9 | | 6.9 | 6.9 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frt | 1.00 | 0.85 | | 1.00 | 0.85 | | 1.00 | 0.99 | | 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) | 1785 | 1633 | | 1785 | 1633 | | 1785 | 3567 | | 1785 | 3428 | |
| Flt Permitted | 0.73 | 1.00 | | 0.27 | 1.00 | | 0.59 | 1.00 | | 0.45 | 1.00 | |
| Satd. Flow (perm) | 1365 | 1633 | | 505 | 1633 | | 1110 | 3567 | | 838 | 3428 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 10 | 0 | 235 | 109 | 0 | 47 | 540 | 500 | 51 | 9 | 226 | 35 |
| RTOR Reduction (vph) | 0 | 205 | 0 | 0 | 36 | 0 | 0 | 7 | 0 | 0 | 11 | 0 |
| Lane Group Flow (vph) | 10 | 30 | 0 | 109 | 11 | 0 | 540 | 544 | 0 | 9 | 250 | 0 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 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) | 12.0 | 12.0 | | 21.5 | 21.5 | | 58.7 | 58.7 | | 58.7 | 58.7 | |
| Effective Green, g (s) | 12.0 | 12.0 | | 21.5 | 21.5 | | 58.7 | 58.7 | | 58.7 | 58.7 | |
| Actuated g/C Ratio | 0.13 | 0.13 | | 0.23 | 0.23 | | 0.62 | 0.62 | | 0.62 | 0.62 | |
| Clearance Time (s) | 6.9 | 6.9 | | 3.0 | 6.9 | | 6.9 | 6.9 | | 6.9 | 6.9 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 174 | 208 | | 204 | 373 | | 693 | 2227 | | 523 | 2140 | |
| v/s Ratio Prot | | 0.02 | | c0.04 | 0.01 | | | 0.15 | | | 0.07 | |
| v/s Ratio Perm | 0.01 | | | c0.09 | | | c0.49 | | | 0.01 | | |
| v/c Ratio | 0.06 | 0.14 | | 0.53 | 0.03 | | 0.78 | 0.24 | | 0.02 | 0.12 | |
| Uniform Delay, d1 | 36.0 | 36.4 | | 30.2 | 28.1 | | 12.9 | 7.8 | | 6.7 | 7.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.1 | 0.3 | | 2.7 | 0.0 | | 8.4 | 0.3 | | 0.1 | 0.1 | |
| Delay (s) | 36.2 | 36.8 | | 32.9 | 28.2 | | 21.4 | 8.1 | | 6.8 | 7.3 | |
| Level of Service | D | D | | C | C | | C | A | | A | A | |
| Approach Delay (s/veh) | | 36.7 | | | 31.5 | | | 14.7 | | | 7.2 | |
| Approach LOS | | D | | | C | | | B | | | A | |

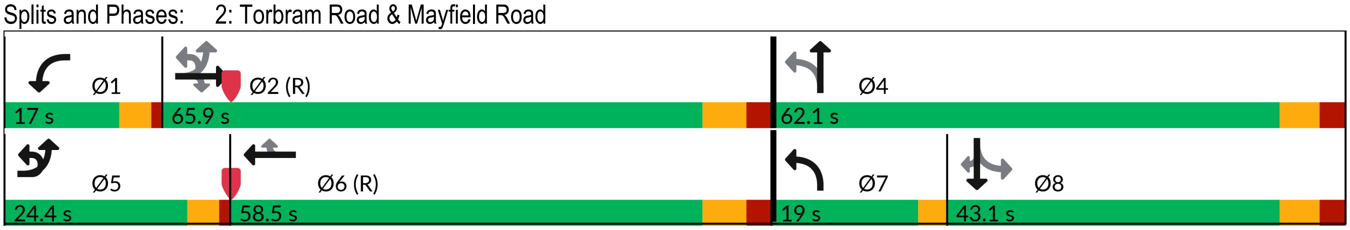
| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 18.1 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 94.0 | Sum of lost time (s) | 16.8 |
| Intersection Capacity Utilization | 82.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Lane Group | EBU | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 4 | 323 | 1421 | 333 | 163 | 1720 | 48 | 414 | 661 | 52 | 420 | 230 |
| Future Volume (vph) | 4 | 323 | 1421 | 333 | 163 | 1720 | 48 | 414 | 661 | 52 | 420 | 230 |
| Turn Type | pm+pt | pm+pt | NA | Perm | Prot | NA | Perm | pm+pt | NA | Perm | NA | Perm |
| Protected Phases | 5 | 5 | 2 | | 1 | 6 | | 7 | 4 | | 8 | |
| Permitted Phases | 2 | 2 | | 2 | | | 6 | 4 | | 8 | | 8 |
| Detector Phase | 5 | 5 | 2 | 2 | 1 | 6 | 6 | 7 | 4 | 8 | 8 | 8 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | 16.0 | 16.0 | 5.0 | 16.0 | 16.0 | 5.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| Minimum Split (s) | 9.5 | 9.5 | 50.3 | 50.3 | 9.5 | 50.3 | 50.3 | 8.0 | 43.1 | 43.1 | 43.1 | 43.1 |
| Total Split (s) | 24.4 | 24.4 | 65.9 | 65.9 | 17.0 | 58.5 | 58.5 | 19.0 | 62.1 | 43.1 | 43.1 | 43.1 |
| Total Split (%) | 16.8% | 16.8% | 45.4% | 45.4% | 11.7% | 40.3% | 40.3% | 13.1% | 42.8% | 29.7% | 29.7% | 29.7% |
| Yellow Time (s) | 3.5 | 3.5 | 4.6 | 4.6 | 3.5 | 4.6 | 4.6 | 3.0 | 4.2 | 4.2 | 4.2 | 4.2 |
| All-Red Time (s) | 1.0 | 1.0 | 2.7 | 2.7 | 1.0 | 2.7 | 2.7 | 0.0 | 2.9 | 2.9 | 2.9 | 2.9 |
| Lost Time Adjust (s) | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | | 4.5 | 7.3 | 7.3 | 4.5 | 7.3 | 7.3 | 3.0 | 7.1 | 7.1 | 7.1 | 7.1 |
| Lead/Lag | Lead | Lead | Lag | Lag | Lead | Lag | Lag | Lead | | Lag | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | Yes |
| Recall Mode | None | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | Max | Max | Max |
| Act Effct Green (s) | | 78.4 | 60.2 | 60.2 | 10.9 | 51.2 | 51.2 | 59.1 | 55.0 | 36.0 | 36.0 | 36.0 |
| Actuated g/C Ratio | | 0.54 | 0.42 | 0.42 | 0.08 | 0.35 | 0.35 | 0.41 | 0.38 | 0.25 | 0.25 | 0.25 |
| v/c Ratio | | 1.09 | 0.72 | 0.39 | 0.64 | 1.04 | 0.07 | 1.06 | 0.63 | 0.38 | 0.46 | 0.41 |
| Control Delay (s/veh) | | 119.8 | 38.4 | 4.1 | 77.1 | 78.8 | 0.2 | 97.8 | 37.8 | 54.8 | 48.3 | 9.0 |
| Queue Delay | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | | 119.8 | 38.4 | 4.1 | 77.1 | 78.8 | 0.2 | 97.8 | 37.8 | 54.8 | 48.3 | 9.0 |
| LOS | | F | D | A | E | E | A | F | D | D | D | A |
| Approach Delay (s/veh) | | | 45.7 | | | 76.7 | | | 57.4 | | 35.9 | |
| Approach LOS | | | D | | | E | | | E | | D | |

| Intersection Summary | |
|---|---|
| Cycle Length: 145 | |
| Actuated Cycle Length: 145 | |
| Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green | |
| Natural Cycle: 125 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 1.09 | |
| Intersection Signal Delay (s/veh): 57.0 | Intersection LOS: E |
| Intersection Capacity Utilization 107.6% | ICU Level of Service G |
| Analysis Period (min) 15 | |

Splits and Phases: 2: Torbram Road & Mayfield Road



| Movement | EBU | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 4 | 323 | 1421 | 333 | 163 | 1720 | 48 | 414 | 661 | 192 | 52 | 420 |
| Future Volume (vph) | 4 | 323 | 1421 | 333 | 163 | 1720 | 48 | 414 | 661 | 192 | 52 | 420 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.6 | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 |
| Total Lost time (s) | | 4.5 | 7.3 | 7.3 | 4.5 | 7.3 | 7.3 | 3.0 | 7.1 | | 7.1 | 7.1 |
| Lane Util. Factor | | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 |
| Frt | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 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) | | 1785 | 4725 | 1581 | 3362 | 4683 | 1633 | 1750 | 3519 | | 1785 | 3650 |
| Flt Permitted | | 0.07 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.36 | 1.00 | | 0.30 | 1.00 |
| Satd. Flow (perm) | | 135 | 4725 | 1581 | 3362 | 4683 | 1633 | 666 | 3519 | | 557 | 3650 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 4 | 323 | 1421 | 333 | 163 | 1720 | 48 | 414 | 661 | 192 | 52 | 420 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 195 | 0 | 0 | 31 | 0 | 19 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 327 | 1421 | 138 | 163 | 1720 | 17 | 414 | 834 | 0 | 52 | 420 |
| Heavy Vehicles (%) | 0% | 0% | 11% | 1% | 3% | 12% | 0% | 2% | 0% | 1% | 0% | 0% |
| Turn Type | pm+pt | pm+pt | NA | Perm | Prot | NA | Perm | pm+pt | NA | | Perm | NA |
| Protected Phases | 5 | 5 | 2 | | 1 | 6 | | 7 | 4 | | | 8 |
| Permitted Phases | 2 | 2 | | 2 | | | 6 | 4 | | | 8 | |
| Actuated Green, G (s) | | 75.6 | 60.2 | 60.2 | 10.9 | 51.2 | 51.2 | 55.0 | 55.0 | | 36.0 | 36.0 |
| Effective Green, g (s) | | 75.6 | 60.2 | 60.2 | 10.9 | 51.2 | 51.2 | 55.0 | 55.0 | | 36.0 | 36.0 |
| Actuated g/C Ratio | | 0.52 | 0.42 | 0.42 | 0.08 | 0.35 | 0.35 | 0.38 | 0.38 | | 0.25 | 0.25 |
| Clearance Time (s) | | 4.5 | 7.3 | 7.3 | 4.5 | 7.3 | 7.3 | 3.0 | 7.1 | | 7.1 | 7.1 |
| 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) | | 296 | 1961 | 656 | 252 | 1653 | 576 | 372 | 1334 | | 138 | 906 |
| v/s Ratio Prot | | c0.15 | 0.30 | | 0.05 | 0.37 | | c0.12 | 0.24 | | | 0.12 |
| v/s Ratio Perm | | c0.42 | | 0.09 | | | 0.01 | c0.30 | | | 0.09 | |
| v/c Ratio | | 1.10 | 0.72 | 0.21 | 0.65 | 1.04 | 0.03 | 1.11 | 0.63 | | 0.38 | 0.46 |
| Uniform Delay, d1 | | 47.9 | 35.5 | 27.2 | 65.2 | 46.9 | 30.7 | 41.4 | 36.6 | | 45.2 | 46.3 |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 83.4 | 2.4 | 0.7 | 5.6 | 33.5 | 0.1 | 80.8 | 2.2 | | 7.7 | 1.7 |
| Delay (s) | | 131.3 | 37.8 | 27.9 | 70.8 | 80.4 | 30.8 | 122.2 | 38.8 | | 52.9 | 48.0 |
| Level of Service | | F | D | C | E | F | C | F | D | | D | D |
| Approach Delay (s/veh) | | | 50.9 | | | 78.3 | | | 66.1 | | | 47.0 |
| Approach LOS | | | D | | | E | | | E | | | D |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 62.5 | HCM 2000 Level of Service | E |
| HCM 2000 Volume to Capacity ratio | 1.15 | | |
| Actuated Cycle Length (s) | 145.0 | Sum of lost time (s) | 21.9 |
| Intersection Capacity Utilization | 107.6% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 230 |
| Future Volume (vph) | 230 |
| Ideal Flow (vphpl) | 1900 |
| Lane Width | 3.5 |
| Total Lost time (s) | 7.1 |
| Lane Util. Factor | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1597 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1597 |
| Peak-hour factor, PHF | 1.00 |
| Adj. Flow (vph) | 230 |
| RTOR Reduction (vph) | 162 |
| Lane Group Flow (vph) | 68 |
| Heavy Vehicles (%) | 0% |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 8 |
| Actuated Green, G (s) | 36.0 |
| Effective Green, g (s) | 36.0 |
| Actuated g/C Ratio | 0.25 |
| Clearance Time (s) | 7.1 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 396 |
| v/s Ratio Prot | |
| v/s Ratio Perm | 0.04 |
| v/c Ratio | 0.17 |
| Uniform Delay, d1 | 42.8 |
| Progression Factor | 1.00 |
| Incremental Delay, d2 | 0.9 |
| Delay (s) | 43.7 |
| Level of Service | D |
| Approach Delay (s/veh) | |
| Approach LOS | |

| Intersection Summary |
|---|

# Junctions 8

## ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]


For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk



**Filename:** Airport_Healey_OldSchool(new_improved).arc8
**Path:** \\Crozier-Files\Projects\2200\2278- Broccolini\7228 - Broccolini Secondary Plan\Design\Traffic\Analysis\Arcady
**Report generation date:** 2025-04-07 12:23:20 PM

« (Default Analysis Set) - FB_2044, AM
» Junction Network
» Arms
» Traffic Flows
» Entry Flows
» Turning Proportions
» Vehicle Mix
» Results

## Summary of junction performance

| | AM | | | | | | |
|---|---|---|---|---|---|---|---|
| | Queue (PCU) | 95% Queue (PCU) | Delay (s) | RFC | LOS | Junction Delay (s) | Junction LOS |
| | A1 - FB_2044 | | | | | | |
| Arm 1 | 0.64 | ~1 | 4.56 | 0.38 | A | 3.98 | A |
| Arm 2 | 0.60 | ~1 | 3.14 | 0.32 | A | | |
| Arm 3 | 0.14 | ~1 | 1.97 | 0.12 | A | | |
| Arm 4 | 2.12 | 5.58 | 4.46 | 0.66 | A | | |

*Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.*

*"D3 - FB_2044, AM " model duration: 8:00 AM - 8:15 AM*
*"D6 - FB_2044, PM" model duration: 5:00 PM - 5:15 PM*
*"D9 - FT_2044, AM" model duration: 8:00 AM - 8:15 AM*
*"D12 - FT_2044, PM" model duration: 5:00 PM - 6:30 PM*

*Run using Junctions 8.0.6.541 at 2025-04-07 12:23:19 PM*

## File summary

| | |
|---|---|
| **Title** | Airport Road and Healey Road / Old School Road |
| **Location** | |
| **Site Number** | |
| **Date** | 2025-03-31 |
| **Version** | |
| **Status** | (new file) |
| **Identifier** | |
| **Client** | |
| **Jobnumber** | |
| **Enumerator** | ahallsworth |
| **Description** | |

## Analysis Options

| Vehicle Length (m) | Do Queue Variations | Calculate Residual Capacity | Residual Capacity Criteria Type | RFC Threshold | Average Delay Threshold (s) | Queue Threshold (PCU) |
|---|---|---|---|---|---|---|
| 5.75 | ✓ | | N/A | 0.85 | 36.00 | 20.00 |

## Units

| Distance Units | Speed Units | Traffic Units Input | Traffic Units Results | Flow Units | Average Delay Units | Total Delay Units | Rate Of Delay Units |
|---|---|---|---|---|---|---|---|
| m | kph | Veh | PCU | perHour | s | -Min | perMin |

# (Default Analysis Set) - FB_2044, AM

## Data Errors and Warnings

*No errors or warnings*

## Analysis Set Details

| Name | Roundabout Capacity Model | Description | Include In Report | Use Specific Demand Set(s) | Specific Demand Set (s) | Locked | Network Flow Scaling Factor (%) | Network Capacity Scaling Factor (%) | Reason For Scaling Factors |
|---|---|---|---|---|---|---|---|---|---|
| (Default Analysis Set) | ARCADY | | ✓ | | | | 100.000 | 100.000 | Consistent with Airport Road EA |

## Demand Set Details

| Name | Scenario Name | Time Period Name | Description | Traffic Profile Type | Model Start Time (HH:mm) | Model Finish Time (HH:mm) | Model Time Period Length (min) | Time Segment Length (min) | Results For Central Hour Only | Single Time Segment Only | Locked | Run Automatically | Use Relationship | Relatio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FB_2044, AM | FB_2044 | AM | 2031 AM Future Background | PHF | 08:00 | 08:15 | 15 | 15 | | ✓ | | ✓ | | |

# Junction Network

## Junctions

| Junction | Name | Junction Type | Arm Order | Grade Separated | Large Roundabout | Do Geometric Delay | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|---|
| 1 | Roundabout 1 | Roundabout | 1,2,3,4 | | | | 3.98 | A |

## Junction Network Options

| Driving Side | Lighting |
|---|---|
| Right | Normal/unknown |

# Arms

## Arms

| Arm | Arm | Name | Description |
|---|---|---|---|
| **1** | 1 | Old School Road | West Approach |
| **2** | 2 | Airport Road | South Approach |
| **3** | 3 | Healey Road | East Approach |
| **4** | 4 | Airport Road | North Approach |

## Capacity Options

| Arm | Minimum Capacity (PCU/hr) | Maximum Capacity (PCU/hr) | Assume Flat Start Profile | Initial Queue (PCU) |
|---|---|---|---|---|
| **1** | 0.00 | 99999.00 | | 0.00 |
| **2** | 0.00 | 99999.00 | | 0.00 |
| **3** | 0.00 | 99999.00 | | 0.00 |
| **4** | 0.00 | 99999.00 | | 0.00 |

## Roundabout Geometry

| Arm | V - Approach road half-width (m) | E - Entry width (m) | l' - Effective flare length (m) | R - Entry radius (m) | D - Inscribed circle diameter (m) | PHI - Conflict (entry) angle (deg) | Exit Only |
|---|---|---|---|---|---|---|---|
| **1** | 7.40 | 9.80 | 30.00 | 38.00 | 55.00 | 11.00 | |
| **2** | 7.40 | 9.80 | 30.00 | 32.00 | 55.00 | 8.00 | |
| **3** | 7.40 | 10.00 | 30.00 | 28.00 | 55.00 | 26.00 | |
| **4** | 7.40 | 10.00 | 30.00 | 28.00 | 55.00 | 12.00 | |

## Slope / Intercept / Capacity

### Arm Intercept Adjustments

| Arm | Type | Reason | Direct Intercept Adjustment (PCU/hr) | Percentage Intercept Adjustment (%) |
|---|---|---|---|---|
| **1** | Percentage | MTO | | 90.00 |
| **2** | Percentage | MTO | | 90.00 |
| **3** | Percentage | MTO | | 90.00 |
| **4** | Percentage | MTO | | 90.00 |

### Roundabout Slope and Intercept used in model

| Arm | Enter slope and intercept directly | Entered slope | Entered intercept (PCU/hr) | Final Slope | Final Intercept (PCU/hr) |
|---|---|---|---|---|---|
| **1** | | (calculated) | (calculated) | 0.858 | 2765.276 |
| **2** | | (calculated) | (calculated) | 0.863 | 2779.455 |
| **3** | | (calculated) | (calculated) | 0.817 | 2644.722 |
| **4** | | (calculated) | (calculated) | 0.856 | 2769.721 |

*The slope and intercept shown above include any corrections and adjustments.*

# Traffic Flows

## Demand Set Data Options

| Default Vehicle Mix | Vehicle Mix Varies Over Time | Vehicle Mix Varies Over Turn | Vehicle Mix Varies Over Entry | Vehicle Mix Source | PCU Factor for a HV (PCU) | Default Turning Proportions | Estimate from entry/exit counts | Turning Proportions Vary Over Time | Turning Proportions Vary Over Turn | Turning Proportions Vary Over Entry |
|---|---|---|---|---|---|---|---|---|---|---|
| | | ✓ | ✓ | HV Percentages | 2.00 | | | | ✓ | ✓ |

# Entry Flows

## General Flows Data

| Arm | Profile Type | Use Turning Counts | Average Demand Flow (Veh/hr) | Flow Scaling Factor (%) |
|---|---|---|---|---|
| 1 | PHF | ✓ | 489.00 | 100.000 |
| 2 | PHF | ✓ | 534.00 | 100.000 |
| 3 | PHF | ✓ | 254.00 | 100.000 |
| 4 | PHF | ✓ | 1522.00 | 100.000 |

## Peak Hour Factor Data

| Arm | Hourly Volume (Veh/hr) | Peak Hour Factor | Peak Time Segment |
|---|---|---|---|
| 1 | 489.00 | 1.00 | N/A |
| 2 | 534.00 | 1.00 | N/A |
| 3 | 254.00 | 1.00 | N/A |
| 4 | 1522.00 | 1.00 | N/A |

# Turning Proportions

### Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 0.000 | 34.000 | 428.000 | 27.000 |
| | 2 | 9.000 | 0.000 | 116.000 | 409.000 |
| | 3 | 153.000 | 47.000 | 0.000 | 54.000 |
| | 4 | 38.000 | 1238.000 | 246.000 | 0.000 |

### Turning Proportions (Veh) - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 0.00 | 0.07 | 0.88 | 0.06 |
| | 2 | 0.02 | 0.00 | 0.22 | 0.77 |
| | 3 | 0.60 | 0.19 | 0.00 | 0.21 |
| | 4 | 0.02 | 0.81 | 0.16 | 0.00 |

# Vehicle Mix

### Average PCU Per Vehicle - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 1.000 | 1.040 | 1.020 | 1.120 |
| | 2 | 1.120 | 1.000 | 1.070 | 1.360 |
| | 3 | 1.040 | 1.070 | 1.000 | 1.000 |
| | 4 | 1.030 | 1.140 | 1.010 | 1.000 |

### Heavy Vehicle Percentages - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 0.0 | 4.0 | 2.0 | 12.0 |
| | 2 | 12.0 | 0.0 | 7.0 | 36.0 |
| | 3 | 4.0 | 7.0 | 0.0 | 0.0 |
| | 4 | 3.0 | 14.0 | 1.0 | 0.0 |

# Results

## Results Summary for whole modelled period

| Arm | Max RFC | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) | Total Queueing Delay (PCU-min) | Average Queueing Delay (s) | Rate Of Queueing Delay (PCU-min/min) | Inclusive Total Queueing Delay (PCU-min) | Inclusive Average Queueing Delay (s) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.38 | 4.56 | 0.64 | ~1 | A | 502.16 | 125.54 | 9.27 | 4.43 | 0.62 | 9.28 | 4.43 |
| 2 | 0.32 | 3.14 | 0.60 | ~1 | A | 690.44 | 172.61 | 8.84 | 3.07 | 0.59 | 8.84 | 3.07 |
| 3 | 0.12 | 1.97 | 0.14 | ~1 | A | 263.41 | 65.85 | 2.13 | 1.94 | 0.14 | 2.13 | 1.94 |
| 4 | 0.66 | 4.46 | 2.12 | 5.58 | A | 1698.92 | 424.73 | 30.34 | 4.29 | 2.02 | 30.39 | 4.29 |

## Main Results for each time segment

### Main results: (08:00-08:15)

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Entry Flow (PCU/hr) | Exit Flow (PCU/hr) | Circulating Flow (PCU/hr) | Pedestrian Demand (Ped/hr) | Capacity (PCU/hr) | Saturation Capacity (PCU/hr) | RFC | Start Queue (PCU) | End Queue (PCU) | Delay (s) | LOS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 502.16 | 125.54 | 499.61 | 207.76 | 1701.69 | 0.00 | 1304.65 | 1047.29 | 0.385 | 0.00 | 0.64 | 4.564 | A |
| 2 | 690.44 | 172.61 | 688.03 | 1489.65 | 711.65 | 0.00 | 2165.48 | 1716.62 | 0.319 | 0.00 | 0.60 | 3.145 | A |
| 3 | 263.41 | 65.85 | 262.84 | 805.25 | 594.43 | 0.00 | 2158.99 | 1442.65 | 0.122 | 0.00 | 0.14 | 1.969 | A |
| 4 | 1698.92 | 424.73 | 1690.46 | 638.27 | 219.00 | 0.00 | 2582.31 | 1766.81 | 0.658 | 0.00 | 2.12 | 4.465 | A |

# Queueing Delay Results for each time segment

## Queueing Delay results: (08:00-08:15)

| Arm | Queueing Total Delay (PCU-min) | Queueing Rate Of Delay (PCU-min/min) | Average Delay Per Arriving Vehicle (s) | Unsignalised Level Of Service | Signalised Level Of Service |
|---|---|---|---|---|---|
| 1 | 9.27 | 0.62 | 4.564 | A | A |
| 2 | 8.84 | 0.59 | 3.145 | A | A |
| 3 | 2.13 | 0.14 | 1.969 | A | A |
| 4 | 30.34 | 2.02 | 4.465 | A | A |

# Queue Variation Results for each time segment

## Queue Variation results: (08:00-08:15)

| Arm | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile Message | Marker Message | Probability Of Reaching Or Exceeding Marker | Probability Of Exactly Reaching Marker |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.64 | ~1 | ~1 | ~1 | ~1 | Percentiles could not be calculated. This may be because the mean queue is very small or very big. | | N/A | N/A |
| 2 | 0.60 | ~1 | ~1 | ~1 | ~1 | Percentiles could not be calculated. This may be because the mean queue is very small or very big. | | N/A | N/A |
| 3 | 0.14 | ~1 | ~1 | ~1 | ~1 | Percentiles could not be calculated. This may be because the mean queue is very small or very big. | | N/A | N/A |
| 4 | 2.12 | 0.00 | 0.00 | 4.46 | 5.58 | | | N/A | N/A |

# Junctions 8

## ARCADY 8 - Roundabout Module



**Filename:** Airport_Healey_OldSchool(new_improved).arc8
**Path:** \\Crozier-Files\Projects\2200\2278- Broccolini\7228 - Broccolini Secondary Plan\Design\Traffic\Analysis\Arcady
**Report generation date:** 2025-04-07 12:23:45 PM

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« (Default Analysis Set) - FB_2044, PM
» Junction Network
» Arms
» Traffic Flows
» Entry Flows
» Turning Proportions
» Vehicle Mix
» Results

## Summary of junction performance

| | PM | | | | | | |
|---|---|---|---|---|---|---|---|
| | Queue (PCU) | 95% Queue (PCU) | Delay (s) | RFC | LOS | Junction Delay (s) | Junction LOS |
| | A1 - FB_2044 | | | | | | |
| Arm 1 | 0.24 | ~1 | 2.30 | 0.19 | A | 5.80 | A |
| Arm 2 | 2.56 | 7.94 | 5.45 | 0.70 | A | | |
| Arm 3 | 2.66 | 7.10 | 10.16 | 0.73 | B | | |
| Arm 4 | 0.77 | ~1 | 3.27 | 0.39 | A | | |

*Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.*

*"D3 - FB_2044, AM" model duration: 8:00 AM - 8:15 AM*
*"D6 - FB_2044, PM " model duration: 5:00 PM - 5:15 PM*
*"D9 - FT_2044, AM" model duration: 8:00 AM - 8:15 AM*
*"D12 - FT_2044, PM" model duration: 5:00 PM - 6:30 PM*

*Run using Junctions 8.0.6.541 at 2025-04-07 12:23:44 PM*

## File summary

| | |
|---|---|
| **Title** | Airport Road and Healey Road / Old School Road |
| **Location** | |
| **Site Number** | |
| **Date** | 2025-03-31 |
| **Version** | |
| **Status** | (new file) |
| **Identifier** | |
| **Client** | |
| **Jobnumber** | |
| **Enumerator** | ahallsworth |
| **Description** | |

## Analysis Options

| Vehicle Length (m) | Do Queue Variations | Calculate Residual Capacity | Residual Capacity Criteria Type | RFC Threshold | Average Delay Threshold (s) | Queue Threshold (PCU) |
|---|---|---|---|---|---|---|
| 5.75 | ✓ | | N/A | 0.85 | 36.00 | 20.00 |

## Units

| Distance Units | Speed Units | Traffic Units Input | Traffic Units Results | Flow Units | Average Delay Units | Total Delay Units | Rate Of Delay Units |
|---|---|---|---|---|---|---|---|
| m | kph | Veh | PCU | perHour | s | -Min | perMin |

# (Default Analysis Set) - FB_2044, PM

## Data Errors and Warnings

*No errors or warnings*

## Analysis Set Details

| Name | Roundabout Capacity Model | Description | Include In Report | Use Specific Demand Set(s) | Specific Demand Set (s) | Locked | Network Flow Scaling Factor (%) | Network Capacity Scaling Factor (%) | Reason For Scaling Factors |
|---|---|---|---|---|---|---|---|---|---|
| (Default Analysis Set) | ARCADY | | ✓ | | | | 100.000 | 100.000 | Consistent with Airport Road EA |

## Demand Set Details

| Name | Scenario Name | Time Period Name | Description | Traffic Profile Type | Model Start Time (HH:mm) | Model Finish Time (HH:mm) | Model Time Period Length (min) | Time Segment Length (min) | Results For Central Hour Only | Single Time Segment Only | Locked | Run Automatically | Use Relationship | Relatio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FB_2044, PM | FB_2044 | PM | 2031 PM Future Background | PHF | 17:00 | 17:15 | 15 | 15 | | ✓ | | ✓ | | |

# Junction Network

## Junctions

| Junction | Name | Junction Type | Arm Order | Grade Separated | Large Roundabout | Do Geometric Delay | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|---|
| 1 | Roundabout 1 | Roundabout | 1,2,3,4 | | | | 5.80 | A |

## Junction Network Options

| Driving Side | Lighting |
|---|---|
| Right | Normal/unknown |

# Arms

## Arms

| Arm | Arm | Name | Description |
|---|---|---|---|
| **1** | 1 | Old School Road | West Approach |
| **2** | 2 | Airport Road | South Approach |
| **3** | 3 | Healey Road | East Approach |
| **4** | 4 | Airport Road | North Approach |

## Capacity Options

| Arm | Minimum Capacity (PCU/hr) | Maximum Capacity (PCU/hr) | Assume Flat Start Profile | Initial Queue (PCU) |
|---|---|---|---|---|
| **1** | 0.00 | 99999.00 | | 0.00 |
| **2** | 0.00 | 99999.00 | | 0.00 |
| **3** | 0.00 | 99999.00 | | 0.00 |
| **4** | 0.00 | 99999.00 | | 0.00 |

## Roundabout Geometry

| Arm | V - Approach road half-width (m) | E - Entry width (m) | l' - Effective flare length (m) | R - Entry radius (m) | D - Inscribed circle diameter (m) | PHI - Conflict (entry) angle (deg) | Exit Only |
|---|---|---|---|---|---|---|---|
| **1** | 7.40 | 9.80 | 30.00 | 38.00 | 55.00 | 11.00 | |
| **2** | 7.40 | 9.80 | 30.00 | 32.00 | 55.00 | 8.00 | |
| **3** | 7.40 | 10.00 | 30.00 | 28.00 | 55.00 | 26.00 | |
| **4** | 7.40 | 10.00 | 30.00 | 28.00 | 55.00 | 12.00 | |

## Slope / Intercept / Capacity

### Arm Intercept Adjustments

| Arm | Type | Reason | Direct Intercept Adjustment (PCU/hr) | Percentage Intercept Adjustment (%) |
|---|---|---|---|---|
| **1** | Percentage | MTO | | 90.00 |
| **2** | Percentage | MTO | | 90.00 |
| **3** | Percentage | MTO | | 90.00 |
| **4** | Percentage | MTO | | 90.00 |

### Roundabout Slope and Intercept used in model

| Arm | Enter slope and intercept directly | Entered slope | Entered intercept (PCU/hr) | Final Slope | Final Intercept (PCU/hr) |
|---|---|---|---|---|---|
| **1** | | (calculated) | (calculated) | 0.858 | 2765.276 |
| **2** | | (calculated) | (calculated) | 0.863 | 2779.455 |
| **3** | | (calculated) | (calculated) | 0.817 | 2644.722 |
| **4** | | (calculated) | (calculated) | 0.856 | 2769.721 |

*The slope and intercept shown above include any corrections and adjustments.*

# Traffic Flows

## Demand Set Data Options

| Default Vehicle Mix | Vehicle Mix Varies Over Time | Vehicle Mix Varies Over Turn | Vehicle Mix Varies Over Entry | Vehicle Mix Source | PCU Factor for a HV (PCU) | Default Turning Proportions | Estimate from entry/exit counts | Turning Proportions Vary Over Time | Turning Proportions Vary Over Turn | Turning Proportions Vary Over Entry |
|---|---|---|---|---|---|---|---|---|---|---|
| | | ✓ | ✓ | HV Percentages | 2.00 | | | | ✓ | ✓ |

# Entry Flows

## General Flows Data

| Arm | Profile Type | Use Turning Counts | Average Demand Flow (Veh/hr) | Flow Scaling Factor (%) |
|---|---|---|---|---|
| 1 | PHF | ✓ | 358.00 | 100.000 |
| 2 | PHF | ✓ | 1483.00 | 100.000 |
| 3 | PHF | ✓ | 913.00 | 100.000 |
| 4 | PHF | ✓ | 708.00 | 100.000 |

## Peak Hour Factor Data

| Arm | Hourly Volume (Veh/hr) | Peak Hour Factor | Peak Time Segment |
|---|---|---|---|
| 1 | 358.00 | 1.00 | N/A |
| 2 | 1483.00 | 1.00 | N/A |
| 3 | 913.00 | 1.00 | N/A |
| 4 | 708.00 | 1.00 | N/A |

# Turning Proportions

### Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 0.000 | 24.000 | 242.000 | 92.000 |
| | 2 | 34.000 | 0.000 | 74.000 | 1375.000 |
| | 3 | 569.000 | 98.000 | 0.000 | 246.000 |
| | 4 | 46.000 | 579.000 | 83.000 | 0.000 |

### Turning Proportions (Veh) - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 0.00 | 0.07 | 0.68 | 0.26 |
| | 2 | 0.02 | 0.00 | 0.05 | 0.93 |
| | 3 | 0.62 | 0.11 | 0.00 | 0.27 |
| | 4 | 0.06 | 0.82 | 0.12 | 0.00 |

# Vehicle Mix

### Average PCU Per Vehicle - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 1.000 | 1.130 | 1.030 | 1.030 |
| | 2 | 1.070 | 1.000 | 1.050 | 1.140 |
| | 3 | 1.010 | 1.050 | 1.000 | 1.010 |
| | 4 | 1.030 | 1.240 | 1.020 | 1.000 |

### Heavy Vehicle Percentages - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 0.0 | 13.0 | 3.0 | 3.0 |
| | 2 | 7.0 | 0.0 | 5.0 | 14.0 |
| | 3 | 1.0 | 5.0 | 0.0 | 1.0 |
| | 4 | 3.0 | 24.0 | 2.0 | 0.0 |

# Results

## Results Summary for whole modelled period

| Arm | Max RFC | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) | Total Queueing Delay (PCU-min) | Average Queueing Delay (s) | Rate Of Queueing Delay (PCU-min/min) | Inclusive Total Queueing Delay (PCU-min) | Inclusive Average Queueing Delay (s) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.19 | 2.30 | 0.24 | ~1 | A | 371.14 | 92.79 | 3.50 | 2.26 | 0.23 | 3.50 | 2.26 |
| 2 | 0.70 | 5.45 | 2.56 | 7.94 | A | 1681.58 | 420.40 | 36.35 | 5.19 | 2.42 | 36.43 | 5.20 |
| 3 | 0.73 | 10.16 | 2.66 | 7.10 | B | 926.05 | 231.51 | 36.35 | 9.42 | 2.42 | 36.51 | 9.46 |
| 4 | 0.39 | 3.27 | 0.77 | ~1 | A | 850.00 | 212.50 | 11.29 | 3.19 | 0.75 | 11.30 | 3.19 |

## Main Results for each time segment

### Main results: (17:00-17:15)

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Entry Flow (PCU/hr) | Exit Flow (PCU/hr) | Circulating Flow (PCU/hr) | Pedestrian Demand (Ped/hr) | Capacity (PCU/hr) | Saturation Capacity (PCU/hr) | RFC | Start Queue (PCU) | End Queue (PCU) | Delay (s) | LOS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 371.14 | 92.79 | 370.19 | 651.46 | 901.43 | 0.00 | 1991.55 | 968.40 | 0.186 | 0.00 | 0.24 | 2.301 | A |
| 2 | 1681.58 | 420.40 | 1671.33 | 844.12 | 427.50 | 0.00 | 2410.64 | 1824.84 | 0.698 | 0.00 | 2.56 | 5.449 | A |
| 3 | 926.05 | 231.51 | 915.42 | 410.20 | 1688.62 | 0.00 | 1264.90 | 1020.45 | 0.732 | 0.00 | 2.66 | 10.162 | B |
| 4 | 850.00 | 212.50 | 846.92 | 1898.07 | 705.97 | 0.00 | 2165.59 | 2096.98 | 0.393 | 0.00 | 0.77 | 3.271 | A |

# Queueing Delay Results for each time segment

## Queueing Delay results: (17:00-17:15)

| Arm | Queueing Total Delay (PCU-min) | Queueing Rate Of Delay (PCU-min/min) | Average Delay Per Arriving Vehicle (s) | Unsignalised Level Of Service | Signalised Level Of Service |
|---|---|---|---|---|---|
| 1 | 3.50 | 0.23 | 2.301 | A | A |
| 2 | 36.35 | 2.42 | 5.449 | A | A |
| 3 | 36.35 | 2.42 | 10.162 | B | B |
| 4 | 11.29 | 0.75 | 3.271 | A | A |

# Queue Variation Results for each time segment

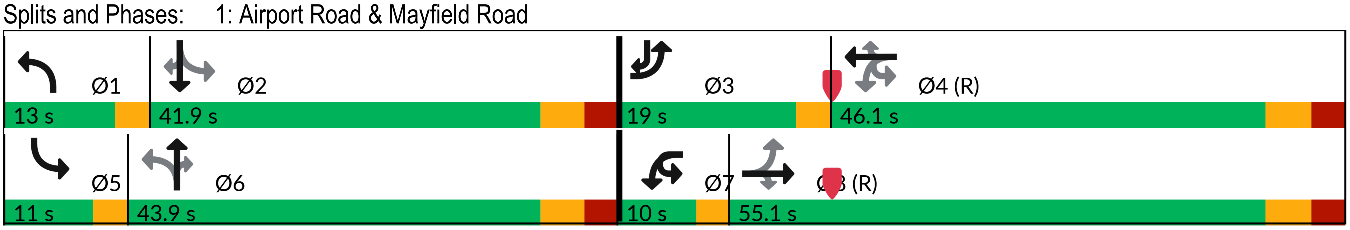
## Queue Variation results: (17:00-17:15)

| Arm | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile Message | Marker Message | Probability Of Reaching Or Exceeding Marker | Probability Of Exactly Reaching Marker |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.24 | ~1 | ~1 | ~1 | ~1 | Percentiles could not be calculated. This may be because the mean queue is very small or very big. | | N/A | N/A |
| 2 | 2.56 | 0.00 | 0.00 | 5.67 | 7.94 | | | N/A | N/A |
| 3 | 2.66 | 0.00 | 1.01 | 5.07 | 7.10 | | | N/A | N/A |
| 4 | 0.77 | ~1 | ~1 | ~1 | ~1 | Percentiles could not be calculated. This may be because the mean queue is very small or very big. | | N/A | N/A |

| Lane Group | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 425 | 1019 | 515 | 1 | 103 | 634 | 105 | 292 | 478 | 157 | 111 | 638 |
| Future Volume (vph) | 425 | 1019 | 515 | 1 | 103 | 634 | 105 | 292 | 478 | 157 | 111 | 638 |
| Turn Type | pm+pt | NA | Perm | pm+pt | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA |
| Protected Phases | 3 | 8 | | 7 | 7 | 4 | | 1 | 6 | | 5 | 2 |
| Permitted Phases | 8 | | 8 | 4 | 4 | | 4 | 6 | | 6 | 2 | |
| Detector Phase | 3 | 8 | 8 | 7 | 7 | 4 | 4 | 1 | 6 | 6 | 5 | 2 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 12.0 | 12.0 | 5.0 | 5.0 | 12.0 | 12.0 | 5.0 | 12.0 | 12.0 | 5.0 | 12.0 |
| Minimum Split (s) | 8.0 | 46.1 | 46.1 | 8.0 | 8.0 | 46.1 | 46.1 | 8.0 | 41.9 | 41.9 | 8.0 | 41.9 |
| Total Split (s) | 19.0 | 55.1 | 55.1 | 10.0 | 10.0 | 46.1 | 46.1 | 13.0 | 43.9 | 43.9 | 11.0 | 41.9 |
| Total Split (%) | 15.8% | 45.9% | 45.9% | 8.3% | 8.3% | 38.4% | 38.4% | 10.8% | 36.6% | 36.6% | 9.2% | 34.9% |
| Yellow Time (s) | 3.0 | 4.0 | 4.0 | 3.0 | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 |
| All-Red Time (s) | 0.0 | 3.1 | 3.1 | 0.0 | 0.0 | 3.1 | 3.1 | 0.0 | 2.9 | 2.9 | 0.0 | 2.9 |
| Lost Time Adjust (s) | 0.0 | 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 | 7.1 | 7.1 | | 3.0 | 7.1 | 7.1 | 3.0 | 6.9 | 6.9 | 3.0 | 6.9 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Recall Mode | None | C-Max | C-Max | None | None | C-Max | C-Max | None | Max | Max | None | Max |
| Act Effct Green (s) | 62.1 | 48.2 | 48.2 | | 49.9 | 39.0 | 39.0 | 51.1 | 37.3 | 37.3 | 46.6 | 35.0 |
| Actuated g/C Ratio | 0.52 | 0.40 | 0.40 | | 0.42 | 0.33 | 0.33 | 0.43 | 0.31 | 0.31 | 0.39 | 0.29 |
| v/c Ratio | 1.06 | 0.49 | 0.68 | | 0.48 | 0.40 | 0.23 | 1.00 | 0.49 | 0.31 | 0.39 | 0.68 |
| Control Delay (s/veh) | 73.1 | 16.6 | 13.1 | | 24.3 | 32.3 | 5.4 | 82.4 | 35.9 | 6.5 | 34.8 | 49.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 73.1 | 16.6 | 13.1 | | 24.3 | 32.3 | 5.4 | 82.4 | 35.9 | 6.5 | 34.8 | 49.2 |
| LOS | E | B | B | | C | C | A | F | D | A | C | D |
| Approach Delay (s/veh) | | 28.0 | | | | 28.0 | | | 45.5 | | | 40.9 |
| Approach LOS | | C | | | | C | | | D | | | D |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 30 (25%), Referenced to phase 4:WBTL and 8:EBTL, Start of Green | |
| Natural Cycle: 115 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 1.06 | |
| Intersection Signal Delay (s/veh): 34.2 | Intersection LOS: C |
| Intersection Capacity Utilization 119.7% | ICU Level of Service H |
| Analysis Period (min) 15 | |

Splits and Phases: 1: Airport Road & Mayfield Road



| Lane Group | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 254 |
| Future Volume (vph) | 254 |
| Turn Type | pm+ov |
| Protected Phases | 3 |
| Permitted Phases | 2 |
| Detector Phase | 3 |
| Switch Phase | |
| Minimum Initial (s) | 5.0 |
| Minimum Split (s) | 8.0 |
| Total Split (s) | 19.0 |
| Total Split (%) | 15.8% |
| Yellow Time (s) | 3.0 |
| All-Red Time (s) | 0.0 |
| Lost Time Adjust (s) | 0.0 |
| Total Lost Time (s) | 3.0 |
| Lead/Lag | Lead |
| Lead-Lag Optimize? | Yes |
| Recall Mode | None |
| Act Effct Green (s) | 54.9 |
| Actuated g/C Ratio | 0.46 |
| v/c Ratio | 0.44 |
| Control Delay (s/veh) | 22.8 |
| Queue Delay | 0.0 |
| Total Delay (s/veh) | 22.8 |
| LOS | C |
| Approach Delay (s/veh) | |
| Approach LOS | |

Intersection Summary

| Movement | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 425 | 1019 | 515 | 1 | 103 | 634 | 105 | 292 | 478 | 157 | 111 | 638 |
| Future Volume (vph) | 425 | 1019 | 515 | 1 | 103 | 634 | 105 | 292 | 478 | 157 | 111 | 638 |
| Ideal Flow (vphpl) | 1900 | 2000 | 1900 | 1900 | 1900 | 2000 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.5 | 3.6 | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 |
| Total Lost time (s) | 3.0 | 7.1 | 7.1 | | 3.0 | 7.1 | 7.1 | 3.0 | 6.9 | 6.9 | 3.0 | 6.9 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 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 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1512 | 5160 | 1476 | | 1430 | 4886 | 1138 | 1699 | 3120 | 1267 | 1370 | 3202 |
| Flt Permitted | 0.32 | 1.00 | 1.00 | | 0.25 | 1.00 | 1.00 | 0.25 | 1.00 | 1.00 | 0.42 | 1.00 |
| Satd. Flow (perm) | 517 | 5160 | 1476 | | 379 | 4886 | 1138 | 440 | 3120 | 1267 | 607 | 3202 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 425 | 1019 | 515 | 1 | 103 | 634 | 105 | 292 | 478 | 157 | 111 | 638 |
| RTOR Reduction (vph) | 0 | 0 | 166 | 0 | 0 | 0 | 71 | 0 | 0 | 108 | 0 | 0 |
| Lane Group Flow (vph) | 425 | 1019 | 349 | 0 | 104 | 634 | 34 | 292 | 478 | 49 | 111 | 638 |
| Confl. Peds. (#/hr) | 5 | | 9 | | 9 | | 5 | 5 | | 12 | 12 | |
| Heavy Vehicles (%) | 18% | 7% | 6% | 0% | 25% | 13% | 38% | 5% | 17% | 23% | 30% | 14% |
| Turn Type | pm+pt | NA | Perm | pm+pt | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA |
| Protected Phases | 3 | 8 | | 7 | 7 | 4 | | 1 | 6 | | 5 | 2 |
| Permitted Phases | 8 | | 8 | 4 | 4 | | 4 | 6 | | 6 | 2 | |
| Actuated Green, G (s) | 58.0 | 48.2 | 48.2 | | 45.8 | 39.0 | 39.0 | 47.3 | 37.3 | 37.3 | 42.7 | 35.0 |
| Effective Green, g (s) | 58.0 | 48.2 | 48.2 | | 45.8 | 39.0 | 39.0 | 47.3 | 37.3 | 37.3 | 42.7 | 35.0 |
| Actuated g/C Ratio | 0.48 | 0.40 | 0.40 | | 0.38 | 0.33 | 0.33 | 0.39 | 0.31 | 0.31 | 0.36 | 0.29 |
| Clearance Time (s) | 3.0 | 7.1 | 7.1 | | 3.0 | 7.1 | 7.1 | 3.0 | 6.9 | 6.9 | 3.0 | 6.9 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 382 | 2072 | 592 | | 204 | 1587 | 369 | 278 | 969 | 393 | 264 | 933 |
| v/s Ratio Prot | c0.15 | 0.20 | | | 0.03 | 0.13 | | c0.09 | 0.15 | | 0.03 | 0.20 |
| v/s Ratio Perm | c0.39 | | 0.24 | | 0.17 | | 0.03 | c0.33 | | 0.04 | 0.12 | |
| v/c Ratio | 1.11 | 0.49 | 0.59 | | 0.51 | 0.40 | 0.09 | 1.05 | 0.49 | 0.12 | 0.42 | 0.68 |
| Uniform Delay, d1 | 25.5 | 26.8 | 28.1 | | 24.8 | 31.4 | 28.2 | 32.9 | 33.7 | 29.6 | 27.2 | 37.6 |
| Progression Factor | 0.46 | 0.59 | 0.70 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.41 | 1.19 |
| Incremental Delay, d2 | 75.9 | 0.7 | 3.5 | | 2.0 | 0.8 | 0.5 | 67.8 | 1.8 | 0.6 | 1.0 | 3.8 |
| Delay (s) | 87.6 | 16.5 | 23.1 | | 26.8 | 32.2 | 28.7 | 100.7 | 35.5 | 30.3 | 39.3 | 48.8 |
| Level of Service | F | B | C | | C | C | C | F | D | C | D | D |
| Approach Delay (s/veh) | | 33.6 | | | | 31.1 | | | 55.1 | | | 44.8 |
| Approach LOS | | C | | | | C | | | E | | | D |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 39.8 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 1.14 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 119.7% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 254 |
| Future Volume (vph) | 254 |
| Ideal Flow (vphpl) | 1900 |
| Lane Width | 3.5 |
| Total Lost time (s) | 3.0 |
| Lane Util. Factor | 1.00 |
| Frpb, ped/bikes | 0.99 |
| Flpb, ped/bikes | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1152 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1152 |
| Peak-hour factor, PHF | 1.00 |
| Adj. Flow (vph) | 254 |
| RTOR Reduction (vph) | 48 |
| Lane Group Flow (vph) | 206 |
| Confl. Peds. (#/hr) | 5 |
| Heavy Vehicles (%) | 37% |
| Turn Type | pm+ov |
| Protected Phases | 3 |
| Permitted Phases | 2 |
| Actuated Green, G (s) | 51.0 |
| Effective Green, g (s) | 51.0 |
| Actuated g/C Ratio | 0.43 |
| Clearance Time (s) | 3.0 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 489 |
| v/s Ratio Prot | 0.06 |
| v/s Ratio Perm | 0.12 |
| v/c Ratio | 0.42 |
| Uniform Delay, d1 | 24.2 |
| Progression Factor | 1.52 |
| Incremental Delay, d2 | 0.6 |
| Delay (s) | 37.4 |
| Level of Service | D |
| Approach Delay (s/veh) | |
| Approach LOS | |

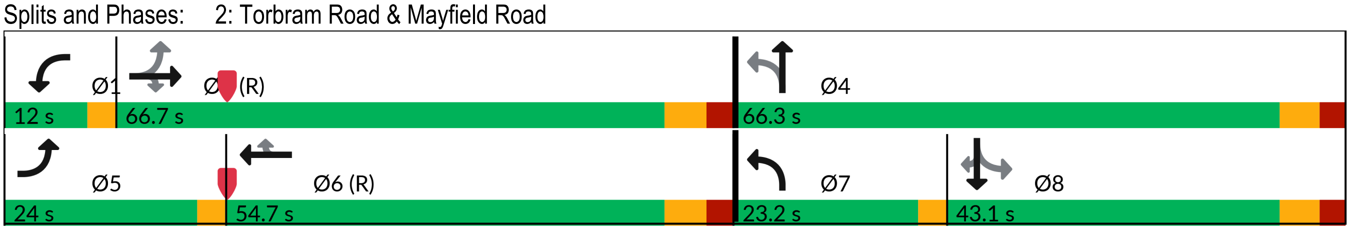
| Intersection Summary |
|---|

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (vph) | 239 | 1984 | 362 | 208 | 1017 | 73 | 322 | 293 | 72 | 850 | 268 |
| Future Volume (vph) | 239 | 1984 | 362 | 208 | 1017 | 73 | 322 | 293 | 72 | 850 | 268 |
| Turn Type | pm+pt | NA | Perm | Prot | NA | Perm | pm+pt | NA | Perm | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 7 | 4 | | 8 | |
| Permitted Phases | 2 | | 2 | | | 6 | 4 | | 8 | | 8 |
| Detector Phase | 5 | 2 | 2 | 1 | 6 | 6 | 7 | 4 | 8 | 8 | 8 |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 16.0 | 16.0 | 5.0 | 16.0 | 16.0 | 5.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| Minimum Split (s) | 8.0 | 50.3 | 50.3 | 8.0 | 50.3 | 50.3 | 9.5 | 43.1 | 43.1 | 43.1 | 43.1 |
| Total Split (s) | 24.0 | 66.7 | 66.7 | 12.0 | 54.7 | 54.7 | 23.2 | 66.3 | 43.1 | 43.1 | 43.1 |
| Total Split (%) | 16.6% | 46.0% | 46.0% | 8.3% | 37.7% | 37.7% | 16.0% | 45.7% | 29.7% | 29.7% | 29.7% |
| Yellow Time (s) | 3.0 | 4.6 | 4.6 | 3.0 | 4.6 | 4.6 | 3.0 | 4.2 | 4.2 | 4.2 | 4.2 |
| All-Red Time (s) | 0.0 | 2.7 | 2.7 | 0.0 | 2.7 | 2.7 | 0.0 | 2.9 | 2.9 | 2.9 | 2.9 |
| Lost Time Adjust (s) | 0.0 | 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 | 3.0 | 7.1 | 7.1 | 7.1 | 7.1 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lag | Lag | Lead | | Lag | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | Yes |
| Recall Mode | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | Max | Max | Max |
| Act Effct Green (s) | 75.4 | 59.4 | 59.4 | 9.0 | 52.9 | 52.9 | 63.3 | 59.2 | 36.0 | 36.0 | 36.0 |
| Actuated g/C Ratio | 0.52 | 0.41 | 0.41 | 0.06 | 0.36 | 0.36 | 0.44 | 0.41 | 0.25 | 0.25 | 0.25 |
| v/c Ratio | 0.74 | 1.03 | 0.44 | 0.99 | 0.64 | 0.11 | 1.07 | 0.34 | 0.33 | 0.95 | 0.48 |
| Control Delay (s/veh) | 34.1 | 69.1 | 5.1 | 126.3 | 41.0 | 3.0 | 111.6 | 21.7 | 49.6 | 73.2 | 13.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 34.1 | 69.1 | 5.1 | 126.3 | 41.0 | 3.0 | 111.6 | 21.7 | 49.6 | 73.2 | 13.2 |
| LOS | C | E | A | F | D | A | F | C | D | E | B |
| Approach Delay (s/veh) | | 56.9 | | | 52.5 | | | 57.5 | | 58.2 | |
| Approach LOS | | E | | | D | | | E | | E | |

Intersection Summary

Cycle Length: 145
Actuated Cycle Length: 145
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay (s/veh): 56.3 Intersection LOS: E
Intersection Capacity Utilization 104.3% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 2: Torbram Road & Mayfield Road



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 239 | 1984 | 362 | 208 | 1017 | 73 | 322 | 293 | 194 | 72 | 850 | 268 |
| Future Volume (vph) | 239 | 1984 | 362 | 208 | 1017 | 73 | 322 | 293 | 194 | 72 | 850 | 268 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.5 |
| Total Lost time (s) | 3.0 | 7.3 | 7.3 | 3.0 | 7.3 | 7.3 | 3.0 | 7.1 | | 7.1 | 7.1 | 7.1 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.94 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1767 | 4725 | 1536 | 3395 | 4371 | 1601 | 1750 | 3339 | | 1785 | 3614 | 1581 |
| Flt Permitted | 0.17 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.10 | 1.00 | | 0.47 | 1.00 | 1.00 |
| Satd. Flow (perm) | 324 | 4725 | 1536 | 3395 | 4371 | 1601 | 189 | 3339 | | 892 | 3614 | 1581 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 239 | 1984 | 362 | 208 | 1017 | 73 | 322 | 293 | 194 | 72 | 850 | 268 |
| RTOR Reduction (vph) | 0 | 0 | 204 | 0 | 0 | 46 | 0 | 78 | 0 | 0 | 0 | 164 |
| Lane Group Flow (vph) | 239 | 1984 | 158 | 208 | 1017 | 27 | 322 | 409 | 0 | 72 | 850 | 104 |
| Heavy Vehicles (%) | 1% | 11% | 4% | 2% | 20% | 2% | 2% | 2% | 4% | 0% | 1% | 1% |
| Turn Type | pm+pt | NA | Perm | Prot | NA | Perm | pm+pt | NA | | Perm | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 7 | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | | | 6 | 4 | | | 8 | | 8 |
| Actuated Green, G (s) | 71.4 | 59.4 | 59.4 | 9.0 | 52.9 | 52.9 | 59.2 | 59.2 | | 36.0 | 36.0 | 36.0 |
| Effective Green, g (s) | 71.4 | 59.4 | 59.4 | 9.0 | 52.9 | 52.9 | 59.2 | 59.2 | | 36.0 | 36.0 | 36.0 |
| Actuated g/C Ratio | 0.49 | 0.41 | 0.41 | 0.06 | 0.36 | 0.36 | 0.41 | 0.41 | | 0.25 | 0.25 | 0.25 |
| Clearance Time (s) | 3.0 | 7.3 | 7.3 | 3.0 | 7.3 | 7.3 | 3.0 | 7.1 | | 7.1 | 7.1 | 7.1 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 313 | 1935 | 629 | 210 | 1594 | 584 | 294 | 1363 | | 221 | 897 | 392 |
| v/s Ratio Prot | c0.08 | c0.42 | | c0.06 | 0.23 | | c0.15 | 0.12 | | | 0.24 | |
| v/s Ratio Perm | 0.29 | | 0.10 | | | 0.02 | c0.29 | | | 0.08 | | 0.07 |
| v/c Ratio | 0.76 | 1.03 | 0.25 | 0.99 | 0.64 | 0.05 | 1.10 | 0.30 | | 0.33 | 0.95 | 0.27 |
| Uniform Delay, d1 | 24.2 | 42.8 | 28.2 | 68.0 | 38.1 | 29.7 | 45.2 | 28.9 | | 44.6 | 53.6 | 43.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 10.5 | 27.2 | 1.0 | 59.2 | 2.0 | 0.1 | 80.4 | 0.6 | | 3.9 | 19.7 | 1.7 |
| Delay (s) | 34.7 | 70.0 | 29.1 | 127.2 | 40.1 | 29.9 | 125.6 | 29.5 | | 48.5 | 73.3 | 45.5 |
| Level of Service | C | E | C | F | D | C | F | C | | D | E | D |
| Approach Delay (s/veh) | | 61.0 | | | 53.5 | | | 67.7 | | | 65.6 | |
| Approach LOS | | E | | | D | | | E | | | E | |

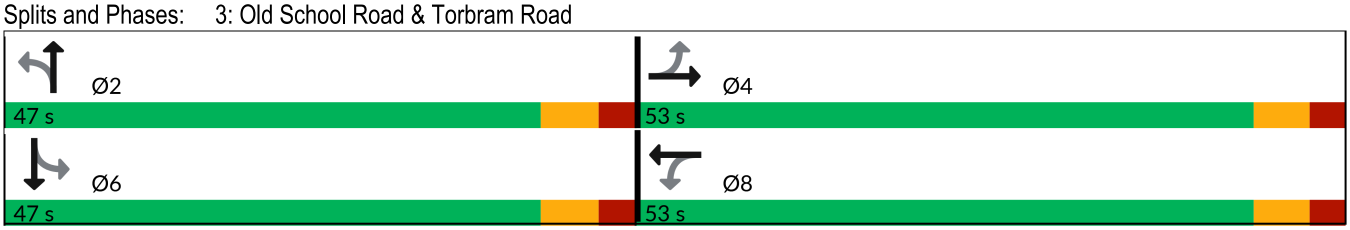
| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 61.2 | HCM 2000 Level of Service | E |
| HCM 2000 Volume to Capacity ratio | 1.08 | | |
| Actuated Cycle Length (s) | 145.0 | Sum of lost time (s) | 20.4 |
| Intersection Capacity Utilization | 104.3% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | |
| Traffic Volume (vph) | 49 | 583 | 35 | 163 | 24 | 143 | 60 | 528 |
| Future Volume (vph) | 49 | 583 | 35 | 163 | 24 | 143 | 60 | 528 |
| Turn Type | Perm | NA | Perm | NA | Perm | NA | Perm | NA |
| Protected Phases | | 4 | | 8 | | 2 | | 6 |
| Permitted Phases | 4 | | 8 | | 2 | | 6 | |
| Detector Phase | 4 | 4 | 8 | 8 | 2 | 2 | 6 | 6 |
| Switch Phase | | | | | | | | |
| Minimum Initial (s) | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| Minimum Split (s) | 24.9 | 24.9 | 24.9 | 24.9 | 24.9 | 24.9 | 24.9 | 24.9 |
| Total Split (s) | 53.0 | 53.0 | 53.0 | 53.0 | 47.0 | 47.0 | 47.0 | 47.0 |
| Total Split (%) | 53.0% | 53.0% | 53.0% | 53.0% | 47.0% | 47.0% | 47.0% | 47.0% |
| Yellow Time (s) | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 |
| All-Red Time (s) | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 6.9 | 6.9 | 6.9 | 6.9 | 6.9 | 6.9 | 6.9 | 6.9 |
| Lead/Lag | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | |
| Recall Mode | Min | Min | Min | Min | Max | Max | Max | Max |
| Act Effct Green (s) | 19.9 | 19.9 | 19.9 | 19.9 | 40.2 | 40.2 | 40.2 | 40.2 |
| Actuated g/C Ratio | 0.27 | 0.27 | 0.27 | 0.27 | 0.54 | 0.54 | 0.54 | 0.54 |
| v/c Ratio | 0.15 | 0.73 | 0.28 | 0.18 | 0.06 | 0.08 | 0.09 | 0.28 |
| Control Delay (s/veh) | 21.2 | 28.3 | 27.3 | 20.0 | 10.0 | 8.3 | 9.9 | 10.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 21.2 | 28.3 | 27.3 | 20.0 | 10.0 | 8.3 | 9.9 | 10.1 |
| LOS | C | C | C | B | A | A | A | B |
| Approach Delay (s/veh) | | 27.8 | | 21.2 | | 8.5 | | 10.1 |
| Approach LOS | | C | | C | | A | | B |

| Intersection Summary | |
|---|---|
| Cycle Length: 100 | |
| Actuated Cycle Length: 73.9 | |
| Natural Cycle: 50 | |
| Control Type: Semi Act-Uncoord | |
| Maximum v/c Ratio: 0.73 | |
| Intersection Signal Delay (s/veh): 18.8 | Intersection LOS: B |
| Intersection Capacity Utilization 78.3% | ICU Level of Service D |
| Analysis Period (min) 15 | |

Splits and Phases: 3: Old School Road & Torbram Road



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 49 | 583 | 119 | 35 | 163 | 7 | 24 | 143 | 17 | 60 | 528 | 26 |
| Future Volume (vph) | 49 | 583 | 119 | 35 | 163 | 7 | 24 | 143 | 17 | 60 | 528 | 26 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 |
| Total Lost time (s) | 6.9 | 6.9 | | 6.9 | 6.9 | | 6.9 | 6.9 | | 6.9 | 6.9 | |
| 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 | 0.98 | | 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) | 1785 | 3476 | | 1785 | 3559 | | 1638 | 3503 | | 1750 | 3590 | |
| Flt Permitted | 0.64 | 1.00 | | 0.25 | 1.00 | | 0.44 | 1.00 | | 0.65 | 1.00 | |
| Satd. Flow (perm) | 1211 | 3476 | | 467 | 3559 | | 766 | 3503 | | 1198 | 3590 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 49 | 583 | 119 | 35 | 163 | 7 | 24 | 143 | 17 | 60 | 528 | 26 |
| RTOR Reduction (vph) | 0 | 23 | 0 | 0 | 4 | 0 | 0 | 7 | 0 | 0 | 3 | 0 |
| Lane Group Flow (vph) | 49 | 679 | 0 | 35 | 166 | 0 | 24 | 153 | 0 | 60 | 551 | 0 |
| Heavy Vehicles (%) | 0% | 2% | 4% | 0% | 2% | 0% | 9% | 2% | 7% | 2% | 1% | 0% |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 19.9 | 19.9 | | 19.9 | 19.9 | | 40.2 | 40.2 | | 40.2 | 40.2 | |
| Effective Green, g (s) | 19.9 | 19.9 | | 19.9 | 19.9 | | 40.2 | 40.2 | | 40.2 | 40.2 | |
| Actuated g/C Ratio | 0.27 | 0.27 | | 0.27 | 0.27 | | 0.54 | 0.54 | | 0.54 | 0.54 | |
| Clearance Time (s) | 6.9 | 6.9 | | 6.9 | 6.9 | | 6.9 | 6.9 | | 6.9 | 6.9 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 326 | 936 | | 125 | 958 | | 416 | 1905 | | 651 | 1952 | |
| v/s Ratio Prot | | c0.20 | | | 0.05 | | | 0.04 | | | c0.15 | |
| v/s Ratio Perm | 0.04 | | | 0.07 | | | 0.03 | | | 0.05 | | |
| v/c Ratio | 0.15 | 0.73 | | 0.28 | 0.17 | | 0.06 | 0.08 | | 0.09 | 0.28 | |
| Uniform Delay, d1 | 20.6 | 24.5 | | 21.3 | 20.7 | | 7.9 | 8.0 | | 8.1 | 9.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.2 | 2.8 | | 1.2 | 0.1 | | 0.3 | 0.1 | | 0.3 | 0.4 | |
| Delay (s) | 20.8 | 27.3 | | 22.6 | 20.8 | | 8.2 | 8.1 | | 8.4 | 9.4 | |
| Level of Service | C | C | | C | C | | A | A | | A | A | |
| Approach Delay (s/veh) | | 26.9 | | | 21.1 | | | 8.1 | | | 9.3 | |
| Approach LOS | | C | | | C | | | A | | | A | |

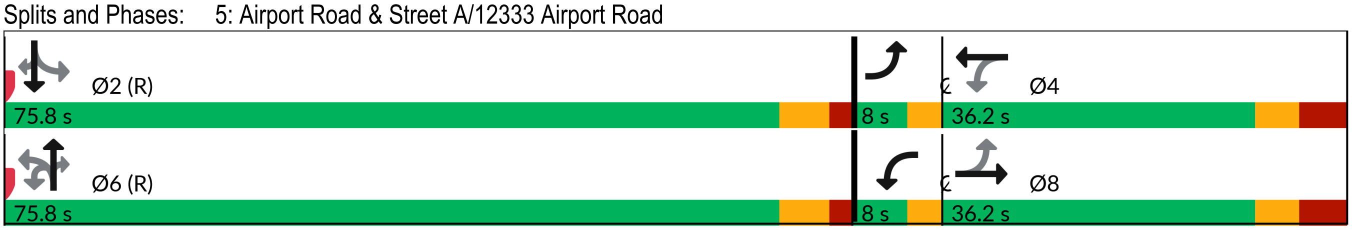
| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 18.1 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.43 | | |
| Actuated Cycle Length (s) | 73.9 | Sum of lost time (s) | 13.8 |
| Intersection Capacity Utilization | 78.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Lane Group | EBL | EBT | WBL | WBT | NBU | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (vph) | 23 | 0 | 42 | 0 | 1 | 127 | 656 | 46 | 8 | 876 | 91 |
| Future Volume (vph) | 23 | 0 | 42 | 0 | 1 | 127 | 656 | 46 | 8 | 876 | 91 |
| Turn Type | pm+pt | NA | pm+pt | NA | Perm | Perm | NA | Perm | Perm | NA | Perm |
| Protected Phases | 3 | 8 | 7 | 4 | | | 6 | | | 2 | |
| Permitted Phases | 8 | | 4 | | 6 | 6 | | 6 | 2 | | 2 |
| Detector Phase | 3 | 8 | 7 | 4 | 6 | 6 | 6 | 6 | 2 | 2 | 2 |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 12.0 | 5.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| Minimum Split (s) | 8.0 | 36.2 | 8.0 | 36.2 | 35.6 | 35.6 | 35.6 | 35.6 | 35.6 | 35.6 | 35.6 |
| Total Split (s) | 8.0 | 36.2 | 8.0 | 36.2 | 75.8 | 75.8 | 75.8 | 75.8 | 75.8 | 75.8 | 75.8 |
| Total Split (%) | 6.7% | 30.2% | 6.7% | 30.2% | 63.2% | 63.2% | 63.2% | 63.2% | 63.2% | 63.2% | 63.2% |
| Yellow Time (s) | 3.0 | 4.0 | 3.0 | 4.0 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 |
| All-Red Time (s) | 0.0 | 4.2 | 0.0 | 4.2 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 3.0 | 8.2 | 3.0 | 8.2 | | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 |
| Lead/Lag | Lead | Lag | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | | | | | | | |
| Recall Mode | None | None | None | None | C-Max | C-Max | C-Max | C-Max | C-Max | C-Max | C-Max |
| Act Effct Green (s) | 19.4 | 12.0 | 16.5 | 15.2 | | 92.2 | 92.2 | 92.2 | 92.2 | 92.2 | 92.2 |
| Actuated g/C Ratio | 0.16 | 0.10 | 0.14 | 0.13 | | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 | 0.77 |
| v/c Ratio | 0.12 | 0.28 | 0.33 | 0.01 | | 0.40 | 0.27 | 0.05 | 0.02 | 0.36 | 0.09 |
| Control Delay (s/veh) | 40.0 | 2.4 | 52.0 | 0.0 | | 8.3 | 4.2 | 0.4 | 5.0 | 5.8 | 1.0 |
| 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) | 40.0 | 2.4 | 52.0 | 0.0 | | 8.3 | 4.2 | 0.4 | 5.0 | 5.8 | 1.0 |
| LOS | D | A | D | A | | A | A | A | A | A | A |
| Approach Delay (s/veh) | | 10.4 | | 48.5 | | | 4.6 | | | 5.4 | |
| Approach LOS | | B | | D | | | A | | | A | |

| 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 | |
| Maximum v/c Ratio: 0.40 | |
| Intersection Signal Delay (s/veh): 6.3 | Intersection LOS: A |
| Intersection Capacity Utilization 62.0% | ICU Level of Service B |
| Analysis Period (min) 15 | |

Splits and Phases: 5: Airport Road & Street A/12333 Airport Road



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 23 | 0 | 85 | 42 | 0 | 3 | 1 | 127 | 656 | 46 | 8 | 876 |
| Future Volume (vph) | 23 | 0 | 85 | 42 | 0 | 3 | 1 | 127 | 656 | 46 | 8 | 876 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.6 | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 |
| Total Lost time (s) | 3.0 | 8.2 | | 3.0 | 8.2 | | | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 0.96 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 |
| Frt | 1.00 | 0.85 | | 1.00 | 0.85 | | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1405 | 1228 | | 1152 | 1219 | | | 1315 | 3120 | 1209 | 1284 | 3147 |
| Flt Permitted | 0.63 | 1.00 | | 0.70 | 1.00 | | | 0.30 | 1.00 | 1.00 | 0.40 | 1.00 |
| Satd. Flow (perm) | 938 | 1228 | | 851 | 1219 | | | 422 | 3120 | 1209 | 534 | 3147 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 23 | 0 | 85 | 42 | 0 | 3 | 1 | 127 | 656 | 46 | 8 | 876 |
| RTOR Reduction (vph) | 0 | 76 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 13 | 0 | 0 |
| Lane Group Flow (vph) | 23 | 9 | 0 | 42 | 0 | 0 | 0 | 128 | 656 | 33 | 8 | 876 |
| Confl. Peds. (#/hr) | | | | | | | | | | 9 | 9 | |
| Heavy Vehicles (%) | 27% | 0% | 33% | 55% | 0% | 34% | 0% | 36% | 17% | 27% | 38% | 16% |
| Turn Type | pm+pt | NA | | pm+pt | NA | | Perm | Perm | NA | Perm | Perm | NA |
| Protected Phases | 3 | 8 | | 7 | 4 | | | | 6 | | | 2 |
| Permitted Phases | 8 | | | 4 | | | 6 | 6 | | 6 | 2 | |
| Actuated Green, G (s) | 18.4 | 12.4 | | 14.4 | 10.4 | | | 85.8 | 85.8 | 85.8 | 85.8 | 85.8 |
| Effective Green, g (s) | 18.4 | 12.4 | | 14.4 | 10.4 | | | 85.8 | 85.8 | 85.8 | 85.8 | 85.8 |
| Actuated g/C Ratio | 0.15 | 0.10 | | 0.12 | 0.09 | | | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 |
| Clearance Time (s) | 3.0 | 8.2 | | 3.0 | 8.2 | | | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 |
| 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) | 167 | 126 | | 112 | 105 | | | 301 | 2230 | 864 | 381 | 2250 |
| v/s Ratio Prot | c0.01 | 0.01 | | c0.01 | 0.00 | | | | 0.21 | | | 0.28 |
| v/s Ratio Perm | 0.01 | | | c0.03 | | | | c0.30 | | 0.03 | 0.01 | |
| v/c Ratio | 0.14 | 0.07 | | 0.38 | 0.00 | | | 0.43 | 0.29 | 0.04 | 0.02 | 0.39 |
| Uniform Delay, d1 | 43.7 | 48.6 | | 48.2 | 50.1 | | | 7.0 | 6.2 | 5.0 | 4.9 | 6.8 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.64 | 0.70 | 0.74 | 0.94 | 0.89 |
| Incremental Delay, d2 | 0.4 | 0.2 | | 2.1 | 0.0 | | | 4.2 | 0.3 | 0.1 | 0.1 | 0.5 |
| Delay (s) | 44.1 | 48.8 | | 50.3 | 50.1 | | | 8.6 | 4.6 | 3.8 | 4.8 | 6.5 |
| Level of Service | D | D | | D | D | | | A | A | A | A | A |
| Approach Delay (s/veh) | | 47.8 | | | 50.3 | | | | 5.2 | | | 6.3 |
| Approach LOS | | D | | | D | | | | A | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 9.1 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.41 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 17.8 |
| Intersection Capacity Utilization | 62.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

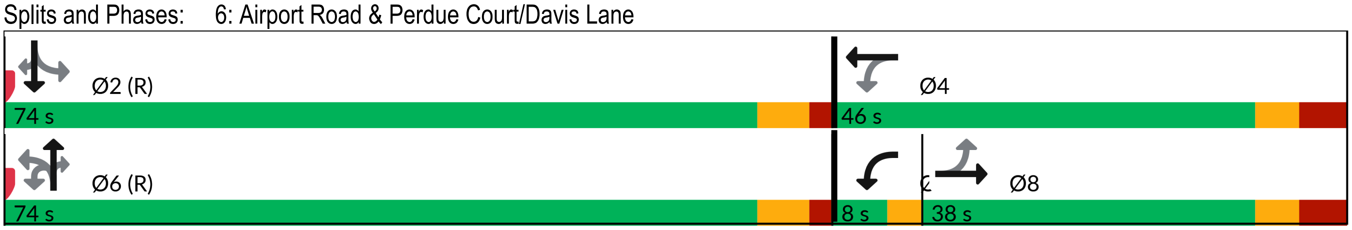
| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 91 |
| Future Volume (vph) | 91 |
| Ideal Flow (vphpl) | 1900 |
| Lane Width | 3.5 |
| Total Lost time (s) | 6.6 |
| Lane Util. Factor | 1.00 |
| Frpb, ped/bikes | 1.00 |
| Flpb, ped/bikes | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1238 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1238 |
| Peak-hour factor, PHF | 1.00 |
| Adj. Flow (vph) | 91 |
| RTOR Reduction (vph) | 26 |
| Lane Group Flow (vph) | 65 |
| Confl. Peds. (#/hr) | |
| Heavy Vehicles (%) | 29% |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 2 |
| Actuated Green, G (s) | 85.8 |
| Effective Green, g (s) | 85.8 |
| Actuated g/C Ratio | 0.72 |
| Clearance Time (s) | 6.6 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 885 |
| v/s Ratio Prot | |
| v/s Ratio Perm | 0.05 |
| v/c Ratio | 0.07 |
| Uniform Delay, d1 | 5.1 |
| Progression Factor | 0.76 |
| Incremental Delay, d2 | 0.2 |
| Delay (s) | 4.0 |
| Level of Service | A |
| Approach Delay (s/veh) | |
| Approach LOS | |

| Intersection Summary |
|---|

| Lane Group | EBL | EBT | WBL | WBT | NBU | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (vph) | 2 | 0 | 21 | 0 | 1 | 70 | 846 | 32 | 4 | 990 | 3 |
| Future Volume (vph) | 2 | 0 | 21 | 0 | 1 | 70 | 846 | 32 | 4 | 990 | 3 |
| Turn Type | Perm | NA | pm+pt | NA | Perm | Perm | NA | Perm | Perm | NA | Perm |
| Protected Phases | | 8 | 7 | 4 | | | 6 | | | 2 | |
| Permitted Phases | 8 | | 4 | | 6 | 6 | | 6 | 2 | | 2 |
| Detector Phase | 8 | 8 | 7 | 4 | 6 | 6 | 6 | 6 | 2 | 2 | 2 |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | 12.0 | 12.0 | 5.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| Minimum Split (s) | 36.2 | 36.2 | 8.0 | 36.2 | 35.6 | 35.6 | 35.6 | 35.6 | 35.6 | 35.6 | 35.6 |
| Total Split (s) | 38.0 | 38.0 | 8.0 | 46.0 | 74.0 | 74.0 | 74.0 | 74.0 | 74.0 | 74.0 | 74.0 |
| Total Split (%) | 31.7% | 31.7% | 6.7% | 38.3% | 61.7% | 61.7% | 61.7% | 61.7% | 61.7% | 61.7% | 61.7% |
| Yellow Time (s) | 4.0 | 4.0 | 3.0 | 4.0 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 |
| All-Red Time (s) | 4.2 | 4.2 | 0.0 | 4.2 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 8.2 | 8.2 | 3.0 | 8.2 | | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 |
| 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 | C-Max | C-Max | C-Max |
| Act Effct Green (s) | 12.0 | 12.0 | 15.5 | 15.2 | | 100.7 | 100.7 | 100.7 | 100.7 | 100.7 | 100.7 |
| Actuated g/C Ratio | 0.10 | 0.10 | 0.13 | 0.13 | | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| v/c Ratio | 0.03 | 0.12 | 0.22 | 0.01 | | 0.20 | 0.33 | 0.03 | 0.01 | 0.38 | 0.00 |
| Control Delay (s/veh) | 50.0 | 1.0 | 46.5 | 0.0 | | 3.7 | 2.5 | 0.0 | 5.8 | 4.6 | 0.0 |
| 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) | 50.0 | 1.0 | 46.5 | 0.0 | | 3.7 | 2.5 | 0.0 | 5.8 | 4.6 | 0.0 |
| LOS | D | A | D | A | | A | A | A | A | A | A |
| Approach Delay (s/veh) | | 4.3 | | 40.7 | | | 2.5 | | | 4.6 | |
| Approach LOS | | A | | D | | | A | | | A | |

| 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 | |
| Maximum v/c Ratio: 0.38 | |
| Intersection Signal Delay (s/veh): 4.0 | Intersection LOS: A |
| Intersection Capacity Utilization 65.6% | ICU Level of Service C |
| Analysis Period (min) 15 | |

Splits and Phases: 6: Airport Road & Perdue Court/Davis Lane



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 2 | 0 | 28 | 21 | 0 | 3 | 1 | 70 | 846 | 32 | 4 | 990 |
| Future Volume (vph) | 2 | 0 | 28 | 21 | 0 | 3 | 1 | 70 | 846 | 32 | 4 | 990 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.6 | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 |
| Total Lost time (s) | 8.2 | 8.2 | | 3.0 | 8.2 | | | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 0.96 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 |
| Frt | 1.00 | 0.85 | | 1.00 | 0.85 | | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 892 | 921 | | 1068 | 816 | | | 1465 | 3067 | 1131 | 1181 | 3067 |
| Flt Permitted | 0.76 | 1.00 | | 0.52 | 1.00 | | | 0.28 | 1.00 | 1.00 | 0.33 | 1.00 |
| Satd. Flow (perm) | 710 | 921 | | 587 | 816 | | | 425 | 3067 | 1131 | 405 | 3067 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 2 | 0 | 28 | 21 | 0 | 3 | 1 | 70 | 846 | 32 | 4 | 990 |
| RTOR Reduction (vph) | 0 | 26 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 7 | 0 | 0 |
| Lane Group Flow (vph) | 2 | 2 | 0 | 21 | 0 | 0 | 0 | 71 | 846 | 25 | 4 | 990 |
| Confl. Peds. (#/hr) | | | 1 | 1 | | | | 2 | | 12 | 12 | |
| Heavy Vehicles (%) | 100% | 0% | 75% | 67% | 0% | 100% | 0% | 22% | 19% | 35% | 50% | 19% |
| Turn Type | Perm | NA | | pm+pt | NA | | Perm | Perm | NA | Perm | Perm | NA |
| Protected Phases | | 8 | | 7 | 4 | | | | 6 | | | 2 |
| Permitted Phases | 8 | | | 4 | | | 6 | 6 | | 6 | 2 | |
| Actuated Green, G (s) | 7.2 | 7.2 | | 12.2 | 12.2 | | | 93.0 | 93.0 | 93.0 | 93.0 | 93.0 |
| Effective Green, g (s) | 7.2 | 7.2 | | 12.2 | 12.2 | | | 93.0 | 93.0 | 93.0 | 93.0 | 93.0 |
| Actuated g/C Ratio | 0.06 | 0.06 | | 0.10 | 0.10 | | | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 |
| Clearance Time (s) | 8.2 | 8.2 | | 3.0 | 8.2 | | | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 |
| 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) | 42 | 55 | | 67 | 82 | | | 329 | 2376 | 876 | 313 | 2376 |
| v/s Ratio Prot | | 0.00 | | c0.01 | 0.00 | | | | 0.28 | | | c0.32 |
| v/s Ratio Perm | 0.00 | | | c0.03 | | | | 0.17 | | 0.02 | 0.01 | |
| v/c Ratio | 0.05 | 0.03 | | 0.31 | 0.00 | | | 0.22 | 0.36 | 0.03 | 0.01 | 0.42 |
| Uniform Delay, d1 | 53.2 | 53.1 | | 49.6 | 48.4 | | | 3.6 | 4.2 | 3.1 | 3.1 | 4.5 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.56 | 0.53 | 1.00 | 1.17 | 0.90 |
| Incremental Delay, d2 | 0.5 | 0.2 | | 2.7 | 0.0 | | | 1.0 | 0.3 | 0.0 | 0.1 | 0.5 |
| Delay (s) | 53.6 | 53.3 | | 52.3 | 48.5 | | | 3.1 | 2.5 | 3.1 | 3.7 | 4.6 |
| Level of Service | D | D | | D | D | | | A | A | A | A | A |
| Approach Delay (s/veh) | | 53.4 | | | 51.8 | | | | 2.6 | | | 4.6 |
| Approach LOS | | D | | | D | | | | A | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 4.9 | HCM 2000 Level of Service | A |
| HCM 2000 Volume to Capacity ratio | 0.42 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 17.8 |
| Intersection Capacity Utilization | 65.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

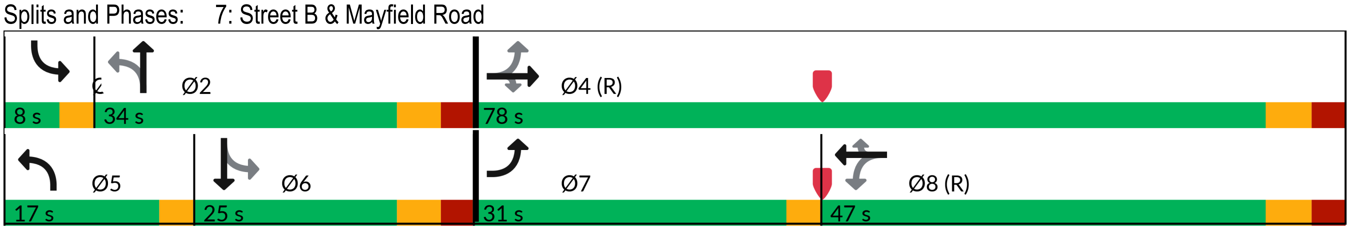
| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 3 |
| Future Volume (vph) | 3 |
| Ideal Flow (vphpl) | 1900 |
| Lane Width | 3.5 |
| Total Lost time (s) | 6.6 |
| Lane Util. Factor | 1.00 |
| Frpb, ped/bikes | 0.98 |
| Flpb, ped/bikes | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1559 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1559 |
| Peak-hour factor, PHF | 1.00 |
| Adj. Flow (vph) | 3 |
| RTOR Reduction (vph) | 1 |
| Lane Group Flow (vph) | 2 |
| Confl. Peds. (#/hr) | 2 |
| Heavy Vehicles (%) | 0% |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 2 |
| Actuated Green, G (s) | 93.0 |
| Effective Green, g (s) | 93.0 |
| Actuated g/C Ratio | 0.78 |
| Clearance Time (s) | 6.6 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 1208 |
| v/s Ratio Prot | |
| v/s Ratio Perm | 0.00 |
| v/c Ratio | 0.00 |
| Uniform Delay, d1 | 3.0 |
| Progression Factor | 1.00 |
| Incremental Delay, d2 | 0.0 |
| Delay (s) | 3.0 |
| Level of Service | A |
| Approach Delay (s/veh) | |
| Approach LOS | |

| Intersection Summary |
|---|

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | |
| Traffic Volume (vph) | 291 | 1949 | 110 | 14 | 1074 | 121 | 231 | 0 | 36 | 0 |
| Future Volume (vph) | 291 | 1949 | 110 | 14 | 1074 | 121 | 231 | 0 | 36 | 0 |
| Turn Type | pm+pt | NA | Perm | Perm | NA | Perm | pm+pt | NA | pm+pt | NA |
| Protected Phases | 7 | 4 | | | 8 | | 5 | 2 | 1 | 6 |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | 6 | |
| Detector Phase | 7 | 4 | 4 | 8 | 8 | 8 | 5 | 2 | 1 | 6 |
| Switch Phase | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 5.0 | 12.0 | 5.0 | 12.0 |
| Minimum Split (s) | 8.0 | 25.1 | 25.1 | 25.1 | 25.1 | 25.1 | 9.5 | 24.9 | 8.0 | 24.9 |
| Total Split (s) | 31.0 | 78.0 | 78.0 | 47.0 | 47.0 | 47.0 | 17.0 | 34.0 | 8.0 | 25.0 |
| Total Split (%) | 25.8% | 65.0% | 65.0% | 39.2% | 39.2% | 39.2% | 14.2% | 28.3% | 6.7% | 20.8% |
| Yellow Time (s) | 3.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 3.0 | 4.0 | 3.0 | 4.0 |
| All-Red Time (s) | 0.0 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 | 0.0 | 2.9 | 0.0 | 2.9 |
| 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 | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 | 3.0 | 6.9 | 3.0 | 6.9 |
| Lead/Lag | Lead | | | Lag | Lag | Lag | Lead | Lag | Lead | Lag |
| Lead-Lag Optimize? | Yes | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Recall Mode | None | C-Max | C-Max | C-Max | C-Max | C-Max | None | None | None | None |
| Act Effct Green (s) | 84.5 | 80.4 | 80.4 | 59.7 | 59.7 | 59.7 | 29.5 | 20.8 | 17.7 | 12.0 |
| Actuated g/C Ratio | 0.70 | 0.67 | 0.67 | 0.50 | 0.50 | 0.50 | 0.25 | 0.17 | 0.15 | 0.10 |
| v/c Ratio | 0.74 | 0.60 | 0.10 | 0.15 | 0.48 | 0.16 | 0.68 | 0.10 | 0.21 | 0.15 |
| Control Delay (s/veh) | 22.5 | 12.7 | 2.6 | 29.6 | 23.9 | 10.5 | 49.1 | 0.5 | 36.7 | 0.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 22.5 | 12.7 | 2.6 | 29.6 | 23.9 | 10.5 | 49.1 | 0.5 | 36.7 | 0.6 |
| LOS | C | B | A | C | C | B | D | A | D | A |
| Approach Delay (s/veh) | | 13.5 | | | 22.6 | | | 42.7 | | 12.2 |
| Approach LOS | | B | | | C | | | D | | B |

| Intersection Summary | |
|---|---|
| Cycle Length: 120 | |
| Actuated Cycle Length: 120 | |
| Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green | |
| Natural Cycle: 75 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.74 | |
| Intersection Signal Delay (s/veh): 18.2 | Intersection LOS: B |
| Intersection Capacity Utilization 84.7% | ICU Level of Service E |
| Analysis Period (min) 15 | |

Splits and Phases: 7: Street B & Mayfield Road



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 291 | 1949 | 110 | 14 | 1074 | 121 | 231 | 0 | 35 | 36 | 0 | 76 |
| Future Volume (vph) | 291 | 1949 | 110 | 14 | 1074 | 121 | 231 | 0 | 35 | 36 | 0 | 76 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 |
| Total Lost time (s) | 3.0 | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 | 3.0 | 6.9 | | 3.0 | 6.9 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 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 | 0.85 | | 1.00 | 0.85 | |
| 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) | 1487 | 4812 | 1597 | 1785 | 4483 | 1401 | 1785 | 1633 | | 1363 | 1166 | |
| Flt Permitted | 0.20 | 1.00 | 1.00 | 0.10 | 1.00 | 1.00 | 0.54 | 1.00 | | 0.73 | 1.00 | |
| Satd. Flow (perm) | 312 | 4812 | 1597 | 188 | 4483 | 1401 | 1013 | 1633 | | 1053 | 1166 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 291 | 1949 | 110 | 14 | 1074 | 121 | 231 | 0 | 35 | 36 | 0 | 76 |
| RTOR Reduction (vph) | 0 | 0 | 31 | 0 | 0 | 62 | 0 | 29 | 0 | 0 | 70 | 0 |
| Lane Group Flow (vph) | 291 | 1949 | 79 | 14 | 1074 | 59 | 231 | 6 | 0 | 36 | 6 | 0 |
| Heavy Vehicles (%) | 20% | 9% | 0% | 0% | 17% | 14% | 0% | 0% | 0% | 31% | 0% | 40% |
| Turn Type | pm+pt | NA | Perm | Perm | NA | Perm | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 79.0 | 79.0 | 79.0 | 58.3 | 58.3 | 58.3 | 27.0 | 21.0 | | 12.6 | 9.6 | |
| Effective Green, g (s) | 79.0 | 79.0 | 79.0 | 58.3 | 58.3 | 58.3 | 27.0 | 21.0 | | 12.6 | 9.6 | |
| Actuated g/C Ratio | 0.66 | 0.66 | 0.66 | 0.49 | 0.49 | 0.49 | 0.23 | 0.18 | | 0.11 | 0.08 | |
| Clearance Time (s) | 3.0 | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 | 3.0 | 6.9 | | 3.0 | 6.9 | |
| 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) | 378 | 3167 | 1051 | 91 | 2177 | 680 | 320 | 285 | | 118 | 93 | |
| v/s Ratio Prot | c0.11 | 0.41 | | | 0.24 | | c0.09 | 0.00 | | 0.01 | 0.01 | |
| v/s Ratio Perm | c0.39 | | 0.05 | 0.07 | | 0.04 | c0.08 | | | 0.02 | | |
| v/c Ratio | 0.77 | 0.62 | 0.08 | 0.15 | 0.49 | 0.09 | 0.72 | 0.02 | | 0.31 | 0.07 | |
| Uniform Delay, d1 | 11.4 | 11.8 | 7.4 | 17.1 | 20.9 | 16.6 | 41.4 | 41.0 | | 49.4 | 51.1 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.07 | 1.03 | 2.42 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 9.1 | 0.9 | 0.1 | 3.0 | 0.7 | 0.2 | 7.8 | 0.0 | | 1.5 | 0.3 | |
| Delay (s) | 20.5 | 12.7 | 7.5 | 21.4 | 22.3 | 40.3 | 49.2 | 41.0 | | 50.8 | 51.3 | |
| Level of Service | C | B | A | C | C | D | D | D | | D | D | |
| Approach Delay (s/veh) | | 13.4 | | | 24.1 | | | 48.2 | | | 51.2 | |
| Approach LOS | | B | | | C | | | D | | | D | |

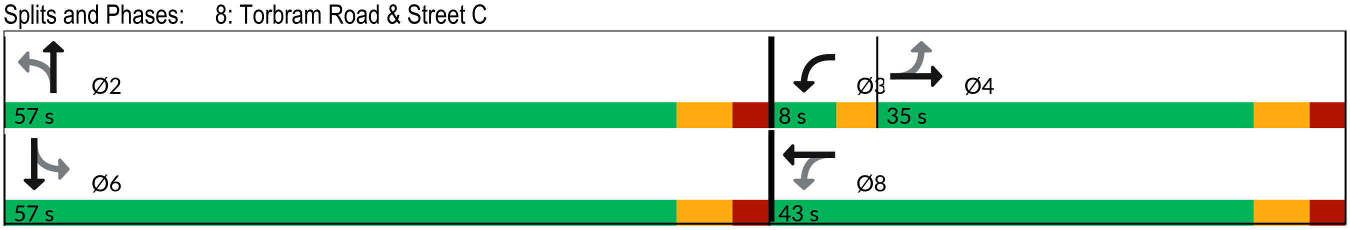
| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 20.1 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 84.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | |
| Traffic Volume (vph) | 10 | 0 | 65 | 0 | 175 | 271 | 28 | 585 |
| Future Volume (vph) | 10 | 0 | 65 | 0 | 175 | 271 | 28 | 585 |
| 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) | 12.0 | 12.0 | 5.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| Minimum Split (s) | 24.9 | 24.9 | 8.0 | 24.9 | 24.9 | 24.9 | 24.9 | 24.9 |
| Total Split (s) | 35.0 | 35.0 | 8.0 | 43.0 | 57.0 | 57.0 | 57.0 | 57.0 |
| Total Split (%) | 35.0% | 35.0% | 8.0% | 43.0% | 57.0% | 57.0% | 57.0% | 57.0% |
| Yellow Time (s) | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 |
| All-Red Time (s) | 2.7 | 2.7 | 0.0 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 6.9 | 6.9 | 3.0 | 6.9 | 6.9 | 6.9 | 6.9 | 6.9 |
| Lead/Lag | Lag | Lag | Lead | | | | | |
| Lead-Lag Optimize? | Yes | Yes | Yes | | | | | |
| Recall Mode | None | None | None | None | Max | Max | Max | Max |
| Act Effct Green (s) | 14.3 | 14.3 | 24.4 | 20.5 | 50.3 | 50.3 | 50.3 | 50.3 |
| Actuated g/C Ratio | 0.17 | 0.17 | 0.29 | 0.24 | 0.59 | 0.59 | 0.59 | 0.59 |
| v/c Ratio | 0.04 | 0.73 | 0.32 | 0.01 | 0.37 | 0.18 | 0.05 | 0.28 |
| Control Delay (s/veh) | 29.8 | 19.0 | 25.6 | 0.0 | 13.3 | 6.9 | 9.1 | 9.5 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 29.8 | 19.0 | 25.6 | 0.0 | 13.3 | 6.9 | 9.1 | 9.5 |
| LOS | C | B | C | A | B | A | A | A |
| Approach Delay (s/veh) | | 19.3 | | 23.1 | | 8.9 | | 9.5 |
| Approach LOS | | B | | C | | A | | A |

| Intersection Summary | |
|---|---|
| Cycle Length: 100 | |
| Actuated Cycle Length: 84.7 | |
| Natural Cycle: 60 | |
| Control Type: Semi Act-Uncoord | |
| Maximum v/c Ratio: 0.73 | |
| Intersection Signal Delay (s/veh): 12.1 | Intersection LOS: B |
| Intersection Capacity Utilization 74.0% | ICU Level of Service D |
| Analysis Period (min) 15 | |

Splits and Phases: 8: Torbram Road & Street C



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 10 | 0 | 365 | 65 | 0 | 7 | 175 | 271 | 111 | 28 | 585 | 15 |
| Future Volume (vph) | 10 | 0 | 365 | 65 | 0 | 7 | 175 | 271 | 111 | 28 | 585 | 15 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 |
| Total Lost time (s) | 6.9 | 6.9 | | 3.0 | 6.9 | | 6.9 | 6.9 | | 6.9 | 6.9 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frt | 1.00 | 0.85 | | 1.00 | 0.85 | | 1.00 | 0.96 | | 1.00 | 1.00 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1785 | 1633 | | 1785 | 1633 | | 1785 | 3418 | | 1785 | 3567 | |
| Flt Permitted | 0.75 | 1.00 | | 0.23 | 1.00 | | 0.42 | 1.00 | | 0.53 | 1.00 | |
| Satd. Flow (perm) | 1415 | 1633 | | 434 | 1633 | | 790 | 3418 | | 987 | 3567 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 10 | 0 | 365 | 65 | 0 | 7 | 175 | 271 | 111 | 28 | 585 | 15 |
| RTOR Reduction (vph) | 0 | 225 | 0 | 0 | 5 | 0 | 0 | 37 | 0 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 10 | 140 | 0 | 65 | 2 | 0 | 175 | 345 | 0 | 28 | 598 | 0 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 3% | 0% | 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) | 14.3 | 14.3 | | 21.2 | 21.2 | | 50.3 | 50.3 | | 50.3 | 50.3 | |
| Effective Green, g (s) | 14.3 | 14.3 | | 21.2 | 21.2 | | 50.3 | 50.3 | | 50.3 | 50.3 | |
| Actuated g/C Ratio | 0.17 | 0.17 | | 0.25 | 0.25 | | 0.59 | 0.59 | | 0.59 | 0.59 | |
| Clearance Time (s) | 6.9 | 6.9 | | 3.0 | 6.9 | | 6.9 | 6.9 | | 6.9 | 6.9 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 237 | 273 | | 169 | 405 | | 465 | 2015 | | 582 | 2103 | |
| v/s Ratio Prot | | c0.09 | | c0.02 | 0.00 | | | 0.10 | | | 0.17 | |
| v/s Ratio Perm | 0.01 | | | 0.08 | | | c0.22 | | | 0.03 | | |
| v/c Ratio | 0.04 | 0.51 | | 0.38 | 0.00 | | 0.38 | 0.17 | | 0.05 | 0.28 | |
| Uniform Delay, d1 | 29.8 | 32.3 | | 26.1 | 24.1 | | 9.2 | 8.0 | | 7.4 | 8.6 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.1 | 1.6 | | 1.5 | 0.0 | | 2.3 | 0.2 | | 0.2 | 0.3 | |
| Delay (s) | 29.8 | 34.0 | | 27.5 | 24.1 | | 11.5 | 8.2 | | 7.5 | 9.0 | |
| Level of Service | C | C | | C | C | | B | A | | A | A | |
| Approach Delay (s/veh) | | 33.9 | | | 27.2 | | | 9.2 | | | 8.9 | |
| Approach LOS | | C | | | C | | | A | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 15.6 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.41 | | |
| Actuated Cycle Length (s) | 85.3 | Sum of lost time (s) | 16.8 |
| Intersection Capacity Utilization | 74.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

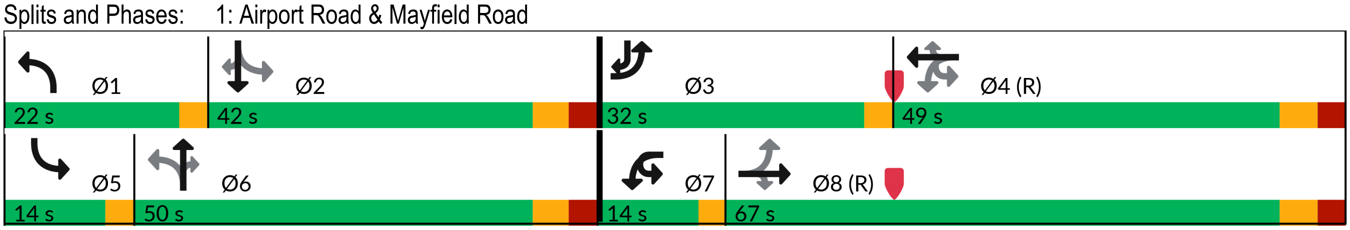
c Critical Lane Group

| Lane Group | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 425 | 1019 | 515 | 1 | 103 | 634 | 105 | 292 | 478 | 157 | 111 | 638 |
| Future Volume (vph) | 425 | 1019 | 515 | 1 | 103 | 634 | 105 | 292 | 478 | 157 | 111 | 638 |
| Turn Type | pm+pt | NA | Perm | pm+pt | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA |
| Protected Phases | 3 | 8 | | 7 | 7 | 4 | | 1 | 6 | | 5 | 2 |
| Permitted Phases | 8 | | 8 | 4 | 4 | | 4 | 6 | | 6 | 2 | |
| Detector Phase | 3 | 8 | 8 | 7 | 7 | 4 | 4 | 1 | 6 | 6 | 5 | 2 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 12.0 | 12.0 | 5.0 | 5.0 | 12.0 | 12.0 | 5.0 | 12.0 | 12.0 | 5.0 | 12.0 |
| Minimum Split (s) | 8.0 | 46.1 | 46.1 | 8.0 | 8.0 | 46.1 | 46.1 | 8.0 | 41.9 | 41.9 | 8.0 | 41.9 |
| Total Split (s) | 32.0 | 67.0 | 67.0 | 14.0 | 14.0 | 49.0 | 49.0 | 22.0 | 50.0 | 50.0 | 14.0 | 42.0 |
| Total Split (%) | 22.1% | 46.2% | 46.2% | 9.7% | 9.7% | 33.8% | 33.8% | 15.2% | 34.5% | 34.5% | 9.7% | 29.0% |
| Yellow Time (s) | 3.0 | 4.0 | 4.0 | 3.0 | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 |
| All-Red Time (s) | 0.0 | 3.1 | 3.1 | 0.0 | 0.0 | 3.1 | 3.1 | 0.0 | 2.9 | 2.9 | 0.0 | 2.9 |
| Lost Time Adjust (s) | 0.0 | 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 | 7.1 | 7.1 | | 3.0 | 7.1 | 7.1 | 3.0 | 6.9 | 6.9 | 3.0 | 6.9 |
| Lead/Lag | Lead | Lag | Lag | Lead | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lag |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Recall Mode | None | C-Max | C-Max | None | None | C-Max | C-Max | None | Max | Max | None | Max |
| Act Effct Green (s) | 78.0 | 61.6 | 61.6 | | 56.1 | 42.7 | 42.7 | 61.0 | 44.0 | 44.0 | 49.1 | 35.2 |
| Actuated g/C Ratio | 0.54 | 0.42 | 0.42 | | 0.39 | 0.29 | 0.29 | 0.42 | 0.30 | 0.30 | 0.34 | 0.24 |
| v/c Ratio | 0.93 | 0.47 | 0.61 | | 0.47 | 0.44 | 0.25 | 0.93 | 0.50 | 0.32 | 0.40 | 0.82 |
| Control Delay (s/veh) | 50.4 | 31.0 | 11.2 | | 26.3 | 42.8 | 6.0 | 66.4 | 44.0 | 7.2 | 32.1 | 61.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 50.4 | 31.0 | 11.2 | | 26.3 | 42.8 | 6.0 | 66.4 | 44.0 | 7.2 | 32.1 | 61.9 |
| LOS | D | C | B | | C | D | A | E | D | A | C | E |
| Approach Delay (s/veh) | | 30.0 | | | | 36.2 | | | 44.8 | | | 47.7 |
| Approach LOS | | C | | | | D | | | D | | | D |

| Intersection Summary | |
|---|---|
| Cycle Length: 145 | |
| Actuated Cycle Length: 145 | |
| Offset: 0 (0%), Referenced to phase 4:WBTL and 8:EBTL, Start of Green | |
| Natural Cycle: 115 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.93 | |
| Intersection Signal Delay (s/veh): 37.7 | Intersection LOS: D |
| Intersection Capacity Utilization 119.7% | ICU Level of Service H |
| Analysis Period (min) 15 | |

Splits and Phases: 1: Airport Road & Mayfield Road



| Lane Group | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 254 |
| Future Volume (vph) | 254 |
| Turn Type | pm+ov |
| Protected Phases | 3 |
| Permitted Phases | 2 |
| Detector Phase | 3 |
| Switch Phase | |
| Minimum Initial (s) | 5.0 |
| Minimum Split (s) | 8.0 |
| Total Split (s) | 32.0 |
| Total Split (%) | 22.1% |
| Yellow Time (s) | 3.0 |
| All-Red Time (s) | 0.0 |
| Lost Time Adjust (s) | 0.0 |
| Total Lost Time (s) | 3.0 |
| Lead/Lag | Lead |
| Lead-Lag Optimize? | Yes |
| Recall Mode | None |
| Act Effct Green (s) | 67.3 |
| Actuated g/C Ratio | 0.46 |
| v/c Ratio | 0.44 |
| Control Delay (s/veh) | 18.8 |
| Queue Delay | 0.0 |
| Total Delay (s/veh) | 18.8 |
| LOS | B |
| Approach Delay (s/veh) | |
| Approach LOS | |

Intersection Summary

| Movement | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 425 | 1019 | 515 | 1 | 103 | 634 | 105 | 292 | 478 | 157 | 111 | 638 |
| Future Volume (vph) | 425 | 1019 | 515 | 1 | 103 | 634 | 105 | 292 | 478 | 157 | 111 | 638 |
| Ideal Flow (vphpl) | 1900 | 2000 | 1900 | 1900 | 1900 | 2000 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.5 | 3.6 | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 |
| Total Lost time (s) | 3.0 | 7.1 | 7.1 | | 3.0 | 7.1 | 7.1 | 3.0 | 6.9 | 6.9 | 3.0 | 6.9 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 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 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1512 | 5160 | 1474 | | 1430 | 4886 | 1137 | 1700 | 3120 | 1264 | 1368 | 3202 |
| Flt Permitted | 0.30 | 1.00 | 1.00 | | 0.27 | 1.00 | 1.00 | 0.18 | 1.00 | 1.00 | 0.47 | 1.00 |
| Satd. Flow (perm) | 483 | 5160 | 1474 | | 405 | 4886 | 1137 | 325 | 3120 | 1264 | 676 | 3202 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 425 | 1019 | 515 | 1 | 103 | 634 | 105 | 292 | 478 | 157 | 111 | 638 |
| RTOR Reduction (vph) | 0 | 0 | 221 | 0 | 0 | 0 | 74 | 0 | 0 | 109 | 0 | 0 |
| Lane Group Flow (vph) | 425 | 1019 | 294 | 0 | 104 | 634 | 31 | 292 | 478 | 48 | 111 | 638 |
| Confl. Peds. (#/hr) | 5 | | 9 | | 9 | | 5 | 5 | | 12 | 12 | |
| Heavy Vehicles (%) | 18% | 7% | 6% | 0% | 25% | 13% | 38% | 5% | 17% | 23% | 30% | 14% |
| Turn Type | pm+pt | NA | Perm | pm+pt | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA |
| Protected Phases | 3 | 8 | | 7 | 7 | 4 | | 1 | 6 | | 5 | 2 |
| Permitted Phases | 8 | | 8 | 4 | 4 | | 4 | 6 | | 6 | 2 | |
| Actuated Green, G (s) | 73.9 | 61.6 | 61.6 | | 52.0 | 42.7 | 42.7 | 57.1 | 44.0 | 44.0 | 45.3 | 35.2 |
| Effective Green, g (s) | 73.9 | 61.6 | 61.6 | | 52.0 | 42.7 | 42.7 | 57.1 | 44.0 | 44.0 | 45.3 | 35.2 |
| Actuated g/C Ratio | 0.51 | 0.42 | 0.42 | | 0.36 | 0.29 | 0.29 | 0.39 | 0.30 | 0.30 | 0.31 | 0.24 |
| Clearance Time (s) | 3.0 | 7.1 | 7.1 | | 3.0 | 7.1 | 7.1 | 3.0 | 6.9 | 6.9 | 3.0 | 6.9 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 446 | 2192 | 626 | | 210 | 1438 | 334 | 307 | 946 | 383 | 259 | 777 |
| v/s Ratio Prot | c0.19 | 0.20 | | | 0.03 | 0.13 | | c0.12 | 0.15 | | 0.03 | 0.20 |
| v/s Ratio Perm | c0.30 | | 0.20 | | 0.15 | | 0.03 | c0.25 | | 0.04 | 0.10 | |
| v/c Ratio | 0.95 | 0.46 | 0.47 | | 0.50 | 0.44 | 0.09 | 0.95 | 0.51 | 0.12 | 0.43 | 0.82 |
| Uniform Delay, d1 | 25.5 | 29.9 | 30.0 | | 32.2 | 41.5 | 37.1 | 34.8 | 41.5 | 36.6 | 37.3 | 51.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 30.7 | 0.7 | 2.5 | | 1.8 | 1.0 | 0.5 | 38.3 | 1.9 | 0.7 | 1.1 | 9.5 |
| Delay (s) | 56.2 | 30.6 | 32.5 | | 34.0 | 42.5 | 37.6 | 73.1 | 43.5 | 37.2 | 38.4 | 61.4 |
| Level of Service | E | C | C | | C | D | D | E | D | D | D | E |
| Approach Delay (s/veh) | | 36.7 | | | | 40.8 | | | 51.7 | | | 50.6 |
| Approach LOS | | D | | | | D | | | D | | | D |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 43.3 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.99 | | |
| Actuated Cycle Length (s) | 145.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 119.7% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

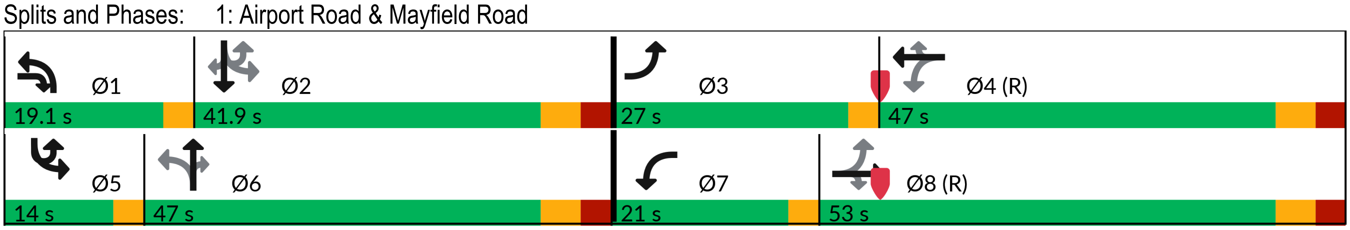
| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 254 |
| Future Volume (vph) | 254 |
| Ideal Flow (vphpl) | 1900 |
| Lane Width | 3.5 |
| Total Lost time (s) | 3.0 |
| Lane Util. Factor | 1.00 |
| Frpb, ped/bikes | 0.99 |
| Flpb, ped/bikes | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1154 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1154 |
| Peak-hour factor, PHF | 1.00 |
| Adj. Flow (vph) | 254 |
| RTOR Reduction (vph) | 44 |
| Lane Group Flow (vph) | 210 |
| Confl. Peds. (#/hr) | 5 |
| Heavy Vehicles (%) | 37% |
| Turn Type | pm+ov |
| Protected Phases | 3 |
| Permitted Phases | 2 |
| Actuated Green, G (s) | 63.4 |
| Effective Green, g (s) | 63.4 |
| Actuated g/C Ratio | 0.44 |
| Clearance Time (s) | 3.0 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 504 |
| v/s Ratio Prot | 0.08 |
| v/s Ratio Perm | 0.10 |
| v/c Ratio | 0.42 |
| Uniform Delay, d1 | 28.1 |
| Progression Factor | 1.00 |
| Incremental Delay, d2 | 0.6 |
| Delay (s) | 28.6 |
| Level of Service | C |
| Approach Delay (s/veh) | |
| Approach LOS | |

| Intersection Summary |
|---|

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBU | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 377 | 750 | 281 | 227 | 967 | 84 | 351 | 741 | 113 | 1 | 159 | 618 |
| Future Volume (vph) | 377 | 750 | 281 | 227 | 967 | 84 | 351 | 741 | 113 | 1 | 159 | 618 |
| Turn Type | pm+pt | NA | pm+ov | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | pm+pt | NA |
| Protected Phases | 3 | 8 | 1 | 7 | 4 | | 1 | 6 | | 5 | 5 | 2 |
| Permitted Phases | 8 | | 8 | 4 | | 4 | 6 | | 6 | 2 | 2 | |
| Detector Phase | 3 | 8 | 1 | 7 | 4 | 4 | 1 | 6 | 6 | 5 | 5 | 2 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 12.0 | 5.0 | 5.0 | 12.0 | 12.0 | 5.0 | 12.0 | 12.0 | 5.0 | 5.0 | 12.0 |
| Minimum Split (s) | 8.0 | 46.1 | 8.0 | 8.0 | 46.1 | 46.1 | 8.0 | 41.9 | 41.9 | 8.0 | 8.0 | 41.9 |
| Total Split (s) | 27.0 | 53.0 | 19.1 | 21.0 | 47.0 | 47.0 | 19.1 | 47.0 | 47.0 | 14.0 | 14.0 | 41.9 |
| Total Split (%) | 20.0% | 39.3% | 14.1% | 15.6% | 34.8% | 34.8% | 14.1% | 34.8% | 34.8% | 10.4% | 10.4% | 31.0% |
| Yellow Time (s) | 3.0 | 4.0 | 3.0 | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | 4.0 | 3.0 | 3.0 | 4.0 |
| All-Red Time (s) | 0.0 | 3.1 | 0.0 | 0.0 | 3.1 | 3.1 | 0.0 | 2.9 | 2.9 | 0.0 | 0.0 | 2.9 |
| Lost Time Adjust (s) | 0.0 | 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 | 7.1 | 3.0 | 3.0 | 7.1 | 7.1 | 3.0 | 6.9 | 6.9 | | 3.0 | 6.9 |
| Lead/Lag | Lead | Lag | Lead | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lead | Lag |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Recall Mode | None | C-Max | None | None | C-Max | C-Max | None | Max | Max | None | None | Max |
| Act Effct Green (s) | 71.0 | 49.4 | 69.6 | 58.5 | 39.9 | 39.9 | 58.0 | 40.3 | 40.3 | | 49.7 | 35.0 |
| Actuated g/C Ratio | 0.53 | 0.37 | 0.52 | 0.43 | 0.30 | 0.30 | 0.43 | 0.30 | 0.30 | | 0.37 | 0.26 |
| v/c Ratio | 1.10 | 0.42 | 0.33 | 0.61 | 0.63 | 0.21 | 1.10 | 0.75 | 0.26 | | 0.77 | 0.71 |
| Control Delay (s/veh) | 123.5 | 29.5 | 6.3 | 25.9 | 43.3 | 2.6 | 108.5 | 48.7 | 9.0 | | 52.0 | 50.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 |
| Total Delay (s/veh) | 123.5 | 29.5 | 6.3 | 25.9 | 43.3 | 2.6 | 108.5 | 48.7 | 9.0 | | 52.0 | 50.8 |
| LOS | F | C | A | C | D | A | F | D | A | | D | D |
| Approach Delay (s/veh) | | 50.0 | | | 37.5 | | | 62.4 | | | | 42.1 |
| Approach LOS | | D | | | D | | | E | | | | D |

| Intersection Summary | |
|---|---|
| Cycle Length: 135 | |
| Actuated Cycle Length: 135 | |
| Offset: 0 (0%), Referenced to phase 4:WBTL and 8:EBTL, Start of Green | |
| Natural Cycle: 135 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 1.10 | |
| Intersection Signal Delay (s/veh): 47.9 | Intersection LOS: D |
| Intersection Capacity Utilization 120.3% | ICU Level of Service H |
| Analysis Period (min) 15 | |

Splits and Phases: 1: Airport Road & Mayfield Road



| Lane Group | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 483 |
| Future Volume (vph) | 483 |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 2 |
| Detector Phase | 2 |
| Switch Phase | |
| Minimum Initial (s) | 12.0 |
| Minimum Split (s) | 41.9 |
| Total Split (s) | 41.9 |
| Total Split (%) | 31.0% |
| Yellow Time (s) | 4.0 |
| All-Red Time (s) | 2.9 |
| Lost Time Adjust (s) | 0.0 |
| Total Lost Time (s) | 6.9 |
| Lead/Lag | Lag |
| Lead-Lag Optimize? | Yes |
| Recall Mode | Max |
| Act Effct Green (s) | 35.0 |
| Actuated g/C Ratio | 0.26 |
| v/c Ratio | 0.83 |
| Control Delay (s/veh) | 27.6 |
| Queue Delay | 0.0 |
| Total Delay (s/veh) | 27.6 |
| LOS | C |
| Approach Delay (s/veh) | |
| Approach LOS | |

Intersection Summary

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBU | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 377 | 750 | 281 | 227 | 967 | 84 | 351 | 741 | 113 | 1 | 159 | 618 |
| Future Volume (vph) | 377 | 750 | 281 | 227 | 967 | 84 | 351 | 741 | 113 | 1 | 159 | 618 |
| Ideal Flow (vphpl) | 1900 | 2000 | 1900 | 1900 | 2000 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 | 3.5 | 3.6 | 3.5 | 3.7 |
| Total Lost time (s) | 3.0 | 7.1 | 3.0 | 3.0 | 7.1 | 7.1 | 3.0 | 6.9 | 6.9 | | 3.0 | 6.9 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.96 | | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 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 | 0.85 | 1.00 | 1.00 | 0.85 | | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (prot) | 1463 | 4886 | 1494 | 1635 | 5208 | 1034 | 1683 | 3288 | 1180 | | 1416 | 3349 |
| Flt Permitted | 0.16 | 1.00 | 1.00 | 0.36 | 1.00 | 1.00 | 0.22 | 1.00 | 1.00 | | 0.22 | 1.00 |
| Satd. Flow (perm) | 242 | 4886 | 1494 | 612 | 5208 | 1034 | 386 | 3288 | 1180 | | 331 | 3349 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 377 | 750 | 281 | 227 | 967 | 84 | 351 | 741 | 113 | 1 | 159 | 618 |
| RTOR Reduction (vph) | 0 | 0 | 74 | 0 | 0 | 59 | 0 | 0 | 74 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 377 | 750 | 207 | 227 | 967 | 25 | 351 | 741 | 39 | 0 | 160 | 618 |
| Confl. Peds. (#/hr) | 4 | | 11 | 11 | | 4 | 7 | | 24 | | 24 | |
| Heavy Vehicles (%) | 22% | 13% | 5% | 9% | 6% | 52% | 6% | 11% | 30% | 0% | 26% | 9% |
| Turn Type | pm+pt | NA | pm+ov | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | pm+pt | NA |
| Protected Phases | 3 | 8 | 1 | 7 | 4 | | 1 | 6 | | 5 | 5 | 2 |
| Permitted Phases | 8 | | 8 | 4 | | 4 | 6 | | 6 | 2 | 2 | |
| Actuated Green, G (s) | 66.9 | 49.4 | 65.5 | 54.4 | 39.9 | 39.9 | 54.1 | 40.3 | 40.3 | | 45.8 | 35.0 |
| Effective Green, g (s) | 66.9 | 49.4 | 65.5 | 54.4 | 39.9 | 39.9 | 54.1 | 40.3 | 40.3 | | 45.8 | 35.0 |
| Actuated g/C Ratio | 0.50 | 0.37 | 0.49 | 0.40 | 0.30 | 0.30 | 0.40 | 0.30 | 0.30 | | 0.34 | 0.26 |
| Clearance Time (s) | 3.0 | 7.1 | 3.0 | 3.0 | 7.1 | 7.1 | 3.0 | 6.9 | 6.9 | | 3.0 | 6.9 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 336 | 1787 | 724 | 356 | 1539 | 305 | 309 | 981 | 352 | | 199 | 868 |
| v/s Ratio Prot | c0.20 | 0.15 | 0.03 | 0.07 | 0.19 | | c0.14 | 0.23 | | | 0.06 | 0.18 |
| v/s Ratio Perm | c0.36 | | 0.10 | 0.19 | | 0.02 | c0.32 | | 0.03 | | 0.21 | |
| v/c Ratio | 1.12 | 0.42 | 0.29 | 0.64 | 0.63 | 0.08 | 1.14 | 0.76 | 0.11 | | 0.80 | 0.71 |
| Uniform Delay, d1 | 34.5 | 32.1 | 20.8 | 27.9 | 41.1 | 34.3 | 34.1 | 42.9 | 34.3 | | 34.9 | 45.4 |
| Progression Factor | 1.83 | 0.88 | 0.62 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 84.0 | 0.7 | 0.2 | 3.7 | 2.0 | 0.5 | 93.1 | 5.4 | 0.6 | | 20.5 | 4.9 |
| Delay (s) | 147.0 | 28.9 | 13.1 | 31.7 | 43.1 | 34.8 | 127.2 | 48.3 | 35.0 | | 55.4 | 50.4 |
| Level of Service | F | C | B | C | D | C | F | D | C | | E | D |
| Approach Delay (s/veh) | | 57.4 | | | 40.5 | | | 70.0 | | | | 53.6 |
| Approach LOS | | E | | | D | | | E | | | | D |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 55.2 | HCM 2000 Level of Service | E |
| HCM 2000 Volume to Capacity ratio | 1.18 | | |
| Actuated Cycle Length (s) | 135.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 120.3% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

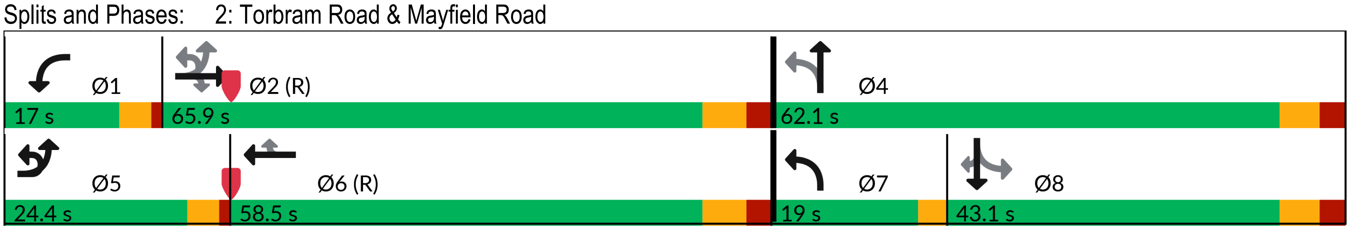
| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 483 |
| Future Volume (vph) | 483 |
| Ideal Flow (vphpl) | 1900 |
| Lane Width | 3.5 |
| Total Lost time (s) | 6.9 |
| Lane Util. Factor | 1.00 |
| Frpb, ped/bikes | 0.98 |
| Flpb, ped/bikes | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1294 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1294 |
| Peak-hour factor, PHF | 1.00 |
| Adj. Flow (vph) | 483 |
| RTOR Reduction (vph) | 247 |
| Lane Group Flow (vph) | 236 |
| Confl. Peds. (#/hr) | 7 |
| Heavy Vehicles (%) | 21% |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 2 |
| Actuated Green, G (s) | 35.0 |
| Effective Green, g (s) | 35.0 |
| Actuated g/C Ratio | 0.26 |
| Clearance Time (s) | 6.9 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 335 |
| v/s Ratio Prot | |
| v/s Ratio Perm | 0.18 |
| v/c Ratio | 0.71 |
| Uniform Delay, d1 | 45.3 |
| Progression Factor | 1.00 |
| Incremental Delay, d2 | 11.8 |
| Delay (s) | 57.1 |
| Level of Service | E |
| Approach Delay (s/veh) | |
| Approach LOS | |

| Intersection Summary |
|---|

| Lane Group | EBU | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 4 | 338 | 1470 | 333 | 201 | 1819 | 48 | 414 | 670 | 52 | 496 | 294 |
| Future Volume (vph) | 4 | 338 | 1470 | 333 | 201 | 1819 | 48 | 414 | 670 | 52 | 496 | 294 |
| Turn Type | pm+pt | pm+pt | NA | Perm | Prot | NA | Perm | pm+pt | NA | Perm | NA | Perm |
| Protected Phases | 5 | 5 | 2 | | 1 | 6 | | 7 | 4 | | 8 | |
| Permitted Phases | 2 | 2 | | 2 | | | 6 | 4 | | 8 | | 8 |
| Detector Phase | 5 | 5 | 2 | 2 | 1 | 6 | 6 | 7 | 4 | 8 | 8 | 8 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | 16.0 | 16.0 | 5.0 | 16.0 | 16.0 | 5.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| Minimum Split (s) | 9.5 | 9.5 | 50.3 | 50.3 | 9.5 | 50.3 | 50.3 | 8.0 | 43.1 | 43.1 | 43.1 | 43.1 |
| Total Split (s) | 24.4 | 24.4 | 65.9 | 65.9 | 17.0 | 58.5 | 58.5 | 19.0 | 62.1 | 43.1 | 43.1 | 43.1 |
| Total Split (%) | 16.8% | 16.8% | 45.4% | 45.4% | 11.7% | 40.3% | 40.3% | 13.1% | 42.8% | 29.7% | 29.7% | 29.7% |
| Yellow Time (s) | 3.5 | 3.5 | 4.6 | 4.6 | 3.5 | 4.6 | 4.6 | 3.0 | 4.2 | 4.2 | 4.2 | 4.2 |
| All-Red Time (s) | 1.0 | 1.0 | 2.7 | 2.7 | 1.0 | 2.7 | 2.7 | 0.0 | 2.9 | 2.9 | 2.9 | 2.9 |
| Lost Time Adjust (s) | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | | 4.5 | 7.3 | 7.3 | 4.5 | 7.3 | 7.3 | 3.0 | 7.1 | 7.1 | 7.1 | 7.1 |
| Lead/Lag | Lead | Lead | Lag | Lag | Lead | Lag | Lag | Lead | | Lag | Lag | Lag |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | Yes |
| Recall Mode | None | None | C-Max | C-Max | None | C-Max | C-Max | None | Max | Max | Max | Max |
| Act Effct Green (s) | | 78.4 | 59.5 | 59.5 | 11.6 | 51.2 | 51.2 | 59.1 | 55.0 | 36.0 | 36.0 | 36.0 |
| Actuated g/C Ratio | | 0.54 | 0.41 | 0.41 | 0.08 | 0.35 | 0.35 | 0.41 | 0.38 | 0.25 | 0.25 | 0.25 |
| v/c Ratio | | 1.14 | 0.77 | 0.40 | 0.74 | 1.12 | 0.07 | 1.17 | 0.64 | 0.39 | 0.55 | 0.53 |
| Control Delay (s/veh) | | 136.0 | 40.2 | 4.7 | 81.7 | 105.9 | 0.2 | 134.3 | 38.2 | 56.0 | 50.1 | 17.2 |
| Queue Delay | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | | 136.0 | 40.2 | 4.7 | 81.7 | 105.9 | 0.2 | 134.3 | 38.2 | 56.0 | 50.1 | 17.2 |
| LOS | | F | D | A | F | F | A | F | D | E | D | B |
| Approach Delay (s/veh) | | | 50.0 | | | 101.1 | | | 69.2 | | 39.0 | |
| Approach LOS | | | D | | | F | | | E | | D | |

| Intersection Summary | |
|---|---|
| Cycle Length: 145 | |
| Actuated Cycle Length: 145 | |
| Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green | |
| Natural Cycle: 145 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 1.17 | |
| Intersection Signal Delay (s/veh): 69.1 | Intersection LOS: E |
| Intersection Capacity Utilization 114.3% | ICU Level of Service H |
| Analysis Period (min) 15 | |

Splits and Phases: 2: Torbram Road & Mayfield Road



| Movement | EBU | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 4 | 338 | 1470 | 333 | 201 | 1819 | 48 | 414 | 670 | 201 | 52 | 496 |
| Future Volume (vph) | 4 | 338 | 1470 | 333 | 201 | 1819 | 48 | 414 | 670 | 201 | 52 | 496 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.6 | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 |
| Total Lost time (s) | | 4.5 | 7.3 | 7.3 | 4.5 | 7.3 | 7.3 | 3.0 | 7.1 | | 7.1 | 7.1 |
| Lane Util. Factor | | 1.00 | 0.91 | 1.00 | 0.97 | 0.91 | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 |
| Frt | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 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) | | 1785 | 4683 | 1581 | 3395 | 4601 | 1633 | 1750 | 3516 | | 1785 | 3650 |
| Flt Permitted | | 0.07 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.30 | 1.00 | | 0.28 | 1.00 |
| Satd. Flow (perm) | | 135 | 4683 | 1581 | 3395 | 4601 | 1633 | 547 | 3516 | | 533 | 3650 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 4 | 338 | 1470 | 333 | 201 | 1819 | 48 | 414 | 670 | 201 | 52 | 496 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 190 | 0 | 0 | 31 | 0 | 19 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 342 | 1470 | 143 | 201 | 1819 | 17 | 414 | 852 | 0 | 52 | 496 |
| Heavy Vehicles (%) | 0% | 0% | 12% | 1% | 2% | 14% | 0% | 2% | 0% | 1% | 0% | 0% |
| Turn Type | pm+pt | pm+pt | NA | Perm | Prot | NA | Perm | pm+pt | NA | | Perm | NA |
| Protected Phases | 5 | 5 | 2 | | 1 | 6 | | 7 | 4 | | | 8 |
| Permitted Phases | 2 | 2 | | 2 | | | 6 | 4 | | | 8 | |
| Actuated Green, G (s) | | 75.6 | 59.5 | 59.5 | 11.6 | 51.2 | 51.2 | 55.0 | 55.0 | | 36.0 | 36.0 |
| Effective Green, g (s) | | 75.6 | 59.5 | 59.5 | 11.6 | 51.2 | 51.2 | 55.0 | 55.0 | | 36.0 | 36.0 |
| Actuated g/C Ratio | | 0.52 | 0.41 | 0.41 | 0.08 | 0.35 | 0.35 | 0.38 | 0.38 | | 0.25 | 0.25 |
| Clearance Time (s) | | 4.5 | 7.3 | 7.3 | 4.5 | 7.3 | 7.3 | 3.0 | 7.1 | | 7.1 | 7.1 |
| 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) | | 296 | 1921 | 648 | 271 | 1624 | 576 | 340 | 1333 | | 132 | 906 |
| v/s Ratio Prot | | c0.16 | 0.31 | | 0.06 | 0.40 | | c0.13 | 0.24 | | | 0.14 |
| v/s Ratio Perm | | c0.44 | | 0.09 | | | 0.01 | c0.33 | | | 0.10 | |
| v/c Ratio | | 1.16 | 0.77 | 0.22 | 0.74 | 1.12 | 0.03 | 1.22 | 0.64 | | 0.39 | 0.55 |
| Uniform Delay, d1 | | 48.3 | 36.7 | 27.7 | 65.2 | 46.9 | 30.7 | 40.5 | 36.9 | | 45.4 | 47.4 |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | | 101.2 | 3.0 | 0.8 | 10.4 | 62.9 | 0.1 | 121.8 | 2.4 | | 8.6 | 2.4 |
| Delay (s) | | 149.5 | 39.7 | 28.5 | 75.7 | 109.8 | 30.8 | 162.2 | 39.2 | | 54.0 | 49.8 |
| Level of Service | | F | D | C | E | F | C | F | D | | D | D |
| Approach Delay (s/veh) | | | 55.5 | | | 104.7 | | | 78.9 | | | 49.1 |
| Approach LOS | | | E | | | F | | | E | | | D |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 75.4 | HCM 2000 Level of Service | E |
| HCM 2000 Volume to Capacity ratio | 1.23 | | |
| Actuated Cycle Length (s) | 145.0 | Sum of lost time (s) | 21.9 |
| Intersection Capacity Utilization | 114.3% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

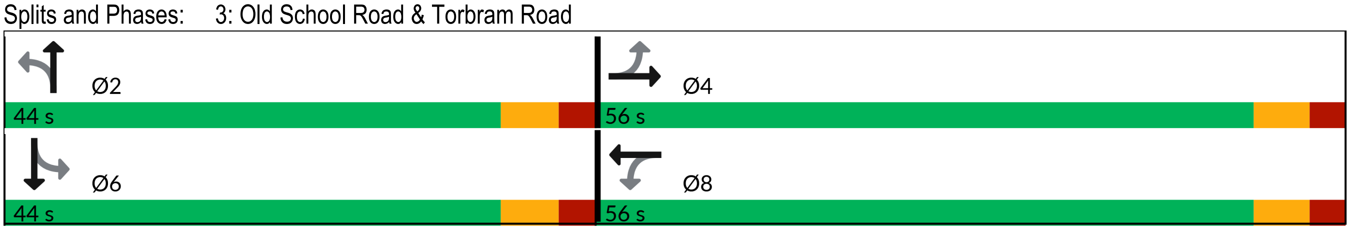
| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 294 |
| Future Volume (vph) | 294 |
| Ideal Flow (vphpl) | 1900 |
| Lane Width | 3.5 |
| Total Lost time (s) | 7.1 |
| Lane Util. Factor | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1597 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1597 |
| Peak-hour factor, PHF | 1.00 |
| Adj. Flow (vph) | 294 |
| RTOR Reduction (vph) | 159 |
| Lane Group Flow (vph) | 135 |
| Heavy Vehicles (%) | 0% |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 8 |
| Actuated Green, G (s) | 36.0 |
| Effective Green, g (s) | 36.0 |
| Actuated g/C Ratio | 0.25 |
| Clearance Time (s) | 7.1 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 396 |
| v/s Ratio Prot | |
| v/s Ratio Perm | 0.08 |
| v/c Ratio | 0.34 |
| Uniform Delay, d1 | 44.7 |
| Progression Factor | 1.00 |
| Incremental Delay, d2 | 2.3 |
| Delay (s) | 47.1 |
| Level of Service | D |
| Approach Delay (s/veh) | |
| Approach LOS | |

| Intersection Summary |
|---|

| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | |
| Traffic Volume (vph) | 44 | 318 | 25 | 710 | 102 | 453 | 14 | 224 |
| Future Volume (vph) | 44 | 318 | 25 | 710 | 102 | 453 | 14 | 224 |
| Turn Type | Perm | NA | Perm | NA | Perm | NA | Perm | NA |
| Protected Phases | | 4 | | 8 | | 2 | | 6 |
| Permitted Phases | 4 | | 8 | | 2 | | 6 | |
| Detector Phase | 4 | 4 | 8 | 8 | 2 | 2 | 6 | 6 |
| Switch Phase | | | | | | | | |
| Minimum Initial (s) | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| Minimum Split (s) | 24.9 | 24.9 | 24.9 | 24.9 | 24.9 | 24.9 | 24.9 | 24.9 |
| Total Split (s) | 56.0 | 56.0 | 56.0 | 56.0 | 44.0 | 44.0 | 44.0 | 44.0 |
| Total Split (%) | 56.0% | 56.0% | 56.0% | 56.0% | 44.0% | 44.0% | 44.0% | 44.0% |
| Yellow Time (s) | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 |
| All-Red Time (s) | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 6.9 | 6.9 | 6.9 | 6.9 | 6.9 | 6.9 | 6.9 | 6.9 |
| Lead/Lag | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | |
| Recall Mode | Min | Min | Min | Min | Max | Max | Max | Max |
| Act Effct Green (s) | 20.2 | 20.2 | 20.2 | 20.2 | 37.2 | 37.2 | 37.2 | 37.2 |
| Actuated g/C Ratio | 0.28 | 0.28 | 0.28 | 0.28 | 0.52 | 0.52 | 0.52 | 0.52 |
| v/c Ratio | 0.35 | 0.35 | 0.09 | 0.73 | 0.18 | 0.28 | 0.03 | 0.17 |
| Control Delay (s/veh) | 28.4 | 20.1 | 18.8 | 27.4 | 11.4 | 10.3 | 10.4 | 8.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 28.4 | 20.1 | 18.8 | 27.4 | 11.4 | 10.3 | 10.4 | 8.1 |
| LOS | C | C | B | C | B | B | B | A |
| Approach Delay (s/veh) | | 21.0 | | 27.2 | | 10.5 | | 8.2 |
| Approach LOS | | C | | C | | B | | A |

| Intersection Summary | |
|---|---|
| Cycle Length: 100 | |
| Actuated Cycle Length: 71.3 | |
| Natural Cycle: 50 | |
| Control Type: Semi Act-Uncoord | |
| Maximum v/c Ratio: 0.73 | |
| Intersection Signal Delay (s/veh): 18.2 | Intersection LOS: B |
| Intersection Capacity Utilization 78.2% | ICU Level of Service D |
| Analysis Period (min) 15 | |

Splits and Phases: 3: Old School Road & Torbram Road



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 44 | 318 | 32 | 25 | 710 | 31 | 102 | 453 | 65 | 14 | 224 | 82 |
| Future Volume (vph) | 44 | 318 | 32 | 25 | 710 | 31 | 102 | 453 | 65 | 14 | 224 | 82 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 |
| Total Lost time (s) | 6.9 | 6.9 | | 6.9 | 6.9 | | 6.9 | 6.9 | | 6.9 | 6.9 | |
| 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 | 0.98 | | 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) | 1785 | 3505 | | 1785 | 3559 | | 1785 | 3572 | | 1653 | 3428 | |
| Flt Permitted | 0.24 | 1.00 | | 0.54 | 1.00 | | 0.57 | 1.00 | | 0.46 | 1.00 | |
| Satd. Flow (perm) | 447 | 3505 | | 1018 | 3559 | | 1062 | 3572 | | 801 | 3428 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 44 | 318 | 32 | 25 | 710 | 31 | 102 | 453 | 65 | 14 | 224 | 82 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 4 | 0 | 0 | 9 | 0 | 0 | 28 | 0 |
| Lane Group Flow (vph) | 44 | 339 | 0 | 25 | 737 | 0 | 102 | 509 | 0 | 14 | 278 | 0 |
| Heavy Vehicles (%) | 0% | 3% | 0% | 0% | 2% | 0% | 0% | 0% | 2% | 8% | 3% | 0% |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | 20.2 | 20.2 | | 20.2 | 20.2 | | 37.2 | 37.2 | | 37.2 | 37.2 | |
| Effective Green, g (s) | 20.2 | 20.2 | | 20.2 | 20.2 | | 37.2 | 37.2 | | 37.2 | 37.2 | |
| Actuated g/C Ratio | 0.28 | 0.28 | | 0.28 | 0.28 | | 0.52 | 0.52 | | 0.52 | 0.52 | |
| Clearance Time (s) | 6.9 | 6.9 | | 6.9 | 6.9 | | 6.9 | 6.9 | | 6.9 | 6.9 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 126 | 994 | | 288 | 1009 | | 554 | 1866 | | 418 | 1791 | |
| v/s Ratio Prot | | 0.10 | | | c0.21 | | | c0.14 | | | 0.08 | |
| v/s Ratio Perm | 0.10 | | | 0.02 | | | 0.10 | | | 0.02 | | |
| v/c Ratio | 0.35 | 0.34 | | 0.09 | 0.73 | | 0.18 | 0.27 | | 0.03 | 0.16 | |
| Uniform Delay, d1 | 20.3 | 20.2 | | 18.7 | 23.0 | | 9.0 | 9.5 | | 8.3 | 8.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.7 | 0.2 | | 0.1 | 2.7 | | 0.7 | 0.4 | | 0.1 | 0.2 | |
| Delay (s) | 22.0 | 20.4 | | 18.9 | 25.8 | | 9.7 | 9.8 | | 8.4 | 9.0 | |
| Level of Service | C | C | | B | C | | A | A | | A | A | |
| Approach Delay (s/veh) | | 20.6 | | | 25.6 | | | 9.8 | | | 9.0 | |
| Approach LOS | | C | | | C | | | A | | | A | |

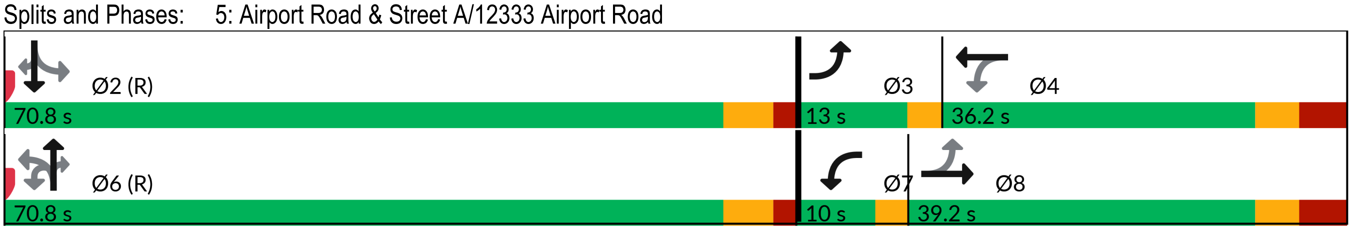
| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 17.5 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.43 | | |
| Actuated Cycle Length (s) | 71.2 | Sum of lost time (s) | 13.8 |
| Intersection Capacity Utilization | 78.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Lane Group | EBL | EBT | WBL | WBT | NBU | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | |
| Traffic Volume (vph) | 141 | 0 | 45 | 0 | 2 | 68 | 1013 | 27 | 3 | 914 | 29 |
| Future Volume (vph) | 141 | 0 | 45 | 0 | 2 | 68 | 1013 | 27 | 3 | 914 | 29 |
| Turn Type | pm+pt | NA | pm+pt | NA | Perm | Perm | NA | Perm | Perm | NA | Perm |
| Protected Phases | 3 | 8 | 7 | 4 | | | 6 | | | 2 | |
| Permitted Phases | 8 | | 4 | | 6 | 6 | | 6 | 2 | | 2 |
| Detector Phase | 3 | 8 | 7 | 4 | 6 | 6 | 6 | 6 | 2 | 2 | 2 |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 12.0 | 5.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| Minimum Split (s) | 9.5 | 36.2 | 9.5 | 36.2 | 35.6 | 35.6 | 35.6 | 35.6 | 35.6 | 35.6 | 35.6 |
| Total Split (s) | 13.0 | 39.2 | 10.0 | 36.2 | 70.8 | 70.8 | 70.8 | 70.8 | 70.8 | 70.8 | 70.8 |
| Total Split (%) | 10.8% | 32.7% | 8.3% | 30.2% | 59.0% | 59.0% | 59.0% | 59.0% | 59.0% | 59.0% | 59.0% |
| Yellow Time (s) | 3.0 | 4.0 | 3.0 | 4.0 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 |
| All-Red Time (s) | 0.0 | 4.2 | 0.0 | 4.2 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 3.0 | 8.2 | 3.0 | 8.2 | | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 |
| Lead/Lag | Lead | Lag | Lead | Lag | | | | | | | |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | | | | | | | |
| Recall Mode | None | None | None | None | C-Max | C-Max | C-Max | C-Max | C-Max | C-Max | C-Max |
| Act Effct Green (s) | 25.8 | 12.6 | 10.1 | 12.0 | | 84.6 | 84.6 | 84.6 | 84.6 | 84.6 | 84.6 |
| Actuated g/C Ratio | 0.22 | 0.11 | 0.08 | 0.10 | | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 | 0.71 |
| v/c Ratio | 0.49 | 0.30 | 0.41 | 0.02 | | 0.26 | 0.43 | 0.04 | 0.01 | 0.41 | 0.03 |
| Control Delay (s/veh) | 46.8 | 2.5 | 58.8 | 0.1 | | 7.5 | 5.8 | 0.1 | 6.7 | 6.8 | 0.2 |
| 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) | 46.8 | 2.5 | 58.8 | 0.1 | | 7.5 | 5.8 | 0.1 | 6.7 | 6.8 | 0.2 |
| LOS | D | A | E | A | | A | A | A | A | A | A |
| Approach Delay (s/veh) | | 29.8 | | 50.9 | | | 5.8 | | | 6.6 | |
| Approach LOS | | C | | D | | | A | | | A | |

| 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: 85 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.49 | |
| Intersection Signal Delay (s/veh): 9.5 | Intersection LOS: A |
| Intersection Capacity Utilization 70.3% | ICU Level of Service C |
| Analysis Period (min) 15 | |

Splits and Phases: 5: Airport Road & Street A/12333 Airport Road



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 141 | 0 | 88 | 45 | 0 | 7 | 2 | 68 | 1013 | 27 | 3 | 914 |
| Future Volume (vph) | 141 | 0 | 88 | 45 | 0 | 7 | 2 | 68 | 1013 | 27 | 3 | 914 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.6 | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 |
| Total Lost time (s) | 3.0 | 8.2 | | 3.0 | 8.2 | | | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | | 1.00 | 0.85 | | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1373 | 1201 | | 1275 | 1633 | | | 1313 | 3318 | 1044 | 1330 | 3147 |
| Flt Permitted | 0.74 | 1.00 | | 1.00 | 1.00 | | | 0.28 | 1.00 | 1.00 | 0.24 | 1.00 |
| Satd. Flow (perm) | 1071 | 1201 | | 1342 | 1633 | | | 383 | 3318 | 1044 | 340 | 3147 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 141 | 0 | 88 | 45 | 0 | 7 | 2 | 68 | 1013 | 27 | 3 | 914 |
| RTOR Reduction (vph) | 0 | 74 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| Lane Group Flow (vph) | 141 | 14 | 0 | 45 | 0 | 0 | 0 | 70 | 1013 | 18 | 3 | 914 |
| Confl. Peds. (#/hr) | | | | | | | | | | 3 | 3 | |
| Heavy Vehicles (%) | 30% | 0% | 36% | 40% | 0% | 0% | 0% | 37% | 10% | 49% | 34% | 16% |
| Turn Type | pm+pt | NA | | pm+pt | NA | | Perm | Perm | NA | Perm | Perm | NA |
| Protected Phases | 3 | 8 | | 7 | 4 | | | | 6 | | | 2 |
| Permitted Phases | 8 | | | 4 | | | 6 | 6 | | 6 | 2 | |
| Actuated Green, G (s) | 27.2 | 18.6 | | 8.0 | 2.4 | | | 78.0 | 78.0 | 78.0 | 78.0 | 78.0 |
| Effective Green, g (s) | 27.2 | 18.6 | | 8.0 | 2.4 | | | 78.0 | 78.0 | 78.0 | 78.0 | 78.0 |
| Actuated g/C Ratio | 0.23 | 0.16 | | 0.07 | 0.02 | | | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 |
| Clearance Time (s) | 3.0 | 8.2 | | 3.0 | 8.2 | | | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 |
| 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) | 297 | 186 | | 86 | 32 | | | 248 | 2156 | 678 | 221 | 2045 |
| v/s Ratio Prot | c0.09 | 0.01 | | c0.02 | 0.00 | | | | c0.31 | | | 0.29 |
| v/s Ratio Perm | c0.02 | | | 0.01 | | | | 0.18 | | 0.02 | 0.01 | |
| v/c Ratio | 0.47 | 0.07 | | 0.52 | 0.00 | | | 0.28 | 0.47 | 0.03 | 0.01 | 0.45 |
| Uniform Delay, d1 | 40.0 | 43.3 | | 54.2 | 57.6 | | | 9.0 | 10.6 | 7.5 | 7.4 | 10.4 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 0.68 | 0.66 | 1.00 | 1.02 | 0.79 |
| Incremental Delay, d2 | 1.2 | 0.2 | | 5.6 | 0.1 | | | 2.6 | 0.7 | 0.1 | 0.1 | 0.7 |
| Delay (s) | 41.2 | 43.5 | | 59.8 | 57.7 | | | 8.7 | 7.6 | 7.5 | 7.7 | 8.9 |
| Level of Service | D | D | | E | E | | | A | A | A | A | A |
| Approach Delay (s/veh) | | 42.1 | | | 59.5 | | | | 7.7 | | | 8.8 |
| Approach LOS | | D | | | E | | | | A | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 12.7 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.48 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 17.8 |
| Intersection Capacity Utilization | 70.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

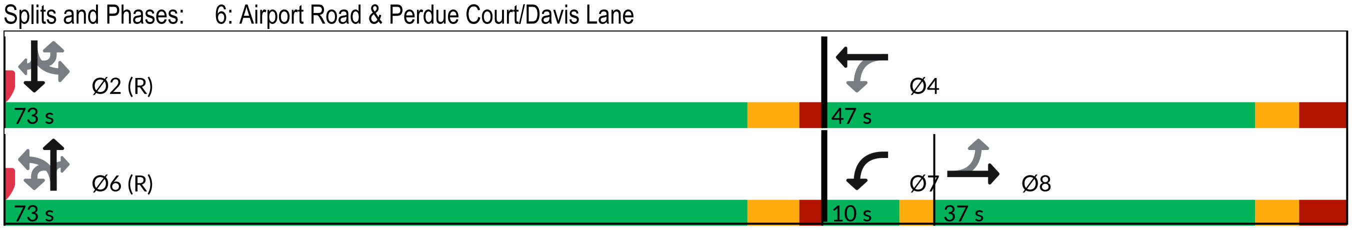
| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 29 |
| Future Volume (vph) | 29 |
| Ideal Flow (vphpl) | 1900 |
| Lane Width | 3.5 |
| Total Lost time (s) | 6.6 |
| Lane Util. Factor | 1.00 |
| Frpb, ped/bikes | 1.00 |
| Flpb, ped/bikes | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1248 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1248 |
| Peak-hour factor, PHF | 1.00 |
| Adj. Flow (vph) | 29 |
| RTOR Reduction (vph) | 10 |
| Lane Group Flow (vph) | 19 |
| Confl. Peds. (#/hr) | |
| Heavy Vehicles (%) | 28% |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 2 |
| Actuated Green, G (s) | 78.0 |
| Effective Green, g (s) | 78.0 |
| Actuated g/C Ratio | 0.65 |
| Clearance Time (s) | 6.6 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 811 |
| v/s Ratio Prot | |
| v/s Ratio Perm | 0.02 |
| v/c Ratio | 0.02 |
| Uniform Delay, d1 | 7.5 |
| Progression Factor | 1.00 |
| Incremental Delay, d2 | 0.1 |
| Delay (s) | 7.5 |
| Level of Service | A |
| Approach Delay (s/veh) | |
| Approach LOS | |

| Intersection Summary |
|---|

| Lane Group | EBL | EBT | WBL | WBT | NBU | NBL | NBT | NBR | SBU | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 6 | 0 | 80 | 0 | 3 | 36 | 1150 | 49 | 8 | 20 | 1037 | 9 |
| Future Volume (vph) | 6 | 0 | 80 | 0 | 3 | 36 | 1150 | 49 | 8 | 20 | 1037 | 9 |
| Turn Type | Perm | NA | pm+pt | NA | Perm | Perm | NA | Perm | Perm | Perm | NA | Perm |
| Protected Phases | | 8 | 7 | 4 | | | 6 | | | | 2 | |
| Permitted Phases | 8 | | 4 | | 6 | 6 | | 6 | 2 | 2 | | 2 |
| Detector Phase | 8 | 8 | 7 | 4 | 6 | 6 | 6 | 6 | 2 | 2 | 2 | 2 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 12.0 | 12.0 | 5.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| Minimum Split (s) | 36.2 | 36.2 | 9.5 | 37.2 | 35.6 | 35.6 | 35.6 | 35.6 | 35.6 | 35.6 | 35.6 | 35.6 |
| Total Split (s) | 37.0 | 37.0 | 10.0 | 47.0 | 73.0 | 73.0 | 73.0 | 73.0 | 73.0 | 73.0 | 73.0 | 73.0 |
| Total Split (%) | 30.8% | 30.8% | 8.3% | 39.2% | 60.8% | 60.8% | 60.8% | 60.8% | 60.8% | 60.8% | 60.8% | 60.8% |
| Yellow Time (s) | 4.0 | 4.0 | 3.0 | 4.0 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 | 4.6 |
| All-Red Time (s) | 4.2 | 4.2 | 0.0 | 4.2 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 8.2 | 8.2 | 3.0 | 8.2 | | 6.6 | 6.6 | 6.6 | | 6.6 | 6.6 | 6.6 |
| 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 | C-Max | C-Max | C-Max | C-Max |
| Act Effct Green (s) | 12.0 | 12.0 | 23.1 | 20.0 | | 90.6 | 90.6 | 90.6 | | 90.6 | 90.6 | 90.6 |
| Actuated g/C Ratio | 0.10 | 0.10 | 0.19 | 0.17 | | 0.76 | 0.76 | 0.76 | | 0.76 | 0.76 | 0.76 |
| v/c Ratio | 0.04 | 0.22 | 0.36 | 0.03 | | 0.17 | 0.47 | 0.08 | | 0.15 | 0.44 | 0.01 |
| Control Delay (s/veh) | 49.8 | 1.8 | 43.7 | 0.1 | | 8.8 | 8.3 | 0.8 | | 10.6 | 8.1 | 0.0 |
| 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) | 49.8 | 1.8 | 43.7 | 0.1 | | 8.8 | 8.3 | 0.8 | | 10.6 | 8.1 | 0.0 |
| LOS | D | A | D | A | | A | A | A | | B | A | A |
| Approach Delay (s/veh) | | 6.1 | | 39.7 | | | 8.0 | | | | 8.1 | |
| Approach LOS | | A | | D | | | A | | | | A | |

| 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: 85 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.47 | |
| Intersection Signal Delay (s/veh): 9.1 | Intersection LOS: A |
| Intersection Capacity Utilization 62.0% | ICU Level of Service B |
| Analysis Period (min) 15 | |

Splits and Phases: 6: Airport Road & Perdue Court/Davis Lane



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBU | NBL | NBT | NBR | SBU | SBL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 6 | 0 | 61 | 80 | 0 | 8 | 3 | 36 | 1150 | 49 | 8 | 20 |
| Future Volume (vph) | 6 | 0 | 61 | 80 | 0 | 8 | 3 | 36 | 1150 | 49 | 8 | 20 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.6 | 3.5 | 3.7 | 3.5 | 3.6 | 3.5 |
| Total Lost time (s) | 8.2 | 8.2 | | 3.0 | 8.2 | | | 6.6 | 6.6 | 6.6 | | 6.6 |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 0.95 | 1.00 | | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 0.96 | | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | | 1.00 |
| Frt | 1.00 | 0.85 | | 1.00 | 0.85 | | | 1.00 | 1.00 | 0.85 | | 1.00 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.95 | 1.00 | 1.00 | | 0.95 |
| Satd. Flow (prot) | 1785 | 1458 | | 1638 | 1445 | | | 1122 | 3259 | 829 | | 1082 |
| Flt Permitted | 0.75 | 1.00 | | 0.55 | 1.00 | | | 0.25 | 1.00 | 1.00 | | 0.22 |
| Satd. Flow (perm) | 1414 | 1458 | | 942 | 1445 | | | 297 | 3259 | 829 | | 248 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 6 | 0 | 61 | 80 | 0 | 8 | 3 | 36 | 1150 | 49 | 8 | 20 |
| RTOR Reduction (vph) | 0 | 56 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 13 | 0 | 0 |
| Lane Group Flow (vph) | 6 | 5 | 0 | 80 | 1 | 0 | 0 | 39 | 1150 | 36 | 0 | 28 |
| Confl. Peds. (#/hr) | | | | | | | | | | 12 | | 12 |
| Heavy Vehicles (%) | 0% | 0% | 12% | 9% | 0% | 13% | 0% | 64% | 12% | 84% | 0% | 90% |
| Turn Type | Perm | NA | | pm+pt | NA | | Perm | Perm | NA | Perm | Perm | Perm |
| Protected Phases | | 8 | | 7 | 4 | | | | 6 | | | |
| Permitted Phases | 8 | | | 4 | | | 6 | 6 | | 6 | 2 | 2 |
| Actuated Green, G (s) | 9.6 | 9.6 | | 18.2 | 18.2 | | | 87.0 | 87.0 | 87.0 | | 87.0 |
| Effective Green, g (s) | 9.6 | 9.6 | | 18.2 | 18.2 | | | 87.0 | 87.0 | 87.0 | | 87.0 |
| Actuated g/C Ratio | 0.08 | 0.08 | | 0.15 | 0.15 | | | 0.73 | 0.73 | 0.73 | | 0.73 |
| Clearance Time (s) | 8.2 | 8.2 | | 3.0 | 8.2 | | | 6.6 | 6.6 | 6.6 | | 6.6 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | 3.0 | 3.0 | | 3.0 |
| Lane Grp Cap (vph) | 113 | 116 | | 175 | 219 | | | 215 | 2362 | 601 | | 179 |
| v/s Ratio Prot | | 0.00 | | c0.02 | 0.00 | | | | c0.35 | | | |
| v/s Ratio Perm | 0.00 | | | c0.05 | | | | 0.13 | | 0.04 | | 0.11 |
| v/c Ratio | 0.05 | 0.04 | | 0.46 | 0.01 | | | 0.18 | 0.49 | 0.06 | | 0.16 |
| Uniform Delay, d1 | 51.0 | 51.0 | | 45.4 | 43.2 | | | 5.2 | 7.0 | 4.7 | | 5.1 |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | | 1.28 |
| Incremental Delay, d2 | 0.2 | 0.1 | | 1.9 | 0.0 | | | 1.8 | 0.7 | 0.2 | | 1.7 |
| Delay (s) | 51.2 | 51.1 | | 47.3 | 43.2 | | | 7.1 | 7.7 | 4.9 | | 8.3 |
| Level of Service | D | D | | D | D | | | A | A | A | | A |
| Approach Delay (s/veh) | | 51.1 | | | 47.0 | | | | 7.6 | | | |
| Approach LOS | | D | | | D | | | | A | | | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 10.2 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.49 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 17.8 |
| Intersection Capacity Utilization | 62.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

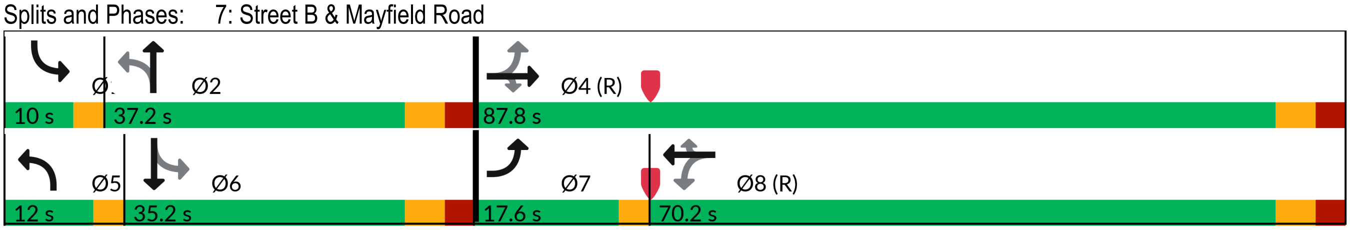
| Movement | SBT | SBR |
|---|---|---|
| Lane Configurations | | |
| Traffic Volume (vph) | 1037 | 9 |
| Future Volume (vph) | 1037 | 9 |
| Ideal Flow (vphpl) | 1900 | 1900 |
| Lane Width | 3.7 | 3.5 |
| Total Lost time (s) | 6.6 | 6.6 |
| Lane Util. Factor | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 |
| Satd. Flow (prot) | 3147 | 845 |
| Flt Permitted | 1.00 | 1.00 |
| Satd. Flow (perm) | 3147 | 845 |
| Peak-hour factor, PHF | 1.00 | 1.00 |
| Adj. Flow (vph) | 1037 | 9 |
| RTOR Reduction (vph) | 0 | 2 |
| Lane Group Flow (vph) | 1037 | 7 |
| Confl. Peds. (#/hr) | | |
| Heavy Vehicles (%) | 16% | 89% |
| Turn Type | NA | Perm |
| Protected Phases | 2 | |
| Permitted Phases | | 2 |
| Actuated Green, G (s) | 87.0 | 87.0 |
| Effective Green, g (s) | 87.0 | 87.0 |
| Actuated g/C Ratio | 0.73 | 0.73 |
| Clearance Time (s) | 6.6 | 6.6 |
| Vehicle Extension (s) | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 2281 | 612 |
| v/s Ratio Prot | 0.33 | |
| v/s Ratio Perm | | 0.01 |
| v/c Ratio | 0.45 | 0.01 |
| Uniform Delay, d1 | 6.8 | 4.6 |
| Progression Factor | 1.03 | 1.00 |
| Incremental Delay, d2 | 0.6 | 0.0 |
| Delay (s) | 7.6 | 4.6 |
| Level of Service | A | A |
| Approach Delay (s/veh) | 7.6 | |
| Approach LOS | A | |

Intersection Summary

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | |
| Traffic Volume (vph) | 94 | 1541 | 98 | 41 | 1745 | 41 | 104 | 0 | 95 | 0 |
| Future Volume (vph) | 94 | 1541 | 98 | 41 | 1745 | 41 | 104 | 0 | 95 | 0 |
| Turn Type | pm+pt | NA | Perm | Perm | NA | Perm | pm+pt | NA | pm+pt | NA |
| Protected Phases | 7 | 4 | | | 8 | | 5 | 2 | 1 | 6 |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | 6 | |
| Detector Phase | 7 | 4 | 4 | 8 | 8 | 8 | 5 | 2 | 1 | 6 |
| Switch Phase | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 5.0 | 12.0 | 5.0 | 12.0 |
| Minimum Split (s) | 9.5 | 25.1 | 25.1 | 25.1 | 25.1 | 25.1 | 9.5 | 24.9 | 9.5 | 24.9 |
| Total Split (s) | 17.6 | 87.8 | 87.8 | 70.2 | 70.2 | 70.2 | 12.0 | 37.2 | 10.0 | 35.2 |
| Total Split (%) | 13.0% | 65.0% | 65.0% | 52.0% | 52.0% | 52.0% | 8.9% | 27.6% | 7.4% | 26.1% |
| Yellow Time (s) | 3.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 3.0 | 4.0 | 3.0 | 4.0 |
| All-Red Time (s) | 0.0 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 | 0.0 | 2.9 | 0.0 | 2.9 |
| 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 | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 | 3.0 | 6.9 | 3.0 | 6.9 |
| Lead/Lag | Lead | | | Lag | Lag | Lag | Lead | Lag | Lead | Lag |
| Lead-Lag Optimize? | Yes | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Recall Mode | None | C-Max | C-Max | C-Max | C-Max | C-Max | None | None | None | None |
| Act Effct Green (s) | 98.5 | 94.4 | 94.4 | 82.6 | 82.6 | 82.6 | 22.4 | 16.0 | 27.5 | 14.8 |
| Actuated g/C Ratio | 0.73 | 0.70 | 0.70 | 0.61 | 0.61 | 0.61 | 0.17 | 0.12 | 0.20 | 0.11 |
| v/c Ratio | 0.54 | 0.48 | 0.09 | 0.23 | 0.60 | 0.05 | 0.57 | 0.09 | 0.37 | 0.76 |
| Control Delay (s/veh) | 21.3 | 10.2 | 3.8 | 15.0 | 15.8 | 0.4 | 57.9 | 0.7 | 47.2 | 24.5 |
| 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) | 21.3 | 10.2 | 3.8 | 15.0 | 15.8 | 0.4 | 57.9 | 0.7 | 47.2 | 24.5 |
| LOS | C | B | A | B | B | A | E | A | D | C |
| Approach Delay (s/veh) | | 10.4 | | | 15.4 | | | 47.5 | | 30.6 |
| Approach LOS | | B | | | B | | | D | | C |

| Intersection Summary | |
|---|---|
| Cycle Length: 135 | |
| Actuated Cycle Length: 135 | |
| Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green | |
| Natural Cycle: 80 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.76 | |
| Intersection Signal Delay (s/veh): 15.6 | Intersection LOS: B |
| Intersection Capacity Utilization 82.7% | ICU Level of Service E |
| Analysis Period (min) 15 | |

Splits and Phases: 7: Street B & Mayfield Road



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 94 | 1541 | 98 | 41 | 1745 | 41 | 104 | 0 | 23 | 95 | 0 | 262 |
| Future Volume (vph) | 94 | 1541 | 98 | 41 | 1745 | 41 | 104 | 0 | 23 | 95 | 0 | 262 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 |
| Total Lost time (s) | 3.0 | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 | 3.0 | 6.9 | | 3.0 | 6.9 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 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 | 0.85 | | 1.00 | 0.85 | |
| 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) | 1394 | 4641 | 1597 | 1785 | 4725 | 1298 | 1785 | 1633 | | 1539 | 1276 | |
| Flt Permitted | 0.09 | 1.00 | 1.00 | 0.15 | 1.00 | 1.00 | 0.36 | 1.00 | | 0.59 | 1.00 | |
| Satd. Flow (perm) | 125 | 4641 | 1597 | 288 | 4725 | 1298 | 671 | 1633 | | 948 | 1276 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 94 | 1541 | 98 | 41 | 1745 | 41 | 104 | 0 | 23 | 95 | 0 | 262 |
| RTOR Reduction (vph) | 0 | 0 | 18 | 0 | 0 | 17 | 0 | 21 | 0 | 0 | 202 | 0 |
| Lane Group Flow (vph) | 94 | 1541 | 80 | 41 | 1745 | 24 | 104 | 2 | 0 | 95 | 60 | 0 |
| Heavy Vehicles (%) | 28% | 13% | 0% | 0% | 11% | 23% | 0% | 0% | 0% | 16% | 0% | 28% |
| Turn Type | pm+pt | NA | Perm | Perm | NA | Perm | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 91.6 | 91.6 | 91.6 | 79.9 | 79.9 | 79.9 | 20.0 | 11.2 | | 29.4 | 17.6 | |
| Effective Green, g (s) | 91.6 | 91.6 | 91.6 | 79.9 | 79.9 | 79.9 | 20.0 | 11.2 | | 29.4 | 17.6 | |
| Actuated g/C Ratio | 0.68 | 0.68 | 0.68 | 0.59 | 0.59 | 0.59 | 0.15 | 0.08 | | 0.22 | 0.13 | |
| Clearance Time (s) | 3.0 | 7.1 | 7.1 | 7.1 | 7.1 | 7.1 | 3.0 | 6.9 | | 3.0 | 6.9 | |
| 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) | 166 | 3149 | 1083 | 170 | 2796 | 768 | 172 | 135 | | 272 | 166 | |
| v/s Ratio Prot | c0.04 | 0.33 | | | c0.37 | | c0.04 | 0.00 | | c0.04 | 0.05 | |
| v/s Ratio Perm | 0.35 | | 0.05 | 0.14 | | 0.02 | c0.05 | | | 0.04 | | |
| v/c Ratio | 0.57 | 0.49 | 0.07 | 0.24 | 0.62 | 0.03 | 0.60 | 0.01 | | 0.35 | 0.36 | |
| Uniform Delay, d1 | 12.7 | 10.4 | 7.3 | 13.1 | 17.8 | 11.5 | 52.2 | 56.8 | | 44.1 | 53.6 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 0.81 | 0.87 | 1.22 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.4 | 0.5 | 0.1 | 2.1 | 0.7 | 0.0 | 5.9 | 0.0 | | 0.8 | 1.4 | |
| Delay (s) | 17.1 | 11.0 | 7.5 | 12.7 | 16.2 | 14.0 | 58.1 | 56.9 | | 44.8 | 54.9 | |
| Level of Service | B | B | A | B | B | B | E | E | | D | D | |
| Approach Delay (s/veh) | | 11.1 | | | 16.0 | | | 57.9 | | | 52.2 | |
| Approach LOS | | B | | | B | | | E | | | D | |

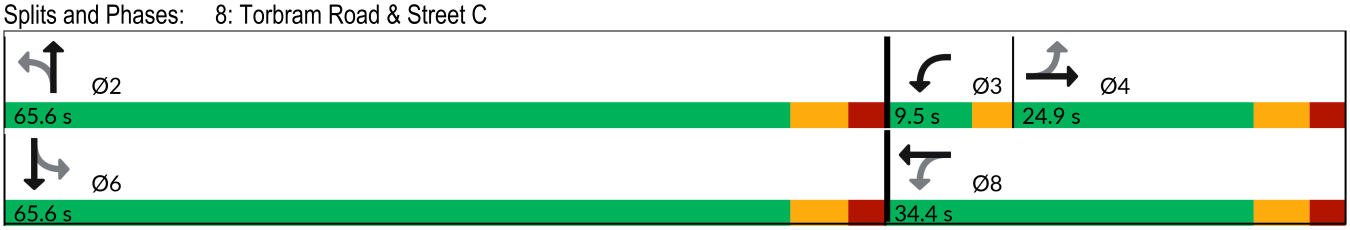
| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 18.4 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.60 | | |
| Actuated Cycle Length (s) | 135.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 82.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | |
| Traffic Volume (vph) | 10 | 0 | 109 | 0 | 540 | 524 | 9 | 366 |
| Future Volume (vph) | 10 | 0 | 109 | 0 | 540 | 524 | 9 | 366 |
| 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) | 12.0 | 12.0 | 5.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| Minimum Split (s) | 24.9 | 24.9 | 9.5 | 24.9 | 24.9 | 24.9 | 24.9 | 24.9 |
| Total Split (s) | 24.9 | 24.9 | 9.5 | 34.4 | 65.6 | 65.6 | 65.6 | 65.6 |
| Total Split (%) | 24.9% | 24.9% | 9.5% | 34.4% | 65.6% | 65.6% | 65.6% | 65.6% |
| Yellow Time (s) | 4.2 | 4.2 | 3.0 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 |
| All-Red Time (s) | 2.7 | 2.7 | 0.0 | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 6.9 | 6.9 | 3.0 | 6.9 | 6.9 | 6.9 | 6.9 | 6.9 |
| Lead/Lag | Lag | Lag | Lead | | | | | |
| Lead-Lag Optimize? | Yes | Yes | Yes | | | | | |
| Recall Mode | None | None | None | None | Max | Max | Max | Max |
| Act Effct Green (s) | 12.0 | 12.0 | 25.4 | 21.5 | 58.7 | 58.7 | 58.7 | 58.7 |
| Actuated g/C Ratio | 0.13 | 0.13 | 0.27 | 0.23 | 0.62 | 0.62 | 0.62 | 0.62 |
| v/c Ratio | 0.06 | 0.38 | 0.49 | 0.07 | 0.89 | 0.26 | 0.02 | 0.18 |
| Control Delay (s/veh) | 37.1 | 1.7 | 34.7 | 0.2 | 35.3 | 8.0 | 6.9 | 7.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 37.1 | 1.7 | 34.7 | 0.2 | 35.3 | 8.0 | 6.9 | 7.4 |
| LOS | D | A | C | A | D | A | A | A |
| Approach Delay (s/veh) | | 3.2 | | 24.3 | | 21.2 | | 7.4 |
| Approach LOS | | A | | C | | C | | A |

| Intersection Summary | |
|---|---|
| Cycle Length: 100 | |
| Actuated Cycle Length: 94 | |
| Natural Cycle: 90 | |
| Control Type: Semi Act-Uncoord | |
| Maximum v/c Ratio: 0.89 | |
| Intersection Signal Delay (s/veh): 16.2 | Intersection LOS: B |
| Intersection Capacity Utilization 84.1% | ICU Level of Service E |
| Analysis Period (min) 15 | |

Splits and Phases: 8: Torbram Road & Street C



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 10 | 0 | 235 | 109 | 0 | 47 | 540 | 524 | 51 | 9 | 366 | 35 |
| Future Volume (vph) | 10 | 0 | 235 | 109 | 0 | 47 | 540 | 524 | 51 | 9 | 366 | 35 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 |
| Total Lost time (s) | 6.9 | 6.9 | | 3.0 | 6.9 | | 6.9 | 6.9 | | 6.9 | 6.9 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frt | 1.00 | 0.85 | | 1.00 | 0.85 | | 1.00 | 0.99 | | 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) | 1785 | 1633 | | 1785 | 1633 | | 1785 | 3569 | | 1785 | 3506 | |
| Flt Permitted | 0.73 | 1.00 | | 0.27 | 1.00 | | 0.52 | 1.00 | | 0.43 | 1.00 | |
| Satd. Flow (perm) | 1365 | 1633 | | 505 | 1633 | | 969 | 3569 | | 815 | 3506 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 10 | 0 | 235 | 109 | 0 | 47 | 540 | 524 | 51 | 9 | 366 | 35 |
| RTOR Reduction (vph) | 0 | 205 | 0 | 0 | 36 | 0 | 0 | 7 | 0 | 0 | 6 | 0 |
| Lane Group Flow (vph) | 10 | 30 | 0 | 109 | 11 | 0 | 540 | 568 | 0 | 9 | 395 | 0 |
| Heavy Vehicles (%) | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 0% | 3% | 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) | 12.0 | 12.0 | | 21.5 | 21.5 | | 58.7 | 58.7 | | 58.7 | 58.7 | |
| Effective Green, g (s) | 12.0 | 12.0 | | 21.5 | 21.5 | | 58.7 | 58.7 | | 58.7 | 58.7 | |
| Actuated g/C Ratio | 0.13 | 0.13 | | 0.23 | 0.23 | | 0.62 | 0.62 | | 0.62 | 0.62 | |
| Clearance Time (s) | 6.9 | 6.9 | | 3.0 | 6.9 | | 6.9 | 6.9 | | 6.9 | 6.9 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 174 | 208 | | 204 | 373 | | 605 | 2228 | | 508 | 2189 | |
| v/s Ratio Prot | | 0.02 | | c0.04 | 0.01 | | | 0.16 | | | 0.11 | |
| v/s Ratio Perm | 0.01 | | | c0.09 | | | c0.56 | | | 0.01 | | |
| v/c Ratio | 0.06 | 0.14 | | 0.53 | 0.03 | | 0.89 | 0.26 | | 0.02 | 0.18 | |
| Uniform Delay, d1 | 36.0 | 36.4 | | 30.2 | 28.1 | | 15.0 | 7.9 | | 6.7 | 7.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.1 | 0.3 | | 2.7 | 0.0 | | 18.0 | 0.3 | | 0.1 | 0.2 | |
| Delay (s) | 36.2 | 36.8 | | 32.9 | 28.2 | | 33.0 | 8.2 | | 6.8 | 7.6 | |
| Level of Service | D | D | | C | C | | C | A | | A | A | |
| Approach Delay (s/veh) | | 36.7 | | | 31.5 | | | 20.2 | | | 7.6 | |
| Approach LOS | | D | | | C | | | C | | | A | |

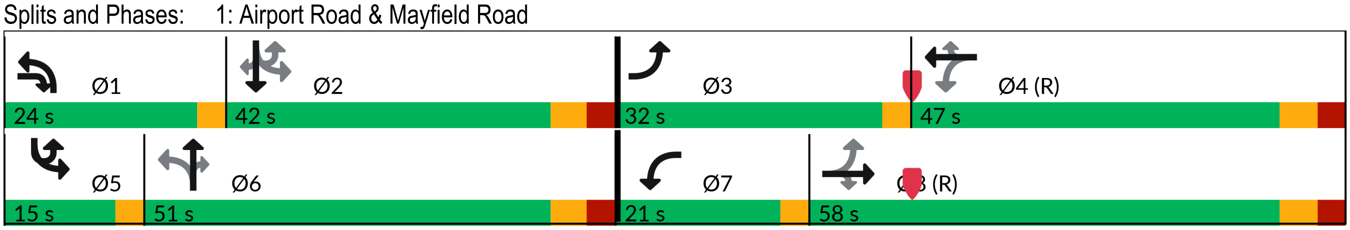
| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 20.5 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.82 | | |
| Actuated Cycle Length (s) | 94.0 | Sum of lost time (s) | 16.8 |
| Intersection Capacity Utilization | 84.1% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBU | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 377 | 750 | 281 | 227 | 967 | 84 | 351 | 741 | 113 | 1 | 159 | 618 |
| Future Volume (vph) | 377 | 750 | 281 | 227 | 967 | 84 | 351 | 741 | 113 | 1 | 159 | 618 |
| Turn Type | pm+pt | NA | pm+ov | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | pm+pt | NA |
| Protected Phases | 3 | 8 | 1 | 7 | 4 | | 1 | 6 | | 5 | 5 | 2 |
| Permitted Phases | 8 | | 8 | 4 | | 4 | 6 | | 6 | 2 | 2 | |
| Detector Phase | 3 | 8 | 1 | 7 | 4 | 4 | 1 | 6 | 6 | 5 | 5 | 2 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 12.0 | 5.0 | 5.0 | 12.0 | 12.0 | 5.0 | 12.0 | 12.0 | 5.0 | 5.0 | 12.0 |
| Minimum Split (s) | 8.0 | 46.1 | 8.0 | 8.0 | 46.1 | 46.1 | 8.0 | 41.9 | 41.9 | 8.0 | 8.0 | 41.9 |
| Total Split (s) | 32.0 | 58.0 | 24.0 | 21.0 | 47.0 | 47.0 | 24.0 | 51.0 | 51.0 | 15.0 | 15.0 | 42.0 |
| Total Split (%) | 22.1% | 40.0% | 16.6% | 14.5% | 32.4% | 32.4% | 16.6% | 35.2% | 35.2% | 10.3% | 10.3% | 29.0% |
| Yellow Time (s) | 3.0 | 4.0 | 3.0 | 3.0 | 4.0 | 4.0 | 3.0 | 4.0 | 4.0 | 3.0 | 3.0 | 4.0 |
| All-Red Time (s) | 0.0 | 3.1 | 0.0 | 0.0 | 3.1 | 3.1 | 0.0 | 2.9 | 2.9 | 0.0 | 0.0 | 2.9 |
| Lost Time Adjust (s) | 0.0 | 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 | 7.1 | 3.0 | 3.0 | 7.1 | 7.1 | 3.0 | 6.9 | 6.9 | | 3.0 | 6.9 |
| Lead/Lag | Lead | Lag | Lead | Lead | Lag | Lag | Lead | Lag | Lag | Lead | Lead | Lag |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Recall Mode | None | C-Max | None | None | C-Max | C-Max | None | Max | Max | None | None | Max |
| Act Effct Green (s) | 76.0 | 53.8 | 78.9 | 59.1 | 39.9 | 39.9 | 63.0 | 44.5 | 44.5 | | 50.6 | 35.1 |
| Actuated g/C Ratio | 0.52 | 0.37 | 0.54 | 0.41 | 0.28 | 0.28 | 0.43 | 0.31 | 0.31 | | 0.35 | 0.24 |
| v/c Ratio | 1.04 | 0.41 | 0.32 | 0.64 | 0.67 | 0.23 | 1.02 | 0.73 | 0.26 | | 0.75 | 0.76 |
| Control Delay (s/veh) | 94.5 | 35.2 | 10.1 | 29.4 | 49.6 | 3.6 | 86.0 | 50.3 | 10.6 | | 51.4 | 58.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 |
| Total Delay (s/veh) | 94.5 | 35.2 | 10.1 | 29.4 | 49.6 | 3.6 | 86.0 | 50.3 | 10.6 | | 51.4 | 58.2 |
| LOS | F | D | B | C | D | A | F | D | B | | D | E |
| Approach Delay (s/veh) | | 46.1 | | | 43.0 | | | 57.0 | | | | 44.6 |
| Approach LOS | | D | | | D | | | E | | | | D |

| Intersection Summary | |
|---|---|
| Cycle Length: 145 | |
| Actuated Cycle Length: 145 | |
| Offset: 0 (0%), Referenced to phase 4:WBTL and 8:EBTL, Start of Green | |
| Natural Cycle: 135 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 1.04 | |
| Intersection Signal Delay (s/veh): 47.5 | Intersection LOS: D |
| Intersection Capacity Utilization 120.3% | ICU Level of Service H |
| Analysis Period (min) 15 | |

Splits and Phases: 1: Airport Road & Mayfield Road



| Lane Group | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 483 |
| Future Volume (vph) | 483 |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 2 |
| Detector Phase | 2 |
| Switch Phase | |
| Minimum Initial (s) | 12.0 |
| Minimum Split (s) | 41.9 |
| Total Split (s) | 42.0 |
| Total Split (%) | 29.0% |
| Yellow Time (s) | 4.0 |
| All-Red Time (s) | 2.9 |
| Lost Time Adjust (s) | 0.0 |
| Total Lost Time (s) | 6.9 |
| Lead/Lag | Lag |
| Lead-Lag Optimize? | Yes |
| Recall Mode | Max |
| Act Effct Green (s) | 35.1 |
| Actuated g/C Ratio | 0.24 |
| v/c Ratio | 0.82 |
| Control Delay (s/veh) | 25.0 |
| Queue Delay | 0.0 |
| Total Delay (s/veh) | 25.0 |
| LOS | C |
| Approach Delay (s/veh) | |
| Approach LOS | |

| Intersection Summary |
|---|

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBU | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 377 | 750 | 281 | 227 | 967 | 84 | 351 | 741 | 113 | 1 | 159 | 618 |
| Future Volume (vph) | 377 | 750 | 281 | 227 | 967 | 84 | 351 | 741 | 113 | 1 | 159 | 618 |
| Ideal Flow (vphpl) | 1900 | 2000 | 1900 | 1900 | 2000 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 | 3.5 | 3.5 | 3.7 | 3.5 | 3.6 | 3.5 | 3.7 |
| Total Lost time (s) | 3.0 | 7.1 | 3.0 | 3.0 | 7.1 | 7.1 | 3.0 | 6.9 | 6.9 | | 3.0 | 6.9 |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.95 | 1.00 | | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.96 | | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 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 | 0.85 | 1.00 | 1.00 | 0.85 | | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (prot) | 1463 | 4886 | 1495 | 1635 | 5208 | 1033 | 1683 | 3288 | 1178 | | 1416 | 3349 |
| Flt Permitted | 0.14 | 1.00 | 1.00 | 0.36 | 1.00 | 1.00 | 0.19 | 1.00 | 1.00 | | 0.25 | 1.00 |
| Satd. Flow (perm) | 217 | 4886 | 1495 | 612 | 5208 | 1033 | 345 | 3288 | 1178 | | 371 | 3349 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 377 | 750 | 281 | 227 | 967 | 84 | 351 | 741 | 113 | 1 | 159 | 618 |
| RTOR Reduction (vph) | 0 | 0 | 62 | 0 | 0 | 61 | 0 | 0 | 69 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 377 | 750 | 219 | 227 | 967 | 23 | 351 | 741 | 44 | 0 | 160 | 618 |
| Confl. Peds. (#/hr) | 4 | | 11 | 11 | | 4 | 7 | | 24 | | 24 | |
| Heavy Vehicles (%) | 22% | 13% | 5% | 9% | 6% | 52% | 6% | 11% | 30% | 0% | 26% | 9% |
| Turn Type | pm+pt | NA | pm+ov | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | pm+pt | NA |
| Protected Phases | 3 | 8 | 1 | 7 | 4 | | 1 | 6 | | 5 | 5 | 2 |
| Permitted Phases | 8 | | 8 | 4 | | 4 | 6 | | 6 | 2 | 2 | |
| Actuated Green, G (s) | 71.9 | 53.8 | 74.8 | 55.0 | 39.9 | 39.9 | 59.1 | 44.5 | 44.5 | | 46.7 | 35.1 |
| Effective Green, g (s) | 71.9 | 53.8 | 74.8 | 55.0 | 39.9 | 39.9 | 59.1 | 44.5 | 44.5 | | 46.7 | 35.1 |
| Actuated g/C Ratio | 0.50 | 0.37 | 0.52 | 0.38 | 0.28 | 0.28 | 0.41 | 0.31 | 0.31 | | 0.32 | 0.24 |
| Clearance Time (s) | 3.0 | 7.1 | 3.0 | 3.0 | 7.1 | 7.1 | 3.0 | 6.9 | 6.9 | | 3.0 | 6.9 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 356 | 1812 | 771 | 338 | 1433 | 284 | 334 | 1009 | 361 | | 203 | 810 |
| v/s Ratio Prot | c0.21 | 0.15 | 0.04 | 0.07 | 0.19 | | c0.15 | 0.23 | | | 0.06 | 0.18 |
| v/s Ratio Perm | c0.31 | | 0.11 | 0.18 | | 0.02 | c0.28 | | 0.04 | | 0.19 | |
| v/c Ratio | 1.06 | 0.41 | 0.28 | 0.67 | 0.67 | 0.08 | 1.05 | 0.73 | 0.12 | | 0.79 | 0.76 |
| Uniform Delay, d1 | 40.3 | 33.9 | 19.9 | 32.4 | 46.8 | 39.0 | 34.6 | 45.0 | 36.2 | | 39.1 | 51.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 64.1 | 0.7 | 0.2 | 5.2 | 2.6 | 0.6 | 63.2 | 4.7 | 0.7 | | 18.1 | 6.7 |
| Delay (s) | 104.4 | 34.6 | 20.1 | 37.6 | 49.3 | 39.5 | 97.8 | 49.7 | 36.9 | | 57.2 | 57.8 |
| Level of Service | F | C | C | D | D | D | F | D | D | | E | E |
| Approach Delay (s/veh) | | 50.4 | | | 46.6 | | | 62.5 | | | | 58.6 |
| Approach LOS | | D | | | D | | | E | | | | E |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 54.3 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 1.10 | | |
| Actuated Cycle Length (s) | 145.0 | Sum of lost time (s) | 20.0 |
| Intersection Capacity Utilization | 120.3% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 483 |
| Future Volume (vph) | 483 |
| Ideal Flow (vphpl) | 1900 |
| Lane Width | 3.5 |
| Total Lost time (s) | 6.9 |
| Lane Util. Factor | 1.00 |
| Frpb, ped/bikes | 0.98 |
| Flpb, ped/bikes | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1293 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1293 |
| Peak-hour factor, PHF | 1.00 |
| Adj. Flow (vph) | 483 |
| RTOR Reduction (vph) | 277 |
| Lane Group Flow (vph) | 206 |
| Confl. Peds. (#/hr) | 7 |
| Heavy Vehicles (%) | 21% |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 2 |
| Actuated Green, G (s) | 35.1 |
| Effective Green, g (s) | 35.1 |
| Actuated g/C Ratio | 0.24 |
| Clearance Time (s) | 6.9 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 312 |
| v/s Ratio Prot | |
| v/s Ratio Perm | 0.16 |
| v/c Ratio | 0.66 |
| Uniform Delay, d1 | 49.6 |
| Progression Factor | 1.00 |
| Incremental Delay, d2 | 10.4 |
| Delay (s) | 60.0 |
| Level of Service | E |
| Approach Delay (s/veh) | |
| Approach LOS | |

| Intersection Summary |
|---|

# Junctions 8

## ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]


For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk



**Filename:** Airport_Healey_OldSchool(new_improved).arc8
**Path:** \\Crozier-Files\Projects\2200\2278- Broccolini\7228 - Broccolini Secondary Plan\Design\Traffic\Analysis\Arcady
**Report generation date:** 2025-04-07 12:24:16 PM



## Summary of junction performance

| | AM | | | | | | |
|---|---|---|---|---|---|---|---|
| | Queue (PCU) | 95% Queue (PCU) | Delay (s) | RFC | LOS | Junction Delay (s) | Junction LOS |
| | A1 - FT_2044 | | | | | | |
| Arm 1 | 1.31 | 2.05 | 8.24 | 0.57 | A | 8.93 | A |
| Arm 2 | 0.96 | ~1 | 3.89 | 0.42 | A | | |
| Arm 3 | 0.16 | ~1 | 2.18 | 0.13 | A | | |
| Arm 4 | 8.06 | 28.06 | 11.83 | 0.89 | B | | |

*Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.*

*"D3 - FB_2044, AM" model duration: 8:00 AM - 8:15 AM*
*"D6 - FB_2044, PM" model duration: 5:00 PM - 5:15 PM*
*"D9 - FT_2044, AM " model duration: 8:00 AM - 8:15 AM*
*"D12 - FT_2044, PM" model duration: 5:00 PM - 6:30 PM*

*Run using Junctions 8.0.6.541 at 2025-04-07 12:24:16 PM*

## File summary

| | |
|---|---|
| Title | Airport Road and Healey Road / Old School Road |
| Location | |
| Site Number | |
| Date | 2025-03-31 |
| Version | |
| Status | (new file) |
| Identifier | |
| Client | |
| Jobnumber | |
| Enumerator | ahallsworth |
| Description | |

## Analysis Options

| Vehicle Length (m) | Do Queue Variations | Calculate Residual Capacity | Residual Capacity Criteria Type | RFC Threshold | Average Delay Threshold (s) | Queue Threshold (PCU) |
|---|---|---|---|---|---|---|
| 5.75 | ✓ | | N/A | 0.85 | 36.00 | 20.00 |

## Units

| Distance Units | Speed Units | Traffic Units Input | Traffic Units Results | Flow Units | Average Delay Units | Total Delay Units | Rate Of Delay Units |
|---|---|---|---|---|---|---|---|
| m | kph | Veh | PCU | perHour | s | -Min | perMin |

# (Default Analysis Set) - FT_2044, AM

## Data Errors and Warnings

*No errors or warnings*

## Analysis Set Details

| Name | Roundabout Capacity Model | Description | Include In Report | Use Specific Demand Set(s) | Specific Demand Set (s) | Locked | Network Flow Scaling Factor (%) | Network Capacity Scaling Factor (%) | Reason For Scaling Factors |
|---|---|---|---|---|---|---|---|---|---|
| (Default Analysis Set) | ARCADY | | ✓ | | | | 100.000 | 100.000 | Consistent with Airport Road EA |

## Demand Set Details

| Name | Scenario Name | Time Period Name | Description | Traffic Profile Type | Model Start Time (HH:mm) | Model Finish Time (HH:mm) | Model Time Period Length (min) | Time Segment Length (min) | Results For Central Hour Only | Single Time Segment Only | Locked | Run Automatically | Use Relationship | Relations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FT_2044, AM | FT_2044 | AM | 2031 AM Future Total | PHF | 08:00 | 08:15 | 15 | 15 | | ✓ | | ✓ | | |

# Junction Network

## Junctions

| Junction | Name | Junction Type | Arm Order | Grade Separated | Large Roundabout | Do Geometric Delay | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|---|
| 1 | Roundabout 1 | Roundabout | 1,2,3,4 | | | | 8.93 | A |

## Junction Network Options

| Driving Side | Lighting |
|---|---|
| Right | Normal/unknown |

# Arms

## Arms

| Arm | Arm | Name | Description |
|---|---|---|---|
| 1 | 1 | Old School Road | West Approach |
| 2 | 2 | Airport Road | South Approach |
| 3 | 3 | Healey Road | East Approach |
| 4 | 4 | Airport Road | North Approach |

## Capacity Options

| Arm | Minimum Capacity (PCU/hr) | Maximum Capacity (PCU/hr) | Assume Flat Start Profile | Initial Queue (PCU) |
|---|---|---|---|---|
| 1 | 0.00 | 99999.00 | | 0.00 |
| 2 | 0.00 | 99999.00 | | 0.00 |
| 3 | 0.00 | 99999.00 | | 0.00 |
| 4 | 0.00 | 99999.00 | | 0.00 |

## Roundabout Geometry

| Arm | V - Approach road half-width (m) | E - Entry width (m) | l' - Effective flare length (m) | R - Entry radius (m) | D - Inscribed circle diameter (m) | PHI - Conflict (entry) angle (deg) | Exit Only |
|---|---|---|---|---|---|---|---|
| 1 | 7.40 | 9.80 | 30.00 | 38.00 | 55.00 | 11.00 | |
| 2 | 7.40 | 9.80 | 30.00 | 32.00 | 55.00 | 8.00 | |
| 3 | 7.40 | 10.00 | 30.00 | 28.00 | 55.00 | 26.00 | |
| 4 | 7.40 | 10.00 | 30.00 | 28.00 | 55.00 | 12.00 | |

## Slope / Intercept / Capacity

### Arm Intercept Adjustments

| Arm | Type | Reason | Direct Intercept Adjustment (PCU/hr) | Percentage Intercept Adjustment (%) |
|---|---|---|---|---|
| 1 | Percentage | MTO | | 90.00 |
| 2 | Percentage | MTO | | 90.00 |
| 3 | Percentage | MTO | | 90.00 |
| 4 | Percentage | MTO | | 90.00 |

### Roundabout Slope and Intercept used in model

| Arm | Enter slope and intercept directly | Entered slope | Entered intercept (PCU/hr) | Final Slope | Final Intercept (PCU/hr) |
|---|---|---|---|---|---|
| 1 | | (calculated) | (calculated) | 0.858 | 2765.276 |
| 2 | | (calculated) | (calculated) | 0.863 | 2779.455 |
| 3 | | (calculated) | (calculated) | 0.817 | 2644.722 |
| 4 | | (calculated) | (calculated) | 0.856 | 2769.721 |

*The slope and intercept shown above include any corrections and adjustments.*

# Traffic Flows

## Demand Set Data Options

| Default Vehicle Mix | Vehicle Mix Varies Over Time | Vehicle Mix Varies Over Turn | Vehicle Mix Varies Over Entry | Vehicle Mix Source | PCU Factor for a HV (PCU) | Default Turning Proportions | Estimate from entry/exit counts | Turning Proportions Vary Over Time | Turning Proportions Vary Over Turn | Turning Proportions Vary Over Entry |
|---|---|---|---|---|---|---|---|---|---|---|
| | | ✓ | ✓ | HV Percentages | 2.00 | | | | ✓ | ✓ |

# Entry Flows

## General Flows Data

| Arm | Profile Type | Use Turning Counts | Average Demand Flow (Veh/hr) | Flow Scaling Factor (%) |
|---|---|---|---|---|
| 1 | PHF | ✓ | 559.00 | 100.000 |
| 2 | PHF | ✓ | 653.00 | 100.000 |
| 3 | PHF | ✓ | 254.00 | 100.000 |
| 4 | PHF | ✓ | 2046.00 | 100.000 |

## Peak Hour Factor Data

| Arm | Hourly Volume (Veh/hr) | Peak Hour Factor | Peak Time Segment |
|---|---|---|---|
| 1 | 559.00 | 1.00 | N/A |
| 2 | 653.00 | 1.00 | N/A |
| 3 | 254.00 | 1.00 | N/A |
| 4 | 2046.00 | 1.00 | N/A |

# Turning Proportions

### Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 0.000 | 64.000 | 432.000 | 63.000 |
| | 2 | 13.000 | 0.000 | 120.000 | 520.000 |
| | 3 | 153.000 | 47.000 | 0.000 | 54.000 |
| | 4 | 269.000 | 1531.000 | 246.000 | 0.000 |

### Turning Proportions (Veh) - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 0.00 | 0.11 | 0.77 | 0.11 |
| | 2 | 0.02 | 0.00 | 0.18 | 0.80 |
| | 3 | 0.60 | 0.19 | 0.00 | 0.21 |
| | 4 | 0.13 | 0.75 | 0.12 | 0.00 |

# Vehicle Mix

### Average PCU Per Vehicle - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 1.000 | 1.020 | 1.020 | 1.050 |
| | 2 | 1.090 | 1.000 | 1.070 | 1.430 |
| | 3 | 1.040 | 1.070 | 1.000 | 1.000 |
| | 4 | 1.010 | 1.160 | 1.010 | 1.000 |

### Heavy Vehicle Percentages - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 0.0 | 2.0 | 2.0 | 5.0 |
| | 2 | 9.0 | 0.0 | 7.0 | 43.0 |
| | 3 | 4.0 | 7.0 | 0.0 | 0.0 |
| | 4 | 1.0 | 16.0 | 1.0 | 0.0 |

# Results

## Results Summary for whole modelled period

| Arm | Max RFC | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) | Total Queueing Delay (PCU-min) | Average Queueing Delay (s) | Rate Of Queueing Delay (PCU-min/min) | Inclusive Total Queueing Delay (PCU-min) | Inclusive Average Queueing Delay (s) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.57 | 8.24 | 1.31 | 2.05 | A | 572.07 | 143.02 | 18.54 | 7.78 | 1.24 | 18.59 | 7.80 |
| 2 | 0.42 | 3.89 | 0.96 | ~1 | A | 886.17 | 221.54 | 13.94 | 3.78 | 0.93 | 13.95 | 3.78 |
| 3 | 0.13 | 2.18 | 0.16 | ~1 | A | 263.41 | 65.85 | 2.36 | 2.15 | 0.16 | 2.36 | 2.15 |
| 4 | 0.89 | 11.83 | 8.06 | 28.06 | B | 2296.11 | 574.03 | 102.58 | 10.72 | 6.84 | 103.34 | 10.80 |

## Main Results for each time segment

### Main results: (08:00-08:15)

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Entry Flow (PCU/hr) | Exit Flow (PCU/hr) | Circulating Flow (PCU/hr) | Pedestrian Demand (Ped/hr) | Capacity (PCU/hr) | Saturation Capacity (PCU/hr) | RFC | Start Queue (PCU) | End Queue (PCU) | Delay (s) | LOS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 572.07 | 143.02 | 566.82 | 440.72 | 2046.15 | 0.00 | 1008.99 | 1153.87 | 0.567 | 0.00 | 1.31 | 8.239 | A |
| 2 | 886.17 | 221.54 | 882.35 | 1865.86 | 747.11 | 0.00 | 2134.89 | 1725.67 | 0.415 | 0.00 | 0.96 | 3.889 | A |
| 3 | 263.41 | 65.85 | 262.77 | 809.41 | 820.04 | 0.00 | 1974.64 | 1329.92 | 0.133 | 0.00 | 0.16 | 2.181 | A |
| 4 | 2296.11 | 574.03 | 2263.85 | 859.80 | 223.01 | 0.00 | 2578.88 | 1841.34 | 0.890 | 0.00 | 8.06 | 11.828 | B |

## Queueing Delay Results for each time segment

### Queueing Delay results: (08:00-08:15)

| Arm | Queueing Total Delay (PCU-min) | Queueing Rate Of Delay (PCU-min/min) | Average Delay Per Arriving Vehicle (s) | Unsignalised Level Of Service | Signalised Level Of Service |
|---|---|---|---|---|---|
| 1 | 18.54 | 1.24 | 8.239 | A | A |
| 2 | 13.94 | 0.93 | 3.889 | A | A |
| 3 | 2.36 | 0.16 | 2.181 | A | A |
| 4 | 102.58 | 6.84 | 11.828 | B | B |

## Queue Variation Results for each time segment

### Queue Variation results: (08:00-08:15)

| Arm | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile Message | Marker Message | Probability Of Reaching Or Exceeding Marker | Probability Of Exactly Reaching Marker |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.31 | 0.00 | 0.00 | 1.02 | 2.05 | | | N/A | N/A |
| 2 | 0.96 | ~1 | ~1 | ~1 | ~1 | Percentiles could not be calculated. This may be because the mean queue is very small or very big. | | N/A | N/A |
| 3 | 0.16 | ~1 | ~1 | ~1 | ~1 | Percentiles could not be calculated. This may be because the mean queue is very small or very big. | | N/A | N/A |
| 4 | 8.06 | 0.00 | 2.24 | 20.20 | 28.06 | | | N/A | N/A |

# Junctions 8

## ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]


For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk



**Filename:** Airport_Healey_OldSchool(new_improved).arc8
**Path:** \\Crozier-Files\Projects\2200\2278- Broccolini\7228 - Broccolini Secondary Plan\Design\Traffic\Analysis\Arcady
**Report generation date:** 2025-04-07 12:40:41 PM



## Summary of junction performance

| | PM | | | | | | |
|---|---|---|---|---|---|---|---|
| | Queue (PCU) | 95% Queue (PCU) | Delay (s) | RFC | LOS | Junction Delay (s) | Junction LOS |
| | A1 - FT_2044 | | | | | | |
| Arm 1 | 0.47 | ~1 | 2.83 | 0.32 | A | 27.65 | D |
| Arm 2 | 13.54 | 48.68 | 19.88 | 0.95 | C | | |
| Arm 3 | 33.77 | ? | 88.71 | 1.14 | F | | |
| Arm 4 | 1.11 | 1.22 | 3.76 | 0.48 | A | | |

*Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.*

*"D3 - FB_2044, AM" model duration: 8:00 AM - 8:15 AM*
*"D6 - FB_2044, PM" model duration: 5:00 PM - 5:15 PM*
*"D9 - FT_2044, AM" model duration: 8:00 AM - 8:15 AM*
*"D12 - FT_2044, PM " model duration: 5:00 PM - 5:15 PM*

*Run using Junctions 8.0.6.541 at 2025-04-07 12:40:41 PM*

## File summary

| | |
|---|---|
| **Title** | Airport Road and Healey Road / Old School Road |
| **Location** | |
| **Site Number** | |
| **Date** | 2025-03-31 |
| **Version** | |
| **Status** | (new file) |
| **Identifier** | |
| **Client** | |
| **Jobnumber** | |
| **Enumerator** | ahallsworth |
| **Description** | |

## Analysis Options

| Vehicle Length (m) | Do Queue Variations | Calculate Residual Capacity | Residual Capacity Criteria Type | RFC Threshold | Average Delay Threshold (s) | Queue Threshold (PCU) |
|---|---|---|---|---|---|---|
| 5.75 | ✓ | | N/A | 0.85 | 36.00 | 20.00 |

## Units

| Distance Units | Speed Units | Traffic Units Input | Traffic Units Results | Flow Units | Average Delay Units | Total Delay Units | Rate Of Delay Units |
|---|---|---|---|---|---|---|---|
| m | kph | Veh | PCU | perHour | s | -Min | perMin |

# (Default Analysis Set) - FT_2044, PM

## Data Errors and Warnings

*No errors or warnings*

## Analysis Set Details

| Name | Roundabout Capacity Model | Description | Include In Report | Use Specific Demand Set(s) | Specific Demand Set (s) | Locked | Network Flow Scaling Factor (%) | Network Capacity Scaling Factor (%) | Reason For Scaling Factors |
|---|---|---|---|---|---|---|---|---|---|
| (Default Analysis Set) | ARCADY | | ✓ | | | | 100.000 | 100.000 | Consistent with Airport Road EA |

## Demand Set Details

| Name | Scenario Name | Time Period Name | Description | Traffic Profile Type | Model Start Time (HH:mm) | Model Finish Time (HH:mm) | Model Time Period Length (min) | Time Segment Length (min) | Results For Central Hour Only | Single Time Segment Only | Locked | Run Automatically | Use Relationship | Relations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FT_2044, PM | FT_2044 | PM | 2031 PM Future Total | PHF | 17:00 | 17:15 | 15 | 15 | | ✓ | | ✓ | | |

# Junction Network

## Junctions

| Junction | Name | Junction Type | Arm Order | Grade Separated | Large Roundabout | Do Geometric Delay | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|---|
| 1 | Roundabout 1 | Roundabout | 1,2,3,4 | | | | 27.65 | D |

## Junction Network Options

| Driving Side | Lighting |
|---|---|
| Right | Normal/unknown |

# Arms

## Arms

| Arm | Arm | Name | Description |
|---|---|---|---|
| **1** | 1 | Old School Road | West Approach |
| **2** | 2 | Airport Road | South Approach |
| **3** | 3 | Healey Road | East Approach |
| **4** | 4 | Airport Road | North Approach |

## Capacity Options

| Arm | Minimum Capacity (PCU/hr) | Maximum Capacity (PCU/hr) | Assume Flat Start Profile | Initial Queue (PCU) |
|---|---|---|---|---|
| **1** | 0.00 | 99999.00 | | 0.00 |
| **2** | 0.00 | 99999.00 | | 0.00 |
| **3** | 0.00 | 99999.00 | | 0.00 |
| **4** | 0.00 | 99999.00 | | 0.00 |

## Roundabout Geometry

| Arm | V - Approach road half-width (m) | E - Entry width (m) | l' - Effective flare length (m) | R - Entry radius (m) | D - Inscribed circle diameter (m) | PHI - Conflict (entry) angle (deg) | Exit Only |
|---|---|---|---|---|---|---|---|
| **1** | 7.40 | 10.00 | 30.00 | 38.00 | 55.00 | 11.00 | |
| **2** | 7.40 | 9.80 | 30.00 | 32.00 | 55.00 | 8.00 | |
| **3** | 7.40 | 10.00 | 30.00 | 28.00 | 55.00 | 26.00 | |
| **4** | 7.40 | 10.00 | 30.00 | 28.00 | 55.00 | 12.00 | |

## Slope / Intercept / Capacity

### Arm Intercept Adjustments

| Arm | Type | Reason | Direct Intercept Adjustment (PCU/hr) | Percentage Intercept Adjustment (%) |
|---|---|---|---|---|
| **1** | Percentage | MTO | | 90.00 |
| **2** | Percentage | MTO | | 90.00 |
| **3** | Percentage | MTO | | 90.00 |
| **4** | Percentage | MTO | | 90.00 |

### Roundabout Slope and Intercept used in model

| Arm | Enter slope and intercept directly | Entered slope | Entered intercept (PCU/hr) | Final Slope | Final Intercept (PCU/hr) |
|---|---|---|---|---|---|
| **1** | | (calculated) | (calculated) | 0.866 | 2802.300 |
| **2** | | (calculated) | (calculated) | 0.863 | 2779.455 |
| **3** | | (calculated) | (calculated) | 0.817 | 2644.722 |
| **4** | | (calculated) | (calculated) | 0.856 | 2769.721 |

*The slope and intercept shown above include any corrections and adjustments.*

# Traffic Flows

## Demand Set Data Options

| Default Vehicle Mix | Vehicle Mix Varies Over Time | Vehicle Mix Varies Over Turn | Vehicle Mix Varies Over Entry | Vehicle Mix Source | PCU Factor for a HV (PCU) | Default Turning Proportions | Estimate from entry/exit counts | Turning Proportions Vary Over Time | Turning Proportions Vary Over Turn | Turning Proportions Vary Over Entry |
|---|---|---|---|---|---|---|---|---|---|---|
| | | ✓ | ✓ | HV Percentages | 2.00 | | | | ✓ | ✓ |

# Entry Flows

## General Flows Data

| Arm | Profile Type | Use Turning Counts | Average Demand Flow (Veh/hr) | Flow Scaling Factor (%) |
|---|---|---|---|---|
| 1 | PHF | ✓ | 585.00 | 100.000 |
| 2 | PHF | ✓ | 1812.00 | 100.000 |
| 3 | PHF | ✓ | 913.00 | 100.000 |
| 4 | PHF | ✓ | 868.00 | 100.000 |

## Peak Hour Factor Data

| Arm | Hourly Volume (Veh/hr) | Peak Hour Factor | Peak Time Segment |
|---|---|---|---|
| 1 | 585.00 | 1.00 | N/A |
| 2 | 1812.00 | 1.00 | N/A |
| 3 | 913.00 | 1.00 | N/A |
| 4 | 868.00 | 1.00 | N/A |

# Turning Proportions

### Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 0.000 | 31.000 | 264.000 | 290.000 |
| | 2 | 57.000 | 0.000 | 97.000 | 1658.000 |
| | 3 | 569.000 | 98.000 | 0.000 | 246.000 |
| | 4 | 100.000 | 685.000 | 83.000 | 0.000 |

### Turning Proportions (Veh) - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 0.00 | 0.05 | 0.45 | 0.50 |
| | 2 | 0.03 | 0.00 | 0.05 | 0.92 |
| | 3 | 0.62 | 0.11 | 0.00 | 0.27 |
| | 4 | 0.12 | 0.79 | 0.10 | 0.00 |

# Vehicle Mix

### Average PCU Per Vehicle - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 1.000 | 1.100 | 1.030 | 1.010 |
| | 2 | 1.040 | 1.000 | 1.040 | 1.170 |
| | 3 | 1.010 | 1.050 | 1.000 | 1.010 |
| | 4 | 1.010 | 1.280 | 1.020 | 1.000 |

### Heavy Vehicle Percentages - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 0.0 | 10.0 | 3.0 | 1.0 |
| | 2 | 4.0 | 0.0 | 4.0 | 17.0 |
| | 3 | 1.0 | 5.0 | 0.0 | 1.0 |
| | 4 | 1.0 | 28.0 | 2.0 | 0.0 |

# Results

## Results Summary for whole modelled period

| Arm | Max RFC | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) | Total Queueing Delay (PCU-min) | Average Queueing Delay (s) | Rate Of Queueing Delay (PCU-min/min) | Inclusive Total Queueing Delay (PCU-min) | Inclusive Average Queueing Delay (s) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.32 | 2.83 | 0.47 | ~1 | A | 598.92 | 149.73 | 6.91 | 2.77 | 0.46 | 6.92 | 2.77 |
| 2 | 0.95 | 19.88 | 13.54 | 48.68 | C | 2100.02 | 525.01 | 154.14 | 17.62 | 10.28 | 156.62 | 17.90 |
| 3 | 1.14 | 88.71 | 33.77 | ? | F | 926.05 | 231.51 | 280.01 | 72.57 | 18.67 | 322.01 | 83.45 |
| 4 | 0.48 | 3.76 | 1.11 | 1.22 | A | 1062.46 | 265.62 | 16.16 | 3.65 | 1.08 | 16.17 | 3.65 |

## Main Results for each time segment

### Main results: (17:00-17:15)

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Entry Flow (PCU/hr) | Exit Flow (PCU/hr) | Circulating Flow (PCU/hr) | Pedestrian Demand (Ped/hr) | Capacity (PCU/hr) | Saturation Capacity (PCU/hr) | RFC | Start Queue (PCU) | End Queue (PCU) | Delay (s) | LOS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 598.92 | 149.73 | 597.04 | 649.18 | 1045.33 | 0.00 | 1897.24 | 995.05 | 0.316 | 0.00 | 0.47 | 2.831 | A |
| 2 | 2100.02 | 525.01 | 2045.86 | 995.02 | 647.35 | 0.00 | 2220.96 | 1818.33 | 0.946 | 0.00 | 13.54 | 19.885 | C |
| 3 | 926.05 | 231.51 | 790.96 | 453.65 | 2239.56 | 0.00 | 814.71 | 832.65 | 1.137 | 0.00 | 33.77 | 88.715 | F |
| 4 | 1062.46 | 265.62 | 1058.02 | 2394.02 | 636.49 | 0.00 | 2225.04 | 2204.43 | 0.478 | 0.00 | 1.11 | 3.762 | A |

## Queueing Delay Results for each time segment

### Queueing Delay results: (17:00-17:15)

| Arm | Queueing Total Delay (PCU-min) | Queueing Rate Of Delay (PCU-min/min) | Average Delay Per Arriving Vehicle (s) | Unsignalised Level Of Service | Signalised Level Of Service |
|---|---|---|---|---|---|
| 1 | 6.91 | 0.46 | 2.831 | A | A |
| 2 | 154.14 | 10.28 | 19.885 | C | B |
| 3 | 280.01 | 18.67 | 88.715 | F | F |
| 4 | 16.16 | 1.08 | 3.762 | A | A |

## Queue Variation Results for each time segment

### Queue Variation results: (17:00-17:15)

| Arm | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile Message | Marker Message | Probability Of Reaching Or Exceeding Marker | Probability Of Exactly Reaching Marker |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.47 | ~1 | ~1 | ~1 | ~1 | Percentiles could not be calculated. This may be because the mean queue is very small or very big. | | N/A | N/A |
| 2 | 13.54 | 0.00 | 4.64 | 34.77 | 48.68 | | | N/A | N/A |
| 3 | 33.77 | ? | ? | ? | ? | No excess capacity in final time segment - unable to calculate queue statistics | | N/A | N/A |
| 4 | 1.11 | 0.00 | 0.00 | 0.00 | 1.22 | | | N/A | N/A |

# Junctions 8

## ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]


For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk



**Filename:** Airport_Healey_OldSchool(new_with_WBR_bypass).arc8
**Path:** \\Crozier-Files\Projects\2200\2278- Broccolini\7228 - Broccolini Secondary Plan\Design\Traffic\Analysis\Arcady
**Report generation date:** 2025-04-22 3:04:11 PM

---

« (Default Analysis Set) - FT_2044, AM
» Junction Network
» Arms
» Traffic Flows
» Entry Flows
» Turning Proportions
» Vehicle Mix
» Results

## Summary of junction performance

| | AM | | | | | | |
|---|---|---|---|---|---|---|---|
| | Queue (PCU) | 95% Queue (PCU) | Delay (s) | RFC | LOS | Junction Delay (s) | Junction LOS |
| | A1 - FT_2044 | | | | | | |
| Arm 1 | 1.25 | ? | 7.86 | 0.56 | A | 8.88 | A |
| Arm 2 | 0.96 | ~1 | 3.89 | 0.42 | A | | |
| Arm 3 | 0.12 | ~1 | 2.13 | 0.11 | A | | |
| Arm 4 | 8.06 | 28.06 | 11.83 | 0.89 | B | | |

*Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.*

*"D3 - FB_2044, AM" model duration: 8:00 AM - 8:15 AM*
*"D6 - FB_2044, PM" model duration: 5:00 PM - 5:15 PM*
*"D9 - FT_2044, AM " model duration: 8:00 AM - 8:15 AM*
*"D12 - FT_2044, PM" model duration: 5:00 PM - 5:15 PM*

*Run using Junctions 8.0.6.541 at 2025-04-22 3:04:11 PM*

## File summary

| | |
|---|---|
| **Title** | Airport Road and Healey Road / Old School Road |
| **Location** | |
| **Site Number** | |
| **Date** | 2025-03-31 |
| **Version** | |
| **Status** | With WBR Bypass Lane |
| **Identifier** | |
| **Client** | |
| **Jobnumber** | |
| **Enumerator** | ahallsworth |
| **Description** | |

## Analysis Options

| Vehicle Length (m) | Do Queue Variations | Calculate Residual Capacity | Residual Capacity Criteria Type | RFC Threshold | Average Delay Threshold (s) | Queue Threshold (PCU) |
|---|---|---|---|---|---|---|
| 5.75 | ✓ | | N/A | 0.85 | 36.00 | 20.00 |

## Units

| Distance Units | Speed Units | Traffic Units Input | Traffic Units Results | Flow Units | Average Delay Units | Total Delay Units | Rate Of Delay Units |
|---|---|---|---|---|---|---|---|
| m | kph | Veh | PCU | perHour | s | -Min | perMin |

# (Default Analysis Set) - FT_2044, AM

## Data Errors and Warnings

*No errors or warnings*

## Analysis Set Details

| Name | Roundabout Capacity Model | Description | Include In Report | Use Specific Demand Set(s) | Specific Demand Set (s) | Locked | Network Flow Scaling Factor (%) | Network Capacity Scaling Factor (%) | Reason For Scaling Factors |
|---|---|---|---|---|---|---|---|---|---|
| (Default Analysis Set) | ARCADY | | ✓ | | | | 100.000 | 100.000 | Consistent with Airport Road EA |

## Demand Set Details

| Name | Scenario Name | Time Period Name | Description | Traffic Profile Type | Model Start Time (HH:mm) | Model Finish Time (HH:mm) | Model Time Period Length (min) | Time Segment Length (min) | Results For Central Hour Only | Single Time Segment Only | Locked | Run Automatically | Use Relationship | Relations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FT_2044, AM | FT_2044 | AM | 2031 AM Future Total | PHF | 08:00 | 08:15 | 15 | 15 | | ✓ | | ✓ | | |

# Junction Network

## Junctions

| Junction | Name | Junction Type | Arm Order | Grade Separated | Large Roundabout | Do Geometric Delay | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|---|
| 1 | Roundabout 1 | Roundabout | 1,2,3,4 | | | | 8.88 | A |

## Junction Network Options

| Driving Side | Lighting |
|---|---|
| Right | Normal/unknown |

# Arms

## Arms

| Arm | Arm | Name | Description |
|---|---|---|---|
| **1** | 1 | Old School Road | West Approach |
| **2** | 2 | Airport Road | South Approach |
| **3** | 3 | Healey Road | East Approach |
| **4** | 4 | Airport Road | North Approach |

## Capacity Options

| Arm | Minimum Capacity (PCU/hr) | Maximum Capacity (PCU/hr) | Assume Flat Start Profile | Initial Queue (PCU) |
|---|---|---|---|---|
| **1** | 0.00 | 99999.00 | | 0.00 |
| **2** | 0.00 | 99999.00 | | 0.00 |
| **3** | 0.00 | 99999.00 | | 0.00 |
| **4** | 0.00 | 99999.00 | | 0.00 |

## Roundabout Geometry

| Arm | V - Approach road half-width (m) | E - Entry width (m) | l' - Effective flare length (m) | R - Entry radius (m) | D - Inscribed circle diameter (m) | PHI - Conflict (entry) angle (deg) | Exit Only |
|---|---|---|---|---|---|---|---|
| **1** | 7.40 | 10.00 | 30.00 | 38.00 | 55.00 | 11.00 | |
| **2** | 7.40 | 9.80 | 30.00 | 32.00 | 55.00 | 8.00 | |
| **3** | 7.40 | 10.00 | 30.00 | 28.00 | 55.00 | 26.00 | |
| **4** | 7.40 | 10.00 | 30.00 | 28.00 | 55.00 | 12.00 | |

## Bypass

| Arm | Arm Has Bypass | Bypass Utilisation (%) |
|---|---|---|
| **1** | | |
| **2** | | |
| **3** | ✓ | 100 |
| **4** | | |

## Slope / Intercept / Capacity

### Arm Intercept Adjustments

| Arm | Type | Reason | Direct Intercept Adjustment (PCU/hr) | Percentage Intercept Adjustment (%) |
|---|---|---|---|---|
| **1** | Percentage | MTO | | 90.00 |
| **2** | Percentage | MTO | | 90.00 |
| **3** | Percentage | MTO | | 90.00 |
| **4** | Percentage | MTO | | 90.00 |

### Roundabout Slope and Intercept used in model

| Arm | Enter slope and intercept directly | Entered slope | Entered intercept (PCU/hr) | Final Slope | Final Intercept (PCU/hr) |
|---|---|---|---|---|---|
| **1** | | (calculated) | (calculated) | 0.866 | 2802.300 |
| **2** | | (calculated) | (calculated) | 0.863 | 2779.455 |
| **3** | | (calculated) | (calculated) | 0.817 | 2644.722 |
| **4** | | (calculated) | (calculated) | 0.856 | 2769.721 |

*The slope and intercept shown above include any corrections and adjustments.*

# Traffic Flows

## Demand Set Data Options

| Default Vehicle Mix | Vehicle Mix Varies Over Time | Vehicle Mix Varies Over Turn | Vehicle Mix Varies Over Entry | Vehicle Mix Source | PCU Factor for a HV (PCU) | Default Turning Proportions | Estimate from entry/exit counts | Turning Proportions Vary Over Time | Turning Proportions Vary Over Turn | Turning Proportions Vary Over Entry |
|---|---|---|---|---|---|---|---|---|---|---|
| | | ✓ | ✓ | HV Percentages | 2.00 | | | | ✓ | ✓ |

# Entry Flows

## General Flows Data

| Arm | Profile Type | Use Turning Counts | Average Demand Flow (Veh/hr) | Flow Scaling Factor (%) |
|---|---|---|---|---|
| 1 | PHF | ✓ | 559.00 | 100.000 |
| 2 | PHF | ✓ | 653.00 | 100.000 |
| 3 | PHF | ✓ | 254.00 | 100.000 |
| 4 | PHF | ✓ | 2046.00 | 100.000 |

## Peak Hour Factor Data

| Arm | Hourly Volume (Veh/hr) | Peak Hour Factor | Peak Time Segment |
|---|---|---|---|
| 1 | 559.00 | 1.00 | N/A |
| 2 | 653.00 | 1.00 | N/A |
| 3 | 254.00 | 1.00 | N/A |
| 4 | 2046.00 | 1.00 | N/A |

# Turning Proportions

### Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 0.000 | 64.000 | 432.000 | 63.000 |
| | 2 | 13.000 | 0.000 | 120.000 | 520.000 |
| | 3 | 153.000 | 47.000 | 0.000 | 54.000 |
| | 4 | 269.000 | 1531.000 | 246.000 | 0.000 |

### Turning Proportions (Veh) - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 0.00 | 0.11 | 0.77 | 0.11 |
| | 2 | 0.02 | 0.00 | 0.18 | 0.80 |
| | 3 | 0.60 | 0.19 | 0.00 | 0.21 |
| | 4 | 0.13 | 0.75 | 0.12 | 0.00 |

# Vehicle Mix

### Average PCU Per Vehicle - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 1.000 | 1.020 | 1.020 | 1.050 |
| | 2 | 1.090 | 1.000 | 1.070 | 1.430 |
| | 3 | 1.040 | 1.070 | 1.000 | 1.000 |
| | 4 | 1.010 | 1.160 | 1.010 | 1.000 |

### Heavy Vehicle Percentages - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 0.0 | 2.0 | 2.0 | 5.0 |
| | 2 | 9.0 | 0.0 | 7.0 | 43.0 |
| | 3 | 4.0 | 7.0 | 0.0 | 0.0 |
| | 4 | 1.0 | 16.0 | 1.0 | 0.0 |

# Results

## Results Summary for whole modelled period

| Arm | Max RFC | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) | Total Queueing Delay (PCU-min) | Average Queueing Delay (s) | Rate Of Queueing Delay (PCU-min/min) | Inclusive Total Queueing Delay (PCU-min) | Inclusive Average Queueing Delay (s) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.56 | 7.86 | 1.25 | ? | A | 572.07 | 143.02 | 17.74 | 7.44 | 1.18 | 17.79 | 7.46 |
| 2 | 0.42 | 3.89 | 0.96 | ~1 | A | 886.17 | 221.54 | 13.94 | 3.78 | 0.93 | 13.96 | 3.78 |
| 3 | 0.11 | 2.13 | 0.12 | ~1 | A | 263.41 | 52.35 | 1.83 | 2.10 | 0.12 | 1.83 | 2.10 |
| 4 | 0.89 | 11.83 | 8.06 | 28.06 | B | 2296.11 | 574.03 | 102.59 | 10.72 | 6.84 | 103.34 | 10.80 |

## Main Results for each time segment

### Main results: (08:00-08:15)

| Arm | Total Demand (PCU/hr) | Junction Demand (PCU/hr) | Junction Arrivals (PCU) | Bypass Demand (PCU/hr) | Bypass Exit Flow (PCU/hr) | Entry Flow (PCU/hr) | Exit Flow (PCU/hr) | Circulating Flow (PCU/hr) | Pedestrian Demand (Ped/hr) | Capacity (PCU/hr) | Saturation Capacity (PCU/hr) | RFC | Start Queue (PCU) | End Queue (PCU) | Delay (s) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 572.07 | 572.07 | 143.02 | 0.00 | 0.00 | 567.06 | 440.73 | 2046.15 | 0.00 | 1030.72 | 1321.88 | 0.555 | 0.00 | 1.25 | 7.864 |
| 2 | 886.17 | 886.17 | 221.54 | 0.00 | 0.00 | 882.35 | 1865.89 | 747.32 | 0.00 | 2134.71 | 1623.34 | 0.415 | 0.00 | 0.96 | 3.889 |
| 3 | 263.41 | 209.41 | 52.35 | 54.00 | 0.00 | 208.91 | 809.60 | 820.07 | 0.00 | 1974.62 | 1385.54 | 0.106 | 0.00 | 0.12 | 2.135 |
| 4 | 2296.11 | 2296.11 | 574.03 | 0.00 | 54.00 | 2263.85 | 805.96 | 223.02 | 0.00 | 2578.87 | 1561.83 | 0.890 | 0.00 | 8.06 | 11.828 |

# Queueing Delay Results for each time segment

## Queueing Delay results: (08:00-08:15)

| Arm | Queueing Total Delay (PCU-min) | Queueing Rate Of Delay (PCU-min/min) | Average Delay Per Arriving Vehicle (s) | Unsignalised Level Of Service | Signalised Level Of Service |
|---|---|---|---|---|---|
| 1 | 17.74 | 1.18 | 7.864 | A | A |
| 2 | 13.94 | 0.93 | 3.889 | A | A |
| 3 | 1.83 | 0.12 | 2.135 | A | A |
| 4 | 102.59 | 6.84 | 11.828 | B | B |

# Queue Variation Results for each time segment

## Queue Variation results: (08:00-08:15)

| Arm | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile Message | Marker Message | Probability Of Reaching Or Exceeding Marker | Probability Of Exactly Reaching Marker |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.25 | ? | ? | ? | ? | Percentiles could not be calculated. This may be because the mean queue is very small or very big. | | N/A | N/A |
| 2 | 0.96 | ~1 | ~1 | ~1 | ~1 | Percentiles could not be calculated. This may be because the mean queue is very small or very big. | | N/A | N/A |
| 3 | 0.12 | ~1 | ~1 | ~1 | ~1 | Percentiles could not be calculated. This may be because the mean queue is very small or very big. | | N/A | N/A |
| 4 | 8.06 | 0.00 | 2.24 | 20.20 | 28.06 | | | N/A | N/A |

# Junctions 8

## ARCADY 8 - Roundabout Module



**Filename:** Airport_Healey_OldSchool(new_with_WBR_bypass).arc8
**Path:** \\Crozier-Files\Projects\2200\2278- Broccolini\7228 - Broccolini Secondary Plan\Design\Traffic\Analysis\Arcady
**Report generation date:** 2025-04-22 3:04:55 PM

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« (Default Analysis Set) - FT_2044, PM
» Junction Network
» Arms
» Traffic Flows
» Entry Flows
» Turning Proportions
» Vehicle Mix
» Results

## Summary of junction performance

| | PM | | | | | | |
|---|---|---|---|---|---|---|---|
| | Queue (PCU) | 95% Queue (PCU) | Delay (s) | RFC | LOS | Junction Delay (s) | Junction LOS |
| | A1 - FT_2044 | | | | | | |
| **Arm 1** | 0.47 | ~1 | 2.85 | 0.32 | A | 14.47 | B |
| **Arm 2** | 13.54 | 48.68 | 19.88 | 0.95 | C | | |
| **Arm 3** | 4.34 | 12.19 | 21.73 | 0.83 | C | | |
| **Arm 4** | 1.18 | 1.22 | 4.00 | 0.49 | A | | |

*Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.*

*"D3 - FB_2044, AM" model duration: 8:00 AM - 8:15 AM*
*"D6 - FB_2044, PM" model duration: 5:00 PM - 5:15 PM*
*"D9 - FT_2044, AM" model duration: 8:00 AM - 8:15 AM*
*"D12 - FT_2044, PM " model duration: 5:00 PM - 5:15 PM*

*Run using Junctions 8.0.6.541 at 2025-04-22 3:04:55 PM*

## File summary

| | |
|---|---|
| **Title** | Airport Road and Healey Road / Old School Road |
| **Location** | |
| **Site Number** | |
| **Date** | 2025-03-31 |
| **Version** | |
| **Status** | With WBR Bypass Lane |
| **Identifier** | |
| **Client** | |
| **Jobnumber** | |
| **Enumerator** | ahallsworth |
| **Description** | |

## Analysis Options

| Vehicle Length (m) | Do Queue Variations | Calculate Residual Capacity | Residual Capacity Criteria Type | RFC Threshold | Average Delay Threshold (s) | Queue Threshold (PCU) |
|---|---|---|---|---|---|---|
| 5.75 | ✓ | | N/A | 0.85 | 36.00 | 20.00 |

## Units

| Distance Units | Speed Units | Traffic Units Input | Traffic Units Results | Flow Units | Average Delay Units | Total Delay Units | Rate Of Delay Units |
|---|---|---|---|---|---|---|---|
| m | kph | Veh | PCU | perHour | s | -Min | perMin |

# (Default Analysis Set) - FT_2044, PM

## Data Errors and Warnings

*No errors or warnings*

## Analysis Set Details

| Name | Roundabout Capacity Model | Description | Include In Report | Use Specific Demand Set(s) | Specific Demand Set (s) | Locked | Network Flow Scaling Factor (%) | Network Capacity Scaling Factor (%) | Reason For Scaling Factors |
|---|---|---|---|---|---|---|---|---|---|
| (Default Analysis Set) | ARCADY | | ✓ | | | | 100.000 | 100.000 | Consistent with Airport Road EA |

## Demand Set Details

| Name | Scenario Name | Time Period Name | Description | Traffic Profile Type | Model Start Time (HH:mm) | Model Finish Time (HH:mm) | Model Time Period Length (min) | Time Segment Length (min) | Results For Central Hour Only | Single Time Segment Only | Locked | Run Automatically | Use Relationship | Relations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FT_2044, PM | FT_2044 | PM | 2031 PM Future Total | PHF | 17:00 | 17:15 | 15 | 15 | | ✓ | | ✓ | | |

# Junction Network

## Junctions

| Junction | Name | Junction Type | Arm Order | Grade Separated | Large Roundabout | Do Geometric Delay | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|---|
| 1 | Roundabout 1 | Roundabout | 1,2,3,4 | | | | 14.47 | B |

## Junction Network Options

| Driving Side | Lighting |
|---|---|
| Right | Normal/unknown |

# Arms

## Arms

| Arm | Arm | Name | Description |
|---|---|---|---|
| **1** | 1 | Old School Road | West Approach |
| **2** | 2 | Airport Road | South Approach |
| **3** | 3 | Healey Road | East Approach |
| **4** | 4 | Airport Road | North Approach |

## Capacity Options

| Arm | Minimum Capacity (PCU/hr) | Maximum Capacity (PCU/hr) | Assume Flat Start Profile | Initial Queue (PCU) |
|---|---|---|---|---|
| **1** | 0.00 | 99999.00 | | 0.00 |
| **2** | 0.00 | 99999.00 | | 0.00 |
| **3** | 0.00 | 99999.00 | | 0.00 |
| **4** | 0.00 | 99999.00 | | 0.00 |

## Roundabout Geometry

| Arm | V - Approach road half-width (m) | E - Entry width (m) | l' - Effective flare length (m) | R - Entry radius (m) | D - Inscribed circle diameter (m) | PHI - Conflict (entry) angle (deg) | Exit Only |
|---|---|---|---|---|---|---|---|
| **1** | 7.40 | 10.00 | 30.00 | 38.00 | 55.00 | 11.00 | |
| **2** | 7.40 | 9.80 | 30.00 | 32.00 | 55.00 | 8.00 | |
| **3** | 7.40 | 10.00 | 30.00 | 28.00 | 55.00 | 26.00 | |
| **4** | 7.40 | 10.00 | 30.00 | 28.00 | 55.00 | 12.00 | |

## Bypass

| Arm | Arm Has Bypass | Bypass Utilisation (%) |
|---|---|---|
| **1** | | |
| **2** | | |
| **3** | ✓ | 100 |
| **4** | | |

## Slope / Intercept / Capacity

### Arm Intercept Adjustments

| Arm | Type | Reason | Direct Intercept Adjustment (PCU/hr) | Percentage Intercept Adjustment (%) |
|---|---|---|---|---|
| **1** | Percentage | MTO | | 90.00 |
| **2** | Percentage | MTO | | 90.00 |
| **3** | Percentage | MTO | | 90.00 |
| **4** | Percentage | MTO | | 90.00 |

### Roundabout Slope and Intercept used in model

| Arm | Enter slope and intercept directly | Entered slope | Entered intercept (PCU/hr) | Final Slope | Final Intercept (PCU/hr) |
|---|---|---|---|---|---|
| **1** | | (calculated) | (calculated) | 0.866 | 2802.300 |
| **2** | | (calculated) | (calculated) | 0.863 | 2779.455 |
| **3** | | (calculated) | (calculated) | 0.817 | 2644.722 |
| **4** | | (calculated) | (calculated) | 0.856 | 2769.721 |

*The slope and intercept shown above include any corrections and adjustments.*

# Traffic Flows

## Demand Set Data Options

| Default Vehicle Mix | Vehicle Mix Varies Over Time | Vehicle Mix Varies Over Turn | Vehicle Mix Varies Over Entry | Vehicle Mix Source | PCU Factor for a HV (PCU) | Default Turning Proportions | Estimate from entry/exit counts | Turning Proportions Vary Over Time | Turning Proportions Vary Over Turn | Turning Proportions Vary Over Entry |
|---|---|---|---|---|---|---|---|---|---|---|
| | | ✓ | ✓ | HV Percentages | 2.00 | | | | ✓ | ✓ |

# Entry Flows

## General Flows Data

| Arm | Profile Type | Use Turning Counts | Average Demand Flow (Veh/hr) | Flow Scaling Factor (%) |
|---|---|---|---|---|
| 1 | PHF | ✓ | 585.00 | 100.000 |
| 2 | PHF | ✓ | 1812.00 | 100.000 |
| 3 | PHF | ✓ | 913.00 | 100.000 |
| 4 | PHF | ✓ | 868.00 | 100.000 |

## Peak Hour Factor Data

| Arm | Hourly Volume (Veh/hr) | Peak Hour Factor | Peak Time Segment |
|---|---|---|---|
| 1 | 585.00 | 1.00 | N/A |
| 2 | 1812.00 | 1.00 | N/A |
| 3 | 913.00 | 1.00 | N/A |
| 4 | 868.00 | 1.00 | N/A |

# Turning Proportions

### Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 0.000 | 31.000 | 264.000 | 290.000 |
| | 2 | 57.000 | 0.000 | 97.000 | 1658.000 |
| | 3 | 569.000 | 98.000 | 0.000 | 246.000 |
| | 4 | 100.000 | 685.000 | 83.000 | 0.000 |

### Turning Proportions (Veh) - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 0.00 | 0.05 | 0.45 | 0.50 |
| | 2 | 0.03 | 0.00 | 0.05 | 0.92 |
| | 3 | 0.62 | 0.11 | 0.00 | 0.27 |
| | 4 | 0.12 | 0.79 | 0.10 | 0.00 |

# Vehicle Mix

### Average PCU Per Vehicle - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 1.000 | 1.100 | 1.030 | 1.010 |
| | 2 | 1.040 | 1.000 | 1.040 | 1.170 |
| | 3 | 1.010 | 1.050 | 1.000 | 1.010 |
| | 4 | 1.010 | 1.280 | 1.020 | 1.000 |

### Heavy Vehicle Percentages - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 0.0 | 10.0 | 3.0 | 1.0 |
| | 2 | 4.0 | 0.0 | 4.0 | 17.0 |
| | 3 | 1.0 | 5.0 | 0.0 | 1.0 |
| | 4 | 1.0 | 28.0 | 2.0 | 0.0 |

# Results

## Results Summary for whole modelled period

| Arm | Max RFC | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) | Total Queueing Delay (PCU-min) | Average Queueing Delay (s) | Rate Of Queueing Delay (PCU-min/min) | Inclusive Total Queueing Delay (PCU-min) | Inclusive Average Queueing Delay (s) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.32 | 2.85 | 0.47 | ~1 | A | 598.92 | 149.73 | 6.97 | 2.79 | 0.46 | 6.97 | 2.79 |
| 2 | 0.95 | 19.88 | 13.54 | 48.68 | C | 2100.02 | 525.01 | 154.13 | 17.61 | 10.28 | 156.60 | 17.90 |
| 3 | 0.83 | 21.73 | 4.34 | 12.19 | C | 926.05 | 169.40 | 54.18 | 19.19 | 3.61 | 54.87 | 19.44 |
| 4 | 0.49 | 4.00 | 1.18 | 1.22 | A | 1062.46 | 265.62 | 17.14 | 3.87 | 1.14 | 17.16 | 3.88 |

## Main Results for each time segment

### Main results: (17:00-17:15)

| Arm | Total Demand (PCU/hr) | Junction Demand (PCU/hr) | Junction Arrivals (PCU) | Bypass Demand (PCU/hr) | Bypass Exit Flow (PCU/hr) | Entry Flow (PCU/hr) | Exit Flow (PCU/hr) | Circulating Flow (PCU/hr) | Pedestrian Demand (Ped/hr) | Capacity (PCU/hr) | Saturation Capacity (PCU/hr) | RFC | Start Queue (PCU) | End Queue (PCU) | Delay (s) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 598.92 | 598.92 | 149.73 | 0.00 | 0.00 | 597.02 | 718.26 | 1057.45 | 0.00 | 1886.75 | 1124.04 | 0.317 | 0.00 | 0.47 | 2.854 |
| 2 | 2100.02 | 2100.02 | 525.01 | 0.00 | 0.00 | 2045.86 | 1007.16 | 647.32 | 0.00 | 2220.99 | 1727.49 | 0.946 | 0.00 | 13.54 | 19.883 |
| 3 | 926.05 | 677.59 | 169.40 | 248.46 | 0.00 | 660.22 | 453.62 | 2239.56 | 0.00 | 814.71 | 851.77 | 0.832 | 0.00 | 4.34 | 21.726 |
| 4 | 1062.46 | 1062.46 | 265.62 | 0.00 | 248.46 | 1057.74 | 2181.81 | 717.98 | 0.00 | 2155.31 | 1999.09 | 0.493 | 0.00 | 1.18 | 3.998 |

# Queueing Delay Results for each time segment

## Queueing Delay results: (17:00-17:15)

| Arm | Queueing Total Delay (PCU-min) | Queueing Rate Of Delay (PCU-min/min) | Average Delay Per Arriving Vehicle (s) | Unsignalised Level Of Service | Signalised Level Of Service |
|---|---|---|---|---|---|
| 1 | 6.97 | 0.46 | 2.854 | A | A |
| 2 | 154.13 | 10.28 | 19.883 | C | B |
| 3 | 54.18 | 3.61 | 21.726 | C | C |
| 4 | 17.14 | 1.14 | 3.998 | A | A |

# Queue Variation Results for each time segment

## Queue Variation results: (17:00-17:15)

| Arm | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) | Percentile Message | Marker Message | Probability Of Reaching Or Exceeding Marker | Probability Of Exactly Reaching Marker |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.47 | ~1 | ~1 | ~1 | ~1 | Percentiles could not be calculated. This may be because the mean queue is very small or very big. | | N/A | N/A |
| 2 | 13.54 | 0.00 | 4.64 | 34.77 | 48.68 | | | N/A | N/A |
| 3 | 4.34 | 0.00 | 2.03 | 9.14 | 12.19 | | | N/A | N/A |
| 4 | 1.18 | 0.00 | 0.00 | 1.22 | 1.22 | | | N/A | N/A |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 25 | 16 | 174 | 103 | 117 | 552 |
| Future Volume (Veh/h) | 25 | 16 | 174 | 103 | 117 | 552 |
| 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) | 25 | 16 | 174 | 103 | 117 | 552 |
| 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) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 736 | 139 | | | 277 | |
| vC1, stage 1 conf vol | 226 | | | | | |
| vC2, stage 2 conf vol | 510 | | | | | |
| vCu, unblocked vol | 736 | 139 | | | 277 | |
| tC, single (s) | 6.8 | 6.9 | | | 4.1 | |
| tC, 2 stage (s) | 5.8 | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 95 | 98 | | | 91 | |
| cM capacity (veh/h) | 489 | 891 | | | 1298 | |

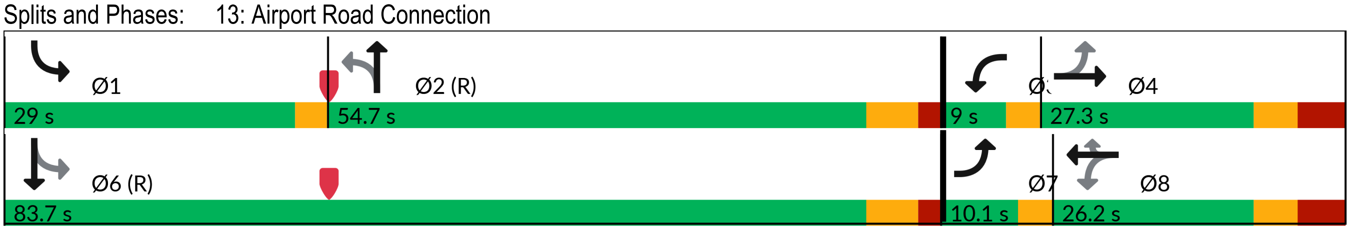
| Direction, Lane # | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 | SB 2 | SB 3 |
|---|---|---|---|---|---|---|---|
| Volume Total | 25 | 16 | 116 | 161 | 117 | 276 | 276 |
| Volume Left | 25 | 0 | 0 | 0 | 117 | 0 | 0 |
| Volume Right | 0 | 16 | 0 | 103 | 0 | 0 | 0 |
| cSH | 489 | 891 | 1700 | 1700 | 1298 | 1700 | 1700 |
| Volume to Capacity | 0.05 | 0.02 | 0.07 | 0.09 | 0.09 | 0.16 | 0.16 |
| Queue Length 95th (m) | 1.3 | 0.4 | 0.0 | 0.0 | 2.4 | 0.0 | 0.0 |
| Control Delay (s/veh) | 12.8 | 9.1 | 0.0 | 0.0 | 8.0 | 0.0 | 0.0 |
| Lane LOS | B | A | | | A | | |
| Approach Delay (s/veh) | 11.3 | | 0.0 | | 1.4 | | |
| Approach LOS | B | | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.4 | | |
| Intersection Capacity Utilization | 27.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Lane Group | EBL | EBT | WBL | WBR | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | |
| Traffic Volume (vph) | 120 | 0 | 75 | 164 | 113 | 341 | 507 | 730 |
| Future Volume (vph) | 120 | 0 | 75 | 164 | 113 | 341 | 507 | 730 |
| Turn Type | pm+pt | NA | pm+pt | Perm | Perm | NA | pm+pt | NA |
| Protected Phases | 7 | 4 | 3 | | | 2 | 1 | 6 |
| Permitted Phases | 4 | | 8 | 8 | 2 | | 6 | |
| Detector Phase | 7 | 4 | 3 | 8 | 2 | 2 | 1 | 6 |
| Switch Phase | | | | | | | | |
| Minimum Initial (s) | 5.0 | 12.0 | 5.0 | 12.0 | 12.0 | 12.0 | 5.0 | 12.0 |
| Minimum Split (s) | 9.5 | 26.2 | 8.0 | 26.2 | 24.6 | 24.6 | 8.0 | 24.6 |
| Total Split (s) | 10.1 | 27.3 | 9.0 | 26.2 | 54.7 | 54.7 | 29.0 | 83.7 |
| Total Split (%) | 8.4% | 22.8% | 7.5% | 21.8% | 45.6% | 45.6% | 24.2% | 69.8% |
| Yellow Time (s) | 3.0 | 4.0 | 3.0 | 4.0 | 4.6 | 4.6 | 3.0 | 4.6 |
| All-Red Time (s) | 0.0 | 4.2 | 0.0 | 4.2 | 2.0 | 2.0 | 0.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 3.0 | 8.2 | 3.0 | 8.2 | 6.6 | 6.6 | 3.0 | 6.6 |
| Lead/Lag | Lead | Lag | Lead | Lag | Lag | Lag | Lead | |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | |
| Recall Mode | None | None | None | None | C-Max | C-Max | None | C-Max |
| Act Effct Green (s) | 25.8 | 14.9 | 23.2 | 12.0 | 56.6 | 56.6 | 86.7 | 83.1 |
| Actuated g/C Ratio | 0.22 | 0.12 | 0.19 | 0.10 | 0.47 | 0.47 | 0.72 | 0.69 |
| v/c Ratio | 0.67 | 0.11 | 0.44 | 0.26 | 0.54 | 0.37 | 0.80 | 0.49 |
| Control Delay (s/veh) | 61.7 | 0.6 | 48.8 | 1.0 | 50.3 | 28.3 | 17.9 | 8.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 61.7 | 0.6 | 48.8 | 1.0 | 50.3 | 28.3 | 17.9 | 8.3 |
| LOS | E | A | D | A | D | C | B | A |
| Approach Delay (s/veh) | | 45.3 | | | | 32.1 | | 11.5 |
| Approach LOS | | D | | | | C | | B |

| 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: 90 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.80 | |
| Intersection Signal Delay (s/veh): 19.1 | Intersection LOS: B |
| Intersection Capacity Utilization 72.7% | ICU Level of Service C |
| Analysis Period (min) 15 | |

Splits and Phases: 13: Airport Road Connection



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 120 | 0 | 44 | 75 | 0 | 164 | 113 | 341 | 195 | 507 | 730 | 322 |
| Future Volume (vph) | 120 | 0 | 44 | 75 | 0 | 164 | 113 | 341 | 195 | 507 | 730 | 322 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 |
| Total Lost time (s) | 3.0 | 8.2 | | 3.0 | | 8.2 | 6.6 | 6.6 | | 3.0 | 6.6 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frt | 1.00 | 0.85 | | 1.00 | | 0.85 | 1.00 | 0.95 | | 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) | 1088 | 1134 | | 1082 | | 1021 | 1566 | 2929 | | 1539 | 3061 | |
| Flt Permitted | 0.64 | 1.00 | | 0.73 | | 1.00 | 0.27 | 1.00 | | 0.39 | 1.00 | |
| Satd. Flow (perm) | 734 | 1134 | | 829 | | 1021 | 449 | 2929 | | 630 | 3061 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 120 | 0 | 44 | 75 | 0 | 164 | 113 | 341 | 195 | 507 | 730 | 322 |
| RTOR Reduction (vph) | 0 | 39 | 0 | 0 | 0 | 147 | 0 | 60 | 0 | 0 | 36 | 0 |
| Lane Group Flow (vph) | 120 | 5 | 0 | 75 | 0 | 17 | 113 | 476 | 0 | 507 | 1016 | 0 |
| Heavy Vehicles (%) | 64% | 0% | 44% | 65% | 0% | 60% | 14% | 16% | 21% | 16% | 11% | 20% |
| Turn Type | pm+pt | NA | | pm+pt | | Perm | Perm | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 22.0 | 14.9 | | 17.4 | | 12.6 | 56.0 | 56.0 | | 82.5 | 82.5 | |
| Effective Green, g (s) | 22.0 | 14.9 | | 17.4 | | 12.6 | 56.0 | 56.0 | | 82.5 | 82.5 | |
| Actuated g/C Ratio | 0.18 | 0.12 | | 0.14 | | 0.11 | 0.47 | 0.47 | | 0.69 | 0.69 | |
| Clearance Time (s) | 3.0 | 8.2 | | 3.0 | | 8.2 | 6.6 | 6.6 | | 3.0 | 6.6 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 155 | 140 | | 130 | | 107 | 209 | 1366 | | 611 | 2104 | |
| v/s Ratio Prot | c0.05 | 0.00 | | 0.02 | | | | 0.16 | | c0.16 | 0.33 | |
| v/s Ratio Perm | c0.10 | | | 0.06 | | 0.02 | 0.25 | | | c0.41 | | |
| v/c Ratio | 0.77 | 0.04 | | 0.58 | | 0.16 | 0.54 | 0.35 | | 0.83 | 0.48 | |
| Uniform Delay, d1 | 46.2 | 46.2 | | 47.3 | | 48.9 | 22.8 | 20.4 | | 9.7 | 8.8 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.52 | 1.64 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 21.0 | 0.1 | | 6.1 | | 0.7 | 9.5 | 0.7 | | 9.1 | 0.8 | |
| Delay (s) | 67.2 | 46.4 | | 53.4 | | 49.6 | 44.3 | 34.1 | | 18.8 | 9.6 | |
| Level of Service | E | D | | D | | D | D | C | | B | A | |
| Approach Delay (s/veh) | | 61.6 | | | 50.8 | | | 35.9 | | | 12.6 | |
| Approach LOS | | E | | | D | | | D | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 24.9 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.86 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.8 |
| Intersection Capacity Utilization | 72.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 381 | 88 | 231 | 173 | 12 | 40 |
| Future Volume (Veh/h) | 381 | 88 | 231 | 173 | 12 | 40 |
| 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) | 381 | 88 | 231 | 173 | 12 | 40 |
| 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) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 469 | | 974 | 235 |
| vC1, stage 1 conf vol | | | | | 425 | |
| vC2, stage 2 conf vol | | | | | 549 | |
| vCu, unblocked vol | | | 469 | | 974 | 235 |
| 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 % | | | 79 | | 97 | 95 |
| cM capacity (veh/h) | | | 1103 | | 387 | 773 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | WB 3 | NB 1 | NB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total | 254 | 215 | 231 | 87 | 87 | 12 | 40 |
| Volume Left | 0 | 0 | 231 | 0 | 0 | 12 | 0 |
| Volume Right | 0 | 88 | 0 | 0 | 0 | 0 | 40 |
| cSH | 1700 | 1700 | 1103 | 1700 | 1700 | 387 | 773 |
| Volume to Capacity | 0.15 | 0.13 | 0.21 | 0.05 | 0.05 | 0.03 | 0.05 |
| Queue Length 95th (m) | 0.0 | 0.0 | 6.3 | 0.0 | 0.0 | 0.8 | 1.3 |
| Control Delay (s/veh) | 0.0 | 0.0 | 9.1 | 0.0 | 0.0 | 14.6 | 9.9 |
| Lane LOS | | | A | | | B | A |
| Approach Delay (s/veh) | 0.0 | | 5.2 | | | 11.0 | |
| Approach LOS | | | | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.9 | | |
| Intersection Capacity Utilization | 39.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 140 | 89 | 478 | 24 | 28 | 254 |
| Future Volume (Veh/h) | 140 | 89 | 478 | 24 | 28 | 254 |
| 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) | 140 | 89 | 478 | 24 | 28 | 254 |
| 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) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 673 | 251 | | | 502 | |
| vC1, stage 1 conf vol | 490 | | | | | |
| vC2, stage 2 conf vol | 183 | | | | | |
| vCu, unblocked vol | 673 | 251 | | | 502 | |
| tC, single (s) | 6.8 | 6.9 | | | 4.1 | |
| tC, 2 stage (s) | 5.8 | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 74 | 88 | | | 97 | |
| cM capacity (veh/h) | 547 | 755 | | | 1073 | |

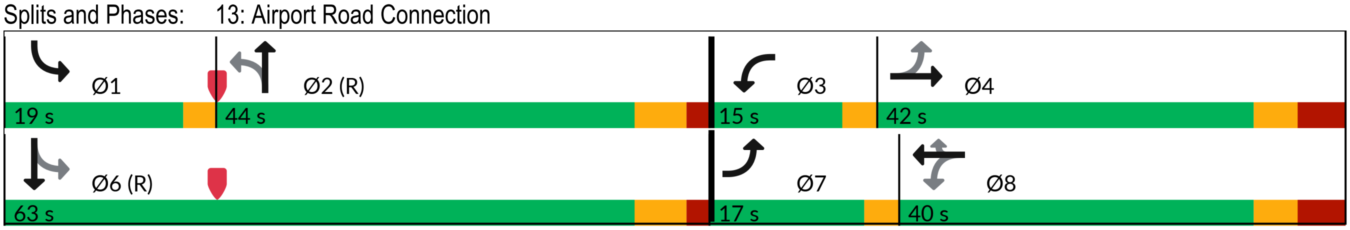
| Direction, Lane # | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 | SB 2 | SB 3 |
|---|---|---|---|---|---|---|---|
| Volume Total | 140 | 89 | 319 | 183 | 28 | 127 | 127 |
| Volume Left | 140 | 0 | 0 | 0 | 28 | 0 | 0 |
| Volume Right | 0 | 89 | 0 | 24 | 0 | 0 | 0 |
| cSH | 547 | 755 | 1700 | 1700 | 1073 | 1700 | 1700 |
| Volume to Capacity | 0.26 | 0.12 | 0.19 | 0.11 | 0.03 | 0.07 | 0.07 |
| Queue Length 95th (m) | 8.1 | 3.2 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 |
| Control Delay (s/veh) | 13.8 | 10.4 | 0.0 | 0.0 | 8.4 | 0.0 | 0.0 |
| Lane LOS | B | B | | | A | | |
| Approach Delay (s/veh) | 12.5 | | 0.0 | | 0.8 | | |
| Approach LOS | B | | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.1 | | |
| Intersection Capacity Utilization | 35.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Lane Group | EBL | EBT | WBL | WBR | NBL | NBT | SBL | SBT |
|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | |
| Traffic Volume (vph) | 329 | 0 | 203 | 483 | 36 | 802 | 166 | 449 |
| Future Volume (vph) | 329 | 0 | 203 | 483 | 36 | 802 | 166 | 449 |
| Turn Type | pm+pt | NA | pm+pt | Perm | Perm | NA | pm+pt | NA |
| Protected Phases | 7 | 4 | 3 | | | 2 | 1 | 6 |
| Permitted Phases | 4 | | 8 | 8 | 2 | | 6 | |
| Detector Phase | 7 | 4 | 3 | 8 | 2 | 2 | 1 | 6 |
| Switch Phase | | | | | | | | |
| Minimum Initial (s) | 5.0 | 12.0 | 5.0 | 12.0 | 12.0 | 12.0 | 5.0 | 12.0 |
| Minimum Split (s) | 8.0 | 26.2 | 8.0 | 26.2 | 24.6 | 24.6 | 8.0 | 24.6 |
| Total Split (s) | 17.0 | 42.0 | 15.0 | 40.0 | 44.0 | 44.0 | 19.0 | 63.0 |
| Total Split (%) | 14.2% | 35.0% | 12.5% | 33.3% | 36.7% | 36.7% | 15.8% | 52.5% |
| Yellow Time (s) | 3.0 | 4.0 | 3.0 | 4.0 | 4.6 | 4.6 | 3.0 | 4.6 |
| All-Red Time (s) | 0.0 | 4.2 | 0.0 | 4.2 | 2.0 | 2.0 | 0.0 | 2.0 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 3.0 | 8.2 | 3.0 | 8.2 | 6.6 | 6.6 | 3.0 | 6.6 |
| Lead/Lag | Lead | Lag | Lead | Lag | Lag | Lag | Lead | |
| Lead-Lag Optimize? | Yes | Yes | Yes | Yes | Yes | Yes | Yes | |
| Recall Mode | None | None | None | None | C-Max | C-Max | None | C-Max |
| Act Effct Green (s) | 43.6 | 24.4 | 39.6 | 22.4 | 49.7 | 49.7 | 69.4 | 65.8 |
| Actuated g/C Ratio | 0.36 | 0.20 | 0.33 | 0.19 | 0.41 | 0.41 | 0.58 | 0.55 |
| v/c Ratio | 0.79 | 0.28 | 0.56 | 0.91 | 0.14 | 0.63 | 0.63 | 0.35 |
| Control Delay (s/veh) | 45.2 | 1.3 | 33.3 | 35.7 | 33.1 | 37.8 | 25.7 | 16.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 45.2 | 1.3 | 33.3 | 35.7 | 33.1 | 37.8 | 25.7 | 16.2 |
| LOS | D | A | C | D | C | D | C | B |
| Approach Delay (s/veh) | | 30.7 | | | | 37.6 | | 18.3 |
| Approach LOS | | C | | | | D | | B |

| 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: 75 | |
| Control Type: Actuated-Coordinated | |
| Maximum v/c Ratio: 0.91 | |
| Intersection Signal Delay (s/veh): 30.8 | Intersection LOS: C |
| Intersection Capacity Utilization 88.2% | ICU Level of Service E |
| Analysis Period (min) 15 | |

Splits and Phases: 13: Airport Road Connection



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 329 | 0 | 161 | 203 | 0 | 483 | 36 | 802 | 70 | 166 | 449 | 113 |
| Future Volume (vph) | 329 | 0 | 161 | 203 | 0 | 483 | 36 | 802 | 70 | 166 | 449 | 113 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 | 3.5 | 3.7 | 3.7 |
| Total Lost time (s) | 3.0 | 8.2 | | 3.0 | | 8.2 | 6.6 | 6.6 | | 3.0 | 6.6 | |
| Lane Util. Factor | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 0.95 | | 1.00 | 0.95 | |
| Frt | 1.00 | 0.85 | | 1.00 | | 0.85 | 1.00 | 0.99 | | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1405 | 1432 | | 1405 | | 1328 | 1303 | 3325 | | 1266 | 2915 | |
| Flt Permitted | 0.70 | 1.00 | | 0.66 | | 1.00 | 0.44 | 1.00 | | 0.20 | 1.00 | |
| Satd. Flow (perm) | 1028 | 1432 | | 969 | | 1328 | 605 | 3325 | | 265 | 2915 | |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 329 | 0 | 161 | 203 | 0 | 483 | 36 | 802 | 70 | 166 | 449 | 113 |
| RTOR Reduction (vph) | 0 | 128 | 0 | 0 | 0 | 281 | 0 | 5 | 0 | 0 | 16 | 0 |
| Lane Group Flow (vph) | 329 | 33 | 0 | 203 | 0 | 202 | 36 | 867 | 0 | 166 | 546 | 0 |
| Heavy Vehicles (%) | 27% | 0% | 14% | 27% | 0% | 23% | 37% | 5% | 48% | 41% | 15% | 47% |
| Turn Type | pm+pt | NA | | pm+pt | | Perm | Perm | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | 8 | 2 | | | 6 | | |
| Actuated Green, G (s) | 38.4 | 24.4 | | 34.4 | | 22.4 | 49.7 | 49.7 | | 65.8 | 65.8 | |
| Effective Green, g (s) | 38.4 | 24.4 | | 34.4 | | 22.4 | 49.7 | 49.7 | | 65.8 | 65.8 | |
| Actuated g/C Ratio | 0.32 | 0.20 | | 0.29 | | 0.19 | 0.41 | 0.41 | | 0.55 | 0.55 | |
| Clearance Time (s) | 3.0 | 8.2 | | 3.0 | | 8.2 | 6.6 | 6.6 | | 3.0 | 6.6 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 372 | 291 | | 321 | | 247 | 250 | 1377 | | 254 | 1598 | |
| v/s Ratio Prot | c0.10 | 0.02 | | 0.06 | | | | 0.26 | | c0.07 | 0.19 | |
| v/s Ratio Perm | c0.18 | | | 0.12 | | 0.15 | 0.06 | | | c0.29 | | |
| v/c Ratio | 0.88 | 0.11 | | 0.63 | | 0.82 | 0.14 | 0.63 | | 0.65 | 0.34 | |
| Uniform Delay, d1 | 37.7 | 39.0 | | 35.8 | | 46.8 | 21.9 | 27.9 | | 16.9 | 15.1 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.12 | 1.17 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 21.2 | 0.2 | | 4.0 | | 18.4 | 1.1 | 2.0 | | 5.9 | 0.6 | |
| Delay (s) | 58.9 | 39.1 | | 39.8 | | 65.2 | 25.7 | 34.7 | | 22.8 | 15.6 | |
| Level of Service | E | D | | D | | E | C | C | | C | B | |
| Approach Delay (s/veh) | | 52.4 | | | 57.7 | | | 34.4 | | | 17.3 | |
| Approach LOS | | D | | | E | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay (s/veh) | 38.8 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.77 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 20.8 |
| Intersection Capacity Utilization | 88.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 318 | 21 | 54 | 501 | 67 | 221 |
| Future Volume (Veh/h) | 318 | 21 | 54 | 501 | 67 | 221 |
| 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) | 318 | 21 | 54 | 501 | 67 | 221 |
| 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) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 339 | | 687 | 170 |
| vC1, stage 1 conf vol | | | | | 329 | |
| vC2, stage 2 conf vol | | | | | 359 | |
| vCu, unblocked vol | | | 339 | | 687 | 170 |
| 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 % | | | 96 | | 88 | 74 |
| cM capacity (veh/h) | | | 1231 | | 561 | 851 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | WB 3 | NB 1 | NB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total | 212 | 127 | 54 | 251 | 251 | 67 | 221 |
| Volume Left | 0 | 0 | 54 | 0 | 0 | 67 | 0 |
| Volume Right | 0 | 21 | 0 | 0 | 0 | 0 | 221 |
| cSH | 1700 | 1700 | 1231 | 1700 | 1700 | 561 | 851 |
| Volume to Capacity | 0.12 | 0.07 | 0.04 | 0.15 | 0.15 | 0.12 | 0.26 |
| Queue Length 95th (m) | 0.0 | 0.0 | 1.1 | 0.0 | 0.0 | 3.2 | 8.3 |
| Control Delay (s/veh) | 0.0 | 0.0 | 8.1 | 0.0 | 0.0 | 12.3 | 10.7 |
| Lane LOS | | | A | | | B | B |
| Approach Delay (s/veh) | 0.0 | | 0.8 | | | 11.1 | |
| Approach LOS | | | | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.1 | | |
| Intersection Capacity Utilization | 29.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

# APPENDIX F:

## Detailed Queueing Analyses

## Intersection: 1: Airport Road & Mayfield Road

| Movement | EB | EB | EB | EB | WB | WB | WB | NB | NB | NB | NB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | R | UL | T | TR | L | T | T | R | L |
| Maximum Queue (m) | 50.8 | 130.3 | 106.8 | 70.2 | 44.8 | 74.2 | 74.4 | 78.1 | 52.5 | 44.3 | 29.1 | 42.1 |
| Average Queue (m) | 27.2 | 74.2 | 30.8 | 33.1 | 20.4 | 35.5 | 28.0 | 38.8 | 22.6 | 16.2 | 12.2 | 13.8 |
| 95th Queue (m) | 47.6 | 114.9 | 89.3 | 61.8 | 40.8 | 60.3 | 55.5 | 65.7 | 43.4 | 35.8 | 23.7 | 33.7 |
| Link Distance (m) | | 1340.4 | 1340.4 | 1340.4 | | 82.8 | | | 442.5 | 442.5 | | |
| Upstream Blk Time (%) | | | | | | 0 | 0 | | | | | |
| Queuing Penalty (veh) | | | | | | 0 | 0 | | | | | |
| Storage Bay Dist (m) | 200.0 | | | | 50.0 | | 70.0 | 95.0 | | | 60.0 | 100.0 |
| Storage Blk Time (%) | | | | | 0 | 2 | 0 | 0 | | | | |
| Queuing Penalty (veh) | | | | | 1 | 7 | 1 | 0 | | | | |

## Intersection: 1: Airport Road & Mayfield Road

| Movement | SB | SB | SB |
|---|---|---|---|
| Directions Served | T | T | R |
| Maximum Queue (m) | 65.7 | 76.3 | 30.4 |
| Average Queue (m) | 37.3 | 39.2 | 13.8 |
| 95th Queue (m) | 61.4 | 66.5 | 24.7 |
| Link Distance (m) | 430.9 | 430.9 | |
| Upstream Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |
| Storage Bay Dist (m) | | | 105.0 |
| Storage Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |

## Intersection: 2: Torbram Road & Mayfield Road

| Movement | EB | EB | EB | EB | EB | WB | WB | WB | WB | NB | NB | NB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | T | R | L | T | T | TR | L | T | R |
| Maximum Queue (m) | 10.7 | 59.1 | 61.0 | 58.1 | 24.0 | 35.2 | 48.9 | 51.9 | 59.8 | 37.4 | 31.2 | 18.9 |
| Average Queue (m) | 2.6 | 35.6 | 33.1 | 20.9 | 11.5 | 11.8 | 17.8 | 21.3 | 24.4 | 18.6 | 8.8 | 6.4 |
| 95th Queue (m) | 8.3 | 53.7 | 53.9 | 45.2 | 21.8 | 25.5 | 34.8 | 41.6 | 48.3 | 35.0 | 22.7 | 14.6 |
| Link Distance (m) | | 648.5 | 648.5 | 648.5 | | | 1340.4 | 1340.4 | 1340.4 | | 447.9 | 447.9 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (m) | 100.0 | | | | 125.0 | 105.0 | | | | 80.0 | | |
| Storage Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |

## Intersection: 2: Torbram Road & Mayfield Road

| Movement | SB | SB | SB |
|---|---|---|---|
| Directions Served | L | T | R |
| Maximum Queue (m) | 27.6 | 90.8 | 10.7 |
| Average Queue (m) | 5.1 | 49.8 | 2.7 |
| 95th Queue (m) | 16.6 | 81.5 | 8.5 |
| Link Distance (m) | | 3059.9 | |
| Upstream Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |
| Storage Bay Dist (m) | 80.0 | | 80.0 |
| Storage Blk Time (%) | | 1 | |
| Queuing Penalty (veh) | | 1 | |

## Intersection: 3: Torbram Road & Old School Road

| Movement | EB | WB | NB | SB |
|---|---|---|---|---|
| Directions Served | LTR | LTR | LTR | LTR |
| Maximum Queue (m) | 33.2 | 22.8 | 25.3 | 30.0 |
| Average Queue (m) | 14.6 | 10.7 | 9.4 | 14.3 |
| 95th Queue (m) | 24.1 | 19.5 | 18.4 | 23.6 |
| Link Distance (m) | 581.6 | 1373.9 | 3059.9 | 648.4 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (m) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

## Intersection: 4: Airport Road & Old School Road/Healy Road

| Movement | EB | WB | NB | SB | SB |
|---|---|---|---|---|---|
| Directions Served | LTR | LTR | LTR | LT | R |
| Maximum Queue (m) | 68.4 | 55.9 | 59.6 | 85.0 | 11.4 |
| Average Queue (m) | 40.8 | 27.0 | 20.2 | 42.4 | 0.8 |
| 95th Queue (m) | 64.9 | 47.3 | 46.9 | 78.4 | 5.2 |
| Link Distance (m) | 1373.9 | 238.2 | 1861.9 | 217.7 | |
| Upstream Blk Time (%) | | | | | |
| Queuing Penalty (veh) | | | | | |
| Storage Bay Dist (m) | | | | | 50.0 |
| Storage Blk Time (%) | | | | 5 | |
| Queuing Penalty (veh) | | | | 0 | |

## Intersection: 6: Airport Road & Perdue Court/Davis Lane

| Movement | EB | EB | WB | WB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|---|
| Directions Served | L | TR | L | TR | UL | R | L | T |
| Maximum Queue (m) | 11.5 | 22.8 | 25.5 | 16.8 | 20.4 | 1.7 | 6.2 | 1.7 |
| Average Queue (m) | 0.5 | 8.3 | 7.2 | 1.3 | 7.9 | 0.1 | 0.3 | 0.1 |
| 95th Queue (m) | 5.3 | 20.3 | 20.1 | 8.4 | 18.5 | 0.9 | 2.9 | 0.9 |
| Link Distance (m) | 94.3 | 94.3 | | 114.2 | | | | 672.9 |
| Upstream Blk Time (%) | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | |
| Storage Bay Dist (m) | | | 30.0 | | 70.0 | 65.0 | 70.0 | |
| Storage Blk Time (%) | | | 0 | | | | | |
| Queuing Penalty (veh) | | | 0 | | | | | |

## Zone Summary

Zone wide Queuing Penalty: 10

## Intersection: 1: Airport Road & Mayfield Road

| Movement | EB | EB | EB | EB | WB | WB | WB | B17 | NB | NB | NB | NB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | R | L | T | TR | T | L | T | T | R |
| Maximum Queue (m) | 77.4 | 132.8 | 112.8 | 46.3 | 77.6 | 108.1 | 82.7 | 70.2 | 126.7 | 93.8 | 86.0 | 25.5 |
| Average Queue (m) | 35.9 | 74.1 | 29.6 | 15.0 | 19.3 | 53.4 | 44.5 | 3.9 | 67.9 | 53.8 | 49.9 | 11.0 |
| 95th Queue (m) | 65.0 | 118.8 | 90.9 | 32.1 | 46.8 | 93.5 | 78.5 | 34.8 | 110.8 | 79.1 | 75.5 | 22.4 |
| Link Distance (m) | | 1340.4 | 1340.4 | 1340.4 | | 82.8 | | 341.4 | | 442.5 | 442.5 | |
| Upstream Blk Time (%) | | | | | 0 | 2 | 1 | | | | | |
| Queuing Penalty (veh) | | | | | 0 | 0 | 0 | | | | | |
| Storage Bay Dist (m) | 200.0 | | | | 50.0 | | 70.0 | | 95.0 | | | 60.0 |
| Storage Blk Time (%) | | | | | 1 | 7 | 1 | | 4 | 0 | 4 | |
| Queuing Penalty (veh) | | | | | 6 | 33 | 5 | | 9 | 0 | 3 | |

## Intersection: 1: Airport Road & Mayfield Road

| Movement | SB | SB | SB | SB |
|---|---|---|---|---|
| Directions Served | UL | T | T | R |
| Maximum Queue (m) | 60.5 | 57.5 | 60.1 | 44.0 |
| Average Queue (m) | 21.3 | 29.7 | 29.8 | 20.8 |
| 95th Queue (m) | 44.8 | 52.5 | 52.6 | 34.3 |
| Link Distance (m) | | 430.9 | 430.9 | |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (m) | 100.0 | | | 105.0 |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

## Intersection: 2: Torbram Road & Mayfield Road

| Movement | EB | EB | EB | EB | EB | WB | WB | WB | WB | NB | NB | NB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | UL | T | T | T | R | L | T | T | TR | L | T | R |
| Maximum Queue (m) | 19.6 | 66.5 | 60.8 | 38.2 | 19.6 | 35.2 | 60.8 | 66.4 | 69.8 | 70.7 | 78.7 | 17.2 |
| Average Queue (m) | 7.0 | 33.8 | 25.2 | 10.2 | 8.2 | 17.0 | 23.2 | 32.2 | 33.1 | 37.3 | 36.0 | 6.1 |
| 95th Queue (m) | 16.2 | 56.3 | 48.1 | 28.2 | 16.6 | 30.1 | 46.8 | 56.4 | 57.6 | 61.1 | 65.1 | 12.5 |
| Link Distance (m) | | 648.5 | 648.5 | 648.5 | | | 1340.4 | 1340.4 | 1340.4 | | 447.9 | 447.9 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (m) | 100.0 | | | | 125.0 | 105.0 | | | | 80.0 | | |
| Storage Blk Time (%) | | | | | | | | | | 0 | 0 | |
| Queuing Penalty (veh) | | | | | | | | | | 0 | 1 | |

## Intersection: 2: Torbram Road & Mayfield Road

| Movement | SB | SB | SB |
|---|---|---|---|
| Directions Served | L | T | R |
| Maximum Queue (m) | 13.8 | 40.0 | 9.1 |
| Average Queue (m) | 2.3 | 18.9 | 2.1 |
| 95th Queue (m) | 8.8 | 35.4 | 7.2 |
| Link Distance (m) | | 3059.9 | |
| Upstream Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |
| Storage Bay Dist (m) | 80.0 | | 80.0 |
| Storage Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |

## Intersection: 3: Torbram Road & Old School Road

| Movement | EB | WB | NB | SB |
|---|---|---|---|---|
| Directions Served | LTR | LTR | LTR | LTR |
| Maximum Queue (m) | 23.5 | 58.5 | 63.0 | 20.4 |
| Average Queue (m) | 13.0 | 30.5 | 27.8 | 9.3 |
| 95th Queue (m) | 20.0 | 51.2 | 52.5 | 15.8 |
| Link Distance (m) | 581.6 | 1373.9 | 3059.9 | 648.4 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (m) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

## Intersection: 4: Airport Road & Old School Road/Healy Road

| Movement | EB | WB | NB | B16 | SB | SB |
|---|---|---|---|---|---|---|
| Directions Served | LTR | LTR | LTR | T | LT | R |
| Maximum Queue (m) | 76.1 | 124.5 | 294.2 | 3.1 | 148.8 | 12.6 |
| Average Queue (m) | 39.4 | 75.6 | 138.1 | 0.1 | 51.0 | 3.0 |
| 95th Queue (m) | 67.3 | 116.6 | 327.0 | 1.7 | 118.6 | 10.2 |
| Link Distance (m) | 1373.9 | 238.2 | 1861.9 | 672.9 | 217.7 | |
| Upstream Blk Time (%) | | | | | 0 | |
| Queuing Penalty (veh) | | | | | 0 | |
| Storage Bay Dist (m) | | | | | | 50.0 |
| Storage Blk Time (%) | | | | | 17 | |
| Queuing Penalty (veh) | | | | | 3 | |

## Intersection: 6: Airport Road & Perdue Court/Davis Lane

| Movement | EB | EB | WB | WB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | TR | L | TR | UL | T | R | UL | T | R |
| Maximum Queue (m) | 7.8 | 21.1 | 30.8 | 12.2 | 19.7 | 2.2 | 1.5 | 22.4 | 5.2 | 4.8 |
| Average Queue (m) | 1.9 | 8.5 | 12.7 | 1.5 | 4.9 | 0.1 | 0.0 | 5.8 | 0.3 | 0.2 |
| 95th Queue (m) | 7.2 | 17.9 | 24.3 | 7.1 | 16.3 | 1.2 | 0.8 | 18.2 | 3.5 | 2.6 |
| Link Distance (m) | 94.3 | 94.3 | | 114.2 | | 430.9 | | | 672.9 | |
| Upstream Blk Time (%) | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | |
| Storage Bay Dist (m) | | | 30.0 | | 70.0 | | 65.0 | 70.0 | | 60.0 |
| Storage Blk Time (%) | | | 0 | | | | | | | |
| Queuing Penalty (veh) | | | 0 | | | | | | | |

## Zone Summary

Zone wide Queuing Penalty: 61

# Junctions 8

## ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]


For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk



**Filename:** Airport_Healey_OldSchool(new_improved).arc8
**Path:** J:\2200\2278- Broccolini\7228 - Broccolini Secondary Plan\Design\Traffic\Analysis\Arcady
**Report generation date:** 2025-04-11 11:21:27 AM



## Summary of junction performance

| | AM | | | | | | |
|---|---|---|---|---|---|---|---|
| | Queue (PCU) | 95% Queue (PCU) | Delay (s) | RFC | LOS | Junction Delay (s) | Junction LOS |
| | A1 [Entry Lane Simulation] - FB_2044 | | | | | | |
| **Arm 1** | 0.70 | 2.82 | 4.10 | N/A | A | 3.02 | A |
| **Arm 2** | 0.40 | 1.98 | 1.90 | N/A | A | | |
| **Arm 3** | 0.06 | ~1 | 0.80 | N/A | A | | |
| **Arm 4** | 1.89 | 6.80 | 3.48 | N/A | A | | |

*Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.*

*"D3 - FB_2044, AM " model duration: 8:00 AM - 8:15 AM*
*"D6 - FB_2044, PM" model duration: 5:00 PM - 5:15 PM*
*"D9 - FT_2044, AM" model duration: 8:00 AM - 8:15 AM*
*"D12 - FT_2044, PM" model duration: 5:00 PM - 5:15 PM*

*Run using Junctions 8.0.6.541 at 2025-04-11 11:21:26 AM*

## File summary

| | |
|---|---|
| **Title** | Airport Road and Healey Road / Old School Road |
| **Location** | |
| **Site Number** | |
| **Date** | 2025-03-31 |
| **Version** | |
| **Status** | (new file) |
| **Identifier** | |
| **Client** | |
| **Jobnumber** | |
| **Enumerator** | ahallsworth |
| **Description** | |

## Analysis Options

| Vehicle Length (m) | Do Queue Variations | Calculate Residual Capacity | Residual Capacity Criteria Type | RFC Threshold | Average Delay Threshold (s) | Queue Threshold (PCU) |
|---|---|---|---|---|---|---|
| 5.75 | ✓ | | N/A | 0.85 | 36.00 | 20.00 |

## Units

| Distance Units | Speed Units | Traffic Units Input | Traffic Units Results | Flow Units | Average Delay Units | Total Delay Units | Rate Of Delay Units |
|---|---|---|---|---|---|---|---|
| m | kph | Veh | PCU | perHour | s | -Min | perMin |

## Entry Lane Analysis Options

| Stop Criteria (%) | Random Seed | Results Refresh Speed (s) | Individual Vehicle Animation Number Of Trials | Time Step Size (s) | Last Run Random Seed | Last Run Number Of Trials |
|---|---|---|---|---|---|---|
| 1.00 | -1 | 3 | 1 | 10 | 38265579 | 904 |

# (Default Analysis Set) - FB_2044, AM

## Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Entry Lane Analysis | A1 [Entry Lane Simulation] | This analysis set uses entry lane simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results. |

## Analysis Set Details

| Name | Roundabout Capacity Model | Description | Include In Report | Use Specific Demand Set(s) | Specific Demand Set (s) | Locked | Network Flow Scaling Factor (%) | Network Capacity Scaling Factor (%) | Reason For Scaling Factors |
|---|---|---|---|---|---|---|---|---|---|
| (Default Analysis Set) | Entry Lane Simulation | | ✓ | | | | 100.000 | 100.000 | Consistent with Airport Road EA |

## Demand Set Details

| Name | Scenario Name | Time Period Name | Description | Traffic Profile Type | Model Start Time (HH:mm) | Model Finish Time (HH:mm) | Model Time Period Length (min) | Time Segment Length (min) | Results For Central Hour Only | Single Time Segment Only | Locked | Run Automatically | Use Relationship | Relatio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FB_2044, AM | FB_2044 | AM | 2031 AM Future Background | PHF | 08:00 | 08:15 | 15 | 15 | | ✓ | | ✓ | | |

# Junction Network

## Junctions

| Junction | Name | Junction Type | Arm Order | Grade Separated | Large Roundabout | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|
| 1 | Roundabout 1 | Roundabout | 1,2,3,4 | | | 3.02 | A |

## Junction Network Options

| Driving Side | Lighting |
|---|---|
| Right | Normal/unknown |

# Arms

## Arms

| Arm | Arm | Name | Description |
|---|---|---|---|
| **1** | 1 | Old School Road | West Approach |
| **2** | 2 | Airport Road | South Approach |
| **3** | 3 | Healey Road | East Approach |
| **4** | 4 | Airport Road | North Approach |

## Capacity Options

| Arm | Minimum Capacity (PCU/hr) | Maximum Capacity (PCU/hr) |
|---|---|---|
| **1** | 0.00 | 99999.00 |
| **2** | 0.00 | 99999.00 |
| **3** | 0.00 | 99999.00 |
| **4** | 0.00 | 99999.00 |

## Roundabout Geometry

| Arm | V - Approach road half-width (m) | E - Entry width (m) | l' - Effective flare length (m) | R - Entry radius (m) | D - Inscribed circle diameter (m) | PHI - Conflict (entry) angle (deg) | Exit Only |
|---|---|---|---|---|---|---|---|
| **1** | 7.40 | 10.00 | 30.00 | 38.00 | 55.00 | 11.00 | |
| **2** | 7.40 | 9.80 | 30.00 | 32.00 | 55.00 | 8.00 | |
| **3** | 7.40 | 10.00 | 30.00 | 28.00 | 55.00 | 26.00 | |
| **4** | 7.40 | 10.00 | 30.00 | 28.00 | 55.00 | 12.00 | |

## Slope / Intercept / Capacity

### Arm Intercept Adjustments

| Arm | Type | Reason | Direct Intercept Adjustment (PCU/hr) | Percentage Intercept Adjustment (%) |
|---|---|---|---|---|
| **1** | Percentage | MTO | | 90.00 |
| **2** | Percentage | MTO | | 90.00 |
| **3** | Percentage | MTO | | 90.00 |
| **4** | Percentage | MTO | | 90.00 |

### Roundabout Slope and Intercept used in model

| Arm | Enter slope and intercept directly | Entered slope | Entered intercept (PCU/hr) | Final Slope | Final Intercept (PCU/hr) |
|---|---|---|---|---|---|
| **1** | | (calculated) | (calculated) | 0.866 | 2802.300 |
| **2** | | (calculated) | (calculated) | 0.863 | 2779.455 |
| **3** | | (calculated) | (calculated) | 0.817 | 2644.722 |
| **4** | | (calculated) | (calculated) | 0.856 | 2769.721 |

*The slope and intercept shown above include any corrections and adjustments.*

## Entry Lane Analysis: Arm options

| Arm | Lane Capacity Source | Traffic Considering Secondary Lanes (%) |
|---|---|---|
| 1 | Evenly split | 10.00 |
| 2 | Evenly split | 10.00 |
| 3 | Evenly split | 10.00 |
| 4 | Evenly split | 10.00 |

## Lanes

| Arm | Lane Level | Lane | Has Limited Storage | Storage (PCU) | Minimum Capacity (PCU/hr) | Maximum Capacity (PCU/hr) |
|---|---|---|---|---|---|---|
| 1 | 1 | 1 | | Infinity | 0.00 | 99999.00 |
| 1 | 1 | 2 | | Infinity | 0.00 | 99999.00 |
| 2 | 1 | 1 | | Infinity | 0.00 | 99999.00 |
| 2 | 1 | 2 | | Infinity | 0.00 | 99999.00 |
| 3 | 1 | 1 | | Infinity | 0.00 | 99999.00 |
| 3 | 1 | 2 | | Infinity | 0.00 | 99999.00 |
| 4 | 1 | 1 | | Infinity | 0.00 | 99999.00 |
| 4 | 1 | 2 | | Infinity | 0.00 | 99999.00 |

## Entry Lane slope and intercept

| Arm | Slope | Intercept (PCU/hr) | Final Slope | Final Intercept (PCU/hr) |
|---|---|---|---|---|
| 1 | (calculated) | (calculated) | 0.433 | 1401.150 |
| 1 | (calculated) | (calculated) | 0.433 | 1401.150 |
| 2 | (calculated) | (calculated) | 0.431 | 1389.727 |
| 2 | (calculated) | (calculated) | 0.431 | 1389.727 |
| 3 | (calculated) | (calculated) | 0.409 | 1322.361 |
| 3 | (calculated) | (calculated) | 0.409 | 1322.361 |
| 4 | (calculated) | (calculated) | 0.428 | 1384.860 |
| 4 | (calculated) | (calculated) | 0.428 | 1384.860 |

### Lane Movements

| Junction | Arm | Lane Level | Lane | Arm | | | |
|---|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 | 4 |
| 1 | 1 | 1 | 1 | | ✓ | ✓ | |
| 1 | 1 | 1 | 2 | ✓ | | ✓ | ✓ |
| 1 | 2 | 1 | 1 | | | ✓ | ✓ |
| 1 | 2 | 1 | 2 | ✓ | ✓ | | ✓ |
| 1 | 3 | 1 | 1 | ✓ | | | ✓ |
| 1 | 3 | 1 | 2 | ✓ | ✓ | ✓ | |
| 1 | 4 | 1 | 1 | ✓ | ✓ | | |
| 1 | 4 | 1 | 2 | | ✓ | ✓ | ✓ |

# Traffic Flows

## Demand Set Data Options

| Default Vehicle Mix | Vehicle Mix Varies Over Time | Vehicle Mix Varies Over Turn | Vehicle Mix Varies Over Entry | Vehicle Mix Source | PCU Factor for a HV (PCU) | Default Turning Proportions | Estimate from entry/exit counts | Turning Proportions Vary Over Time | Turning Proportions Vary Over Turn | Turning Proportions Vary Over Entry |
|---|---|---|---|---|---|---|---|---|---|---|
| | | ✓ | ✓ | HV Percentages | 2.00 | | | | ✓ | ✓ |

# Entry Flows

## General Flows Data

| Arm | Profile Type | Use Turning Counts | Average Demand Flow (Veh/hr) | Flow Scaling Factor (%) |
|---|---|---|---|---|
| 1 | PHF | ✓ | 489.00 | 100.000 |
| 2 | PHF | ✓ | 534.00 | 100.000 |
| 3 | PHF | ✓ | 254.00 | 100.000 |
| 4 | PHF | ✓ | 1522.00 | 100.000 |

## Peak Hour Factor Data

| Arm | Hourly Volume (Veh/hr) | Peak Hour Factor | Peak Time Segment |
|---|---|---|---|
| 1 | 489.00 | 1.00 | N/A |
| 2 | 534.00 | 1.00 | N/A |
| 3 | 254.00 | 1.00 | N/A |
| 4 | 1522.00 | 1.00 | N/A |

# Turning Proportions

### Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 0.000 | 34.000 | 428.000 | 27.000 |
| | 2 | 9.000 | 0.000 | 116.000 | 409.000 |
| | 3 | 153.000 | 47.000 | 0.000 | 54.000 |
| | 4 | 38.000 | 1238.000 | 246.000 | 0.000 |

### Turning Proportions (Veh) - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 0.00 | 0.07 | 0.88 | 0.06 |
| | 2 | 0.02 | 0.00 | 0.22 | 0.77 |
| | 3 | 0.60 | 0.19 | 0.00 | 0.21 |
| | 4 | 0.02 | 0.81 | 0.16 | 0.00 |

# Vehicle Mix

### Average PCU Per Vehicle - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 1.000 | 1.040 | 1.020 | 1.120 |
| | 2 | 1.120 | 1.000 | 1.070 | 1.360 |
| | 3 | 1.040 | 1.070 | 1.000 | 1.000 |
| | 4 | 1.030 | 1.140 | 1.010 | 1.000 |

### Heavy Vehicle Percentages - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 0.0 | 4.0 | 2.0 | 12.0 |
| | 2 | 12.0 | 0.0 | 7.0 | 36.0 |
| | 3 | 4.0 | 7.0 | 0.0 | 0.0 |
| | 4 | 3.0 | 14.0 | 1.0 | 0.0 |

# Results

## Results Summary for whole modelled period

| Arm | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) | Total Queueing Delay (PCU-min) | Average Queueing Delay (s) | Rate Of Queueing Delay (PCU-min/min) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.10 | 0.70 | 2.82 | A | 507.01 | 126.75 | 8.96 | 4.24 | 0.60 |
| 2 | 1.90 | 0.40 | 1.98 | A | 682.04 | 170.51 | 6.28 | 2.21 | 0.42 |
| 3 | 0.80 | 0.06 | ~1 | A | 255.33 | 63.83 | 0.95 | 0.89 | 0.06 |
| 4 | 3.48 | 1.89 | 6.80 | A | 1710.27 | 427.57 | 25.96 | 3.64 | 1.73 |

## Main Results for each time segment

### Main results: (08:00-08:15)

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Entry Flow (PCU/hr) | Exit Flow (PCU/hr) | Circulating Flow (PCU/hr) | Start Queue (PCU) | End Queue (PCU) | Delay (s) | LOS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 507.01 | 126.75 | 503.43 | 204.29 | 1702.50 | 0.00 | 0.70 | 4.099 | A |
| 2 | 682.04 | 170.51 | 682.57 | 1491.70 | 714.23 | 0.00 | 0.40 | 1.900 | A |
| 3 | 255.33 | 63.83 | 255.27 | 803.63 | 593.16 | 0.00 | 0.06 | 0.799 | A |
| 4 | 1710.27 | 427.57 | 1695.73 | 637.37 | 211.06 | 0.00 | 1.89 | 3.477 | A |

## Queueing Delay Results for each time segment

### Queueing Delay results: (08:00-08:15)

| Arm | Queueing Total Delay (PCU-min) | Queueing Rate Of Delay (PCU-min/min) | Average Delay Per Arriving Vehicle (s) | Unsignalised Level Of Service | Signalised Level Of Service |
|---|---|---|---|---|---|
| 1 | 8.96 | 0.60 | 4.099 | A | A |
| 2 | 6.28 | 0.42 | 1.900 | A | A |
| 3 | 0.95 | 0.06 | 0.799 | A | A |
| 4 | 25.96 | 1.73 | 3.477 | A | A |

## Queue Variation Results for each time segment

### Queue Variation results: (08:00-08:15)

| Arm | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) |
|---|---|---|---|---|---|
| 1 | 0.70 | 0.00 | 0.00 | 1.90 | 2.82 |
| 2 | 0.40 | 0.00 | 0.00 | 1.40 | 1.98 |
| 3 | 0.06 | 0.00 | 0.00 | 0.00 | -0.01 |
| 4 | 1.89 | 0.00 | 0.20 | 4.93 | 6.80 |

# Lane Results

## Lanes: Main Results for each time segment

### Main results: (08:00-08:15)

| Arm | Lane Level | Lane | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Entry Flow (PCU/hr) | Capacity (PCU/hr) | RFC | Start Queue (PCU) | End Queue (PCU) | Delay (s) | LOS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 256.59 | 64.15 | 252.28 | 664.12 | 0.386 | 0.00 | 0.36 | 4.147 | A |
| 1 | 1 | 2 | 250.42 | 62.61 | 251.15 | 664.12 | 0.377 | 0.00 | 0.34 | 4.050 | A |
| 2 | 1 | 1 | 375.73 | 93.93 | 373.67 | 1081.63 | 0.347 | 0.00 | 0.25 | 1.976 | A |
| 2 | 1 | 2 | 306.31 | 76.58 | 308.89 | 1081.63 | 0.283 | 0.00 | 0.16 | 1.800 | A |
| 3 | 1 | 1 | 127.50 | 31.88 | 127.50 | 1080.02 | 0.118 | 0.00 | 0.02 | 0.784 | A |
| 3 | 1 | 2 | 127.83 | 31.96 | 127.77 | 1080.02 | 0.118 | 0.00 | 0.04 | 0.816 | A |
| 4 | 1 | 1 | 833.36 | 208.34 | 827.32 | 1294.55 | 0.644 | 0.00 | 0.86 | 3.276 | A |
| 4 | 1 | 2 | 876.90 | 219.23 | 868.41 | 1294.55 | 0.677 | 0.00 | 1.04 | 3.660 | A |

## Lanes: Queueing Delay Results for each time segment

### Queueing Delay results: (08:00-08:15)

| Arm | Lane Level | Lane | Queueing Total Delay (PCU-min) | Queueing Rate Of Delay (PCU-min/min) | Average Delay Per Arriving Vehicle (s) | Unsignalised Level Of Service | Signalised Level Of Service |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 4.54 | 0.30 | 4.147 | A | A |
| 1 | 1 | 2 | 4.42 | 0.29 | 4.050 | A | A |
| 2 | 1 | 1 | 3.51 | 0.23 | 1.976 | A | A |
| 2 | 1 | 2 | 2.77 | 0.18 | 1.800 | A | A |
| 3 | 1 | 1 | 0.46 | 0.03 | 0.784 | A | A |
| 3 | 1 | 2 | 0.50 | 0.03 | 0.816 | A | A |
| 4 | 1 | 1 | 12.01 | 0.80 | 3.276 | A | A |
| 4 | 1 | 2 | 13.95 | 0.93 | 3.660 | A | A |

# Lanes: Queue Variation Results for each time segment

## Queue Variation results: (08:00-08:15)

| Arm | Lane Level | Lane | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 0.36 | 0.00 | 0.00 | 0.92 | 1.61 |
| 1 | 1 | 2 | 0.34 | 0.00 | 0.00 | 0.90 | 1.59 |
| 2 | 1 | 1 | 0.25 | 0.00 | 0.00 | 0.68 | 1.56 |
| 2 | 1 | 2 | 0.16 | 0.00 | 0.00 | 0.00 | 1.14 |
| 3 | 1 | 1 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 1 | 2 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 1 | 1 | 0.86 | 0.00 | 0.00 | 2.62 | 3.54 |
| 4 | 1 | 2 | 1.04 | 0.00 | 0.00 | 2.90 | 4.07 |

# Junctions 8

## ARCADY 8 - Roundabout Module



**Filename:** Airport_Healey_OldSchool(new_improved).arc8
**Path:** J:\2200\2278- Broccolini\7228 - Broccolini Secondary Plan\Design\Traffic\Analysis\Arcady
**Report generation date:** 2025-04-11 11:20:43 AM

« (Default Analysis Set) - FB_2044, PM
» Junction Network
» Arms
» Traffic Flows
» Entry Flows
» Turning Proportions
» Vehicle Mix
» Results
» Lane Results

## Summary of junction performance

| | PM | | | | | | |
|---|---|---|---|---|---|---|---|
| | Queue (PCU) | 95% Queue (PCU) | Delay (s) | RFC | LOS | Junction Delay (s) | Junction LOS |
| | A1 [Entry Lane Simulation] - FB_2044 | | | | | | |
| **Arm 1** | 0.13 | 0.66 | 1.13 | N/A | A | 5.70 | A |
| **Arm 2** | 2.32 | 7.65 | 4.53 | N/A | A | | |
| **Arm 3** | 4.10 | 12.79 | 12.90 | N/A | B | | |
| **Arm 4** | 0.58 | 2.54 | 2.09 | N/A | A | | |

*Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.*

*"D3 - FB_2044, AM" model duration: 8:00 AM - 8:15 AM*
*"D6 - FB_2044, PM " model duration: 5:00 PM - 5:15 PM*
*"D9 - FT_2044, AM" model duration: 8:00 AM - 8:15 AM*
*"D12 - FT_2044, PM" model duration: 5:00 PM - 5:15 PM*

*Run using Junctions 8.0.6.541 at 2025-04-11 11:20:43 AM*

## File summary

| | |
|---|---|
| **Title** | Airport Road and Healey Road / Old School Road |
| **Location** | |
| **Site Number** | |
| **Date** | 2025-03-31 |
| **Version** | |
| **Status** | (new file) |
| **Identifier** | |
| **Client** | |
| **Jobnumber** | |
| **Enumerator** | ahallsworth |
| **Description** | |

## Analysis Options

| Vehicle Length (m) | Do Queue Variations | Calculate Residual Capacity | Residual Capacity Criteria Type | RFC Threshold | Average Delay Threshold (s) | Queue Threshold (PCU) |
|---|---|---|---|---|---|---|
| 5.75 | ✓ | | N/A | 0.85 | 36.00 | 20.00 |

## Units

| Distance Units | Speed Units | Traffic Units Input | Traffic Units Results | Flow Units | Average Delay Units | Total Delay Units | Rate Of Delay Units |
|---|---|---|---|---|---|---|---|
| m | kph | Veh | PCU | perHour | s | -Min | perMin |

## Entry Lane Analysis Options

| Stop Criteria (%) | Random Seed | Results Refresh Speed (s) | Individual Vehicle Animation Number Of Trials | Time Step Size (s) | Last Run Random Seed | Last Run Number Of Trials |
|---|---|---|---|---|---|---|
| 1.00 | -1 | 3 | 1 | 10 | 1776227245 | 738 |

# (Default Analysis Set) - FB_2044, PM

## Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Entry Lane Analysis | A1 [Entry Lane Simulation] | This analysis set uses entry lane simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results. |

## Analysis Set Details

| Name | Roundabout Capacity Model | Description | Include In Report | Use Specific Demand Set(s) | Specific Demand Set (s) | Locked | Network Flow Scaling Factor (%) | Network Capacity Scaling Factor (%) | Reason For Scaling Factors |
|---|---|---|---|---|---|---|---|---|---|
| (Default Analysis Set) | Entry Lane Simulation | | ✓ | | | | 100.000 | 100.000 | Consistent with Airport Road EA |

## Demand Set Details

| Name | Scenario Name | Time Period Name | Description | Traffic Profile Type | Model Start Time (HH:mm) | Model Finish Time (HH:mm) | Model Time Period Length (min) | Time Segment Length (min) | Results For Central Hour Only | Single Time Segment Only | Locked | Run Automatically | Use Relationship | Relatio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FB_2044, PM | FB_2044 | PM | 2031 PM Future Background | PHF | 17:00 | 17:15 | 15 | 15 | | ✓ | | ✓ | | |

# Junction Network

## Junctions

| Junction | Name | Junction Type | Arm Order | Grade Separated | Large Roundabout | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|
| 1 | Roundabout 1 | Roundabout | 1,2,3,4 | | | 5.70 | A |

## Junction Network Options

| Driving Side | Lighting |
|---|---|
| Right | Normal/unknown |

# Arms

## Arms

| Arm | Arm | Name | Description |
|---|---|---|---|
| **1** | 1 | Old School Road | West Approach |
| **2** | 2 | Airport Road | South Approach |
| **3** | 3 | Healey Road | East Approach |
| **4** | 4 | Airport Road | North Approach |

## Capacity Options

| Arm | Minimum Capacity (PCU/hr) | Maximum Capacity (PCU/hr) |
|---|---|---|
| **1** | 0.00 | 99999.00 |
| **2** | 0.00 | 99999.00 |
| **3** | 0.00 | 99999.00 |
| **4** | 0.00 | 99999.00 |

## Roundabout Geometry

| Arm | V - Approach road half-width (m) | E - Entry width (m) | l' - Effective flare length (m) | R - Entry radius (m) | D - Inscribed circle diameter (m) | PHI - Conflict (entry) angle (deg) | Exit Only |
|---|---|---|---|---|---|---|---|
| **1** | 7.40 | 10.00 | 30.00 | 38.00 | 55.00 | 11.00 | |
| **2** | 7.40 | 9.80 | 30.00 | 32.00 | 55.00 | 8.00 | |
| **3** | 7.40 | 10.00 | 30.00 | 28.00 | 55.00 | 26.00 | |
| **4** | 7.40 | 10.00 | 30.00 | 28.00 | 55.00 | 12.00 | |

## Slope / Intercept / Capacity

### Arm Intercept Adjustments

| Arm | Type | Reason | Direct Intercept Adjustment (PCU/hr) | Percentage Intercept Adjustment (%) |
|---|---|---|---|---|
| **1** | Percentage | MTO | | 90.00 |
| **2** | Percentage | MTO | | 90.00 |
| **3** | Percentage | MTO | | 90.00 |
| **4** | Percentage | MTO | | 90.00 |

### Roundabout Slope and Intercept used in model

| Arm | Enter slope and intercept directly | Entered slope | Entered intercept (PCU/hr) | Final Slope | Final Intercept (PCU/hr) |
|---|---|---|---|---|---|
| **1** | | (calculated) | (calculated) | 0.866 | 2802.300 |
| **2** | | (calculated) | (calculated) | 0.863 | 2779.455 |
| **3** | | (calculated) | (calculated) | 0.817 | 2644.722 |
| **4** | | (calculated) | (calculated) | 0.856 | 2769.721 |

*The slope and intercept shown above include any corrections and adjustments.*

## Entry Lane Analysis: Arm options

| Arm | Lane Capacity Source | Traffic Considering Secondary Lanes (%) |
|---|---|---|
| **1** | Evenly split | 10.00 |
| **2** | Evenly split | 10.00 |
| **3** | Evenly split | 10.00 |
| **4** | Evenly split | 10.00 |

## Lanes

| Arm | Lane Level | Lane | Has Limited Storage | Storage (PCU) | Minimum Capacity (PCU/hr) | Maximum Capacity (PCU/hr) |
|---|---|---|---|---|---|---|
| **1** | **1** | 1 | | Infinity | 0.00 | 99999.00 |
| **1** | **1** | 2 | | Infinity | 0.00 | 99999.00 |
| **2** | **1** | 1 | | Infinity | 0.00 | 99999.00 |
| **2** | **1** | 2 | | Infinity | 0.00 | 99999.00 |
| **3** | **1** | 1 | | Infinity | 0.00 | 99999.00 |
| **3** | **1** | 2 | | Infinity | 0.00 | 99999.00 |
| **4** | **1** | 1 | | Infinity | 0.00 | 99999.00 |
| **4** | **1** | 2 | | Infinity | 0.00 | 99999.00 |

## Entry Lane slope and intercept

| Arm | Slope | Intercept (PCU/hr) | Final Slope | Final Intercept (PCU/hr) |
|---|---|---|---|---|
| **1** | (calculated) | (calculated) | 0.433 | 1401.150 |
| **1** | (calculated) | (calculated) | 0.433 | 1401.150 |
| **2** | (calculated) | (calculated) | 0.431 | 1389.727 |
| **2** | (calculated) | (calculated) | 0.431 | 1389.727 |
| **3** | (calculated) | (calculated) | 0.409 | 1322.361 |
| **3** | (calculated) | (calculated) | 0.409 | 1322.361 |
| **4** | (calculated) | (calculated) | 0.428 | 1384.860 |
| **4** | (calculated) | (calculated) | 0.428 | 1384.860 |

### Lane Movements

| Junction | Arm | Lane Level | Lane | Arm | | | |
|---|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 | 4 |
| **1** | **1** | **1** | **1** | | ✓ | ✓ | |
| **1** | **1** | **1** | **2** | ✓ | | ✓ | ✓ |
| **1** | **2** | **1** | **1** | | | ✓ | ✓ |
| **1** | **2** | **1** | **2** | ✓ | ✓ | | ✓ |
| **1** | **3** | **1** | **1** | ✓ | | | ✓ |
| **1** | **3** | **1** | **2** | ✓ | ✓ | ✓ | |
| **1** | **4** | **1** | **1** | ✓ | ✓ | | |
| **1** | **4** | **1** | **2** | | ✓ | ✓ | ✓ |

# Traffic Flows

## Demand Set Data Options

| Default Vehicle Mix | Vehicle Mix Varies Over Time | Vehicle Mix Varies Over Turn | Vehicle Mix Varies Over Entry | Vehicle Mix Source | PCU Factor for a HV (PCU) | Default Turning Proportions | Estimate from entry/exit counts | Turning Proportions Vary Over Time | Turning Proportions Vary Over Turn | Turning Proportions Vary Over Entry |
|---|---|---|---|---|---|---|---|---|---|---|
| | | ✓ | ✓ | HV Percentages | 2.00 | | | | ✓ | ✓ |

# Entry Flows

## General Flows Data

| Arm | Profile Type | Use Turning Counts | Average Demand Flow (Veh/hr) | Flow Scaling Factor (%) |
|---|---|---|---|---|
| 1 | PHF | ✓ | 358.00 | 100.000 |
| 2 | PHF | ✓ | 1483.00 | 100.000 |
| 3 | PHF | ✓ | 913.00 | 100.000 |
| 4 | PHF | ✓ | 708.00 | 100.000 |

## Peak Hour Factor Data

| Arm | Hourly Volume (Veh/hr) | Peak Hour Factor | Peak Time Segment |
|---|---|---|---|
| 1 | 358.00 | 1.00 | N/A |
| 2 | 1483.00 | 1.00 | N/A |
| 3 | 913.00 | 1.00 | N/A |
| 4 | 708.00 | 1.00 | N/A |

# Turning Proportions

### Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 0.000 | 24.000 | 242.000 | 92.000 |
| | 2 | 34.000 | 0.000 | 74.000 | 1375.000 |
| | 3 | 569.000 | 98.000 | 0.000 | 246.000 |
| | 4 | 46.000 | 579.000 | 83.000 | 0.000 |

### Turning Proportions (Veh) - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 0.00 | 0.07 | 0.68 | 0.26 |
| | 2 | 0.02 | 0.00 | 0.05 | 0.93 |
| | 3 | 0.62 | 0.11 | 0.00 | 0.27 |
| | 4 | 0.06 | 0.82 | 0.12 | 0.00 |

# Vehicle Mix

### Average PCU Per Vehicle - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 1.000 | 1.130 | 1.030 | 1.030 |
| | 2 | 1.070 | 1.000 | 1.050 | 1.140 |
| | 3 | 1.010 | 1.050 | 1.000 | 1.010 |
| | 4 | 1.030 | 1.240 | 1.020 | 1.000 |

### Heavy Vehicle Percentages - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 0.0 | 13.0 | 3.0 | 3.0 |
| | 2 | 7.0 | 0.0 | 5.0 | 14.0 |
| | 3 | 1.0 | 5.0 | 0.0 | 1.0 |
| | 4 | 3.0 | 24.0 | 2.0 | 0.0 |

# Results

## Results Summary for whole modelled period

| Arm | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) | Total Queueing Delay (PCU-min) | Average Queueing Delay (s) | Rate Of Queueing Delay (PCU-min/min) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.13 | 0.13 | 0.66 | A | 372.20 | 93.05 | 1.87 | 1.21 | 0.12 |
| 2 | 4.53 | 2.32 | 7.65 | A | 1704.88 | 426.22 | 33.81 | 4.76 | 2.25 |
| 3 | 12.90 | 4.10 | 12.79 | B | 935.77 | 233.94 | 50.78 | 13.02 | 3.39 |
| 4 | 2.09 | 0.58 | 2.54 | A | 842.60 | 210.65 | 8.34 | 2.38 | 0.56 |

## Main Results for each time segment

### Main results: (17:00-17:15)

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Entry Flow (PCU/hr) | Exit Flow (PCU/hr) | Circulating Flow (PCU/hr) | Start Queue (PCU) | End Queue (PCU) | Delay (s) | LOS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 372.20 | 93.05 | 371.46 | 661.22 | 896.10 | 0.00 | 0.13 | 1.130 | A |
| 2 | 1704.88 | 426.22 | 1702.76 | 838.21 | 429.35 | 0.00 | 2.32 | 4.530 | A |
| 3 | 935.77 | 233.94 | 923.74 | 418.86 | 1713.25 | 0.00 | 4.10 | 12.900 | B |
| 4 | 842.60 | 210.65 | 837.80 | 1917.48 | 719.51 | 0.00 | 0.58 | 2.085 | A |

## Queueing Delay Results for each time segment

### Queueing Delay results: (17:00-17:15)

| Arm | Queueing Total Delay (PCU-min) | Queueing Rate Of Delay (PCU-min/min) | Average Delay Per Arriving Vehicle (s) | Unsignalised Level Of Service | Signalised Level Of Service |
|---|---|---|---|---|---|
| 1 | 1.87 | 0.12 | 1.130 | A | A |
| 2 | 33.81 | 2.25 | 4.530 | A | A |
| 3 | 50.78 | 3.39 | 12.900 | B | B |
| 4 | 8.34 | 0.56 | 2.085 | A | A |

## Queue Variation Results for each time segment

### Queue Variation results: (17:00-17:15)

| Arm | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) |
|---|---|---|---|---|---|
| 1 | 0.13 | 0.00 | 0.00 | 0.00 | 0.66 |
| 2 | 2.32 | 0.00 | 0.96 | 5.66 | 7.65 |
| 3 | 4.10 | 0.00 | 1.98 | 9.68 | 12.79 |
| 4 | 0.58 | 0.00 | 0.00 | 1.69 | 2.54 |

# Lane Results

## Lanes: Main Results for each time segment

### Main results: (17:00-17:15)

| Arm | Lane Level | Lane | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Entry Flow (PCU/hr) | Capacity (PCU/hr) | RFC | Start Queue (PCU) | End Queue (PCU) | Delay (s) | LOS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 160.89 | 40.22 | 160.65 | 1013.22 | 0.159 | 0.00 | 0.06 | 1.047 | A |
| 1 | 1 | 2 | 211.30 | 52.83 | 210.81 | 1013.22 | 0.209 | 0.00 | 0.07 | 1.193 | A |
| 2 | 1 | 1 | 856.83 | 214.21 | 858.86 | 1204.52 | 0.711 | 0.00 | 1.16 | 4.538 | A |
| 2 | 1 | 2 | 848.05 | 212.01 | 843.90 | 1204.52 | 0.704 | 0.00 | 1.17 | 4.522 | A |
| 3 | 1 | 1 | 487.89 | 121.97 | 480.81 | 622.39 | 0.784 | 0.00 | 2.21 | 13.639 | B |
| 3 | 1 | 2 | 447.89 | 111.97 | 442.93 | 622.39 | 0.720 | 0.00 | 1.89 | 12.076 | B |
| 4 | 1 | 1 | 413.50 | 103.37 | 410.81 | 1077.00 | 0.384 | 0.00 | 0.30 | 2.022 | A |
| 4 | 1 | 2 | 429.11 | 107.28 | 426.99 | 1077.00 | 0.398 | 0.00 | 0.28 | 2.145 | A |

## Lanes: Queueing Delay Results for each time segment

### Queueing Delay results: (17:00-17:15)

| Arm | Lane Level | Lane | Queueing Total Delay (PCU-min) | Queueing Rate Of Delay (PCU-min/min) | Average Delay Per Arriving Vehicle (s) | Unsignalised Level Of Service | Signalised Level Of Service |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 0.77 | 0.05 | 1.047 | A | A |
| 1 | 1 | 2 | 1.10 | 0.07 | 1.193 | A | A |
| 2 | 1 | 1 | 17.04 | 1.14 | 4.538 | A | A |
| 2 | 1 | 2 | 16.77 | 1.12 | 4.522 | A | A |
| 3 | 1 | 1 | 28.09 | 1.87 | 13.639 | B | B |
| 3 | 1 | 2 | 22.69 | 1.51 | 12.076 | B | B |
| 4 | 1 | 1 | 4.01 | 0.27 | 2.022 | A | A |
| 4 | 1 | 2 | 4.33 | 0.29 | 2.145 | A | A |

# Lanes: Queue Variation Results for each time segment

## Queue Variation results: (17:00-17:15)

| Arm | Lane Level | Lane | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1 | 1 | 2 | 0.07 | 0.00 | 0.00 | 0.00 | 0.07 |
| 2 | 1 | 1 | 1.16 | 0.00 | 0.00 | 3.01 | 4.06 |
| 2 | 1 | 2 | 1.17 | 0.00 | 0.00 | 3.07 | 4.38 |
| 3 | 1 | 1 | 2.21 | 0.00 | 0.93 | 5.34 | 6.86 |
| 3 | 1 | 2 | 1.89 | 0.00 | 0.51 | 4.73 | 6.34 |
| 4 | 1 | 1 | 0.30 | 0.00 | 0.00 | 0.89 | 1.68 |
| 4 | 1 | 2 | 0.28 | 0.00 | 0.00 | 0.80 | 1.62 |

## Intersection: 1: Airport Road & Mayfield Road

| Movement | EB | EB | EB | EB | EB | WB | WB | WB | WB | WB | NB | NB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | T | R | UL | T | T | T | R | L | T |
| Maximum Queue (m) | 246.2 | 268.8 | 234.9 | 111.2 | 91.9 | 51.2 | 63.1 | 63.0 | 55.2 | 30.5 | 109.4 | 102.6 |
| Average Queue (m) | 191.5 | 147.5 | 95.6 | 45.0 | 36.1 | 21.4 | 37.9 | 34.3 | 20.1 | 4.2 | 48.4 | 43.7 |
| 95th Queue (m) | 307.1 | 350.0 | 248.7 | 80.9 | 69.8 | 42.4 | 56.8 | 56.6 | 45.3 | 17.9 | 88.7 | 75.4 |
| Link Distance (m) | | 616.1 | 616.1 | 616.1 | | | 591.9 | 591.9 | 591.9 | | | 432.2 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (m) | 200.0 | | | | 60.0 | 165.0 | | | | 60.0 | 95.0 | |
| Storage Blk Time (%) | 43 | 13 | | 2 | 2 | | | | 0 | | 3 | 0 |
| Queuing Penalty (veh) | 144 | 48 | | 12 | 8 | | | | 0 | | 6 | 0 |

## Intersection: 1: Airport Road & Mayfield Road

| Movement | NB | NB | SB | SB | SB | SB |
|---|---|---|---|---|---|---|
| Directions Served | T | R | L | T | T | R |
| Maximum Queue (m) | 72.0 | 60.4 | 43.6 | 71.0 | 83.6 | 42.6 |
| Average Queue (m) | 36.7 | 19.0 | 18.3 | 40.9 | 45.4 | 16.3 |
| 95th Queue (m) | 63.0 | 39.8 | 34.9 | 63.8 | 73.1 | 31.9 |
| Link Distance (m) | 432.2 | | | 416.7 | 416.7 | |
| Upstream Blk Time (%) | | | | | | |
| Queuing Penalty (veh) | | | | | | |
| Storage Bay Dist (m) | | 60.0 | 100.0 | | | 105.0 |
| Storage Blk Time (%) | 1 | 0 | | | | |
| Queuing Penalty (veh) | 2 | 1 | | | | |

## Intersection: 2: Torbram Road & Mayfield Road

| Movement | EB | EB | EB | EB | EB | WB | WB | WB | WB | WB | WB | NB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | T | R | L | L | T | T | T | R | L |
| Maximum Queue (m) | 149.9 | 357.1 | 352.4 | 338.4 | 194.9 | 79.9 | 84.4 | 106.9 | 110.5 | 110.0 | 20.0 | 150.0 |
| Average Queue (m) | 98.4 | 231.0 | 221.2 | 197.8 | 100.4 | 49.6 | 53.3 | 54.8 | 65.3 | 67.4 | 8.0 | 135.1 |
| 95th Queue (m) | 192.0 | 375.9 | 361.1 | 339.0 | 219.0 | 77.6 | 80.7 | 95.3 | 104.2 | 106.2 | 17.2 | 182.1 |
| Link Distance (m) | | 426.2 | 426.2 | 426.2 | | | | 691.9 | 691.9 | 691.9 | | |
| Upstream Blk Time (%) | | 1 | 0 | 0 | | | | | | | | |
| Queuing Penalty (veh) | | 0 | 0 | 0 | | | | | | | | |
| Storage Bay Dist (m) | 100.0 | | | | 125.0 | 75.0 | 75.0 | | | | 60.0 | 80.0 |
| Storage Blk Time (%) | | 45 | | 32 | | 3 | 4 | 3 | | 19 | | 76 |
| Queuing Penalty (veh) | | 79 | | 117 | | 11 | 13 | 6 | | 14 | | 97 |

## Intersection: 2: Torbram Road & Mayfield Road

| Movement | NB | NB | SB | SB | SB | SB |
|---|---|---|---|---|---|---|
| Directions Served | T | TR | L | T | T | R |
| Maximum Queue (m) | 378.4 | 365.7 | 179.9 | 264.7 | 282.6 | 145.0 |
| Average Queue (m) | 218.1 | 192.6 | 40.1 | 154.9 | 159.8 | 74.4 |
| 95th Queue (m) | 431.8 | 407.1 | 139.4 | 255.4 | 266.9 | 177.0 |
| Link Distance (m) | 469.5 | 469.5 | | 1434.6 | 1434.6 | |
| Upstream Blk Time (%) | 4 | 1 | | | | |
| Queuing Penalty (veh) | 0 | 0 | | | | |
| Storage Bay Dist (m) | | | 80.0 | | | 80.0 |
| Storage Blk Time (%) | 0 | | | 53 | 57 | |
| Queuing Penalty (veh) | 0 | | | 38 | 146 | |

## Intersection: 3: Old School Road & Torbram Road

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | TR | L | T | TR | L | T | TR | L | T | TR |
| Maximum Queue (m) | 37.1 | 65.2 | 57.7 | 23.0 | 19.7 | 21.4 | 14.3 | 12.2 | 22.4 | 9.9 | 33.1 | 40.9 |
| Average Queue (m) | 9.8 | 37.6 | 33.2 | 6.3 | 10.4 | 8.9 | 2.1 | 3.9 | 7.9 | 0.6 | 17.0 | 15.6 |
| 95th Queue (m) | 24.6 | 55.4 | 52.3 | 16.3 | 18.5 | 19.8 | 8.8 | 11.1 | 18.1 | 4.4 | 27.8 | 32.0 |
| Link Distance (m) | | 505.2 | 505.2 | | 663.8 | 663.8 | | 727.4 | 727.4 | | 790.3 | 790.3 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (m) | 55.0 | | | 55.0 | | | 55.0 | | | 55.0 | | |
| Storage Blk Time (%) | | 1 | | | | | | | | | | |
| Queuing Penalty (veh) | | 0 | | | | | | | | | | |

## Intersection: 5: Airport Road & Street A/12333 Airport Road

| Movement | EB | EB | WB | WB | NB | NB | NB | NB | SB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | TR | L | TR | UL | T | T | R | L | T | T | R |
| Maximum Queue (m) | 28.7 | 33.1 | 44.5 | 14.4 | 47.6 | 30.1 | 37.2 | 12.0 | 10.0 | 29.7 | 32.1 | 11.8 |
| Average Queue (m) | 6.8 | 13.1 | 16.1 | 1.3 | 16.8 | 7.0 | 11.8 | 1.9 | 0.8 | 6.0 | 7.4 | 1.4 |
| 95th Queue (m) | 19.7 | 26.2 | 38.2 | 7.9 | 35.3 | 21.2 | 27.1 | 8.5 | 5.7 | 18.4 | 22.0 | 6.5 |
| Link Distance (m) | | 639.1 | 253.3 | 253.3 | | 414.2 | 414.2 | | | 1469.2 | 1469.2 | |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (m) | 55.0 | | | | 120.0 | | | 145.0 | 80.0 | | | 100.0 |
| Storage Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |

## Intersection: 6: Airport Road & Perdue Court/Davis Lane

| Movement | EB | EB | WB | WB | NB | NB | NB | NB | SB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | TR | L | TR | UL | T | T | R | L | T | T | R |
| Maximum Queue (m) | 10.1 | 27.4 | 30.1 | 16.0 | 22.9 | 30.6 | 19.6 | 3.8 | 8.5 | 32.3 | 46.4 | 1.5 |
| Average Queue (m) | 1.1 | 9.3 | 9.2 | 1.9 | 8.7 | 4.9 | 4.4 | 0.3 | 0.6 | 6.0 | 11.3 | 0.1 |
| 95th Queue (m) | 7.1 | 22.3 | 24.8 | 9.9 | 20.0 | 19.1 | 15.6 | 3.1 | 4.8 | 20.0 | 33.4 | 0.9 |
| Link Distance (m) | 101.9 | 101.9 | | 257.3 | | 416.7 | 416.7 | | | 414.2 | 414.2 | |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (m) | | | 30.0 | | 70.0 | | | 65.0 | 70.0 | | | 60.0 |
| Storage Blk Time (%) | | | 2 | | | | | | | | 0 | |
| Queuing Penalty (veh) | | | 0 | | | | | | | | 0 | |

## Intersection: 7: Street B & Mayfield Road

| Movement | EB | EB | EB | EB | EB | WB | WB | WB | WB | WB | NB | NB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | T | R | L | T | T | T | R | L | TR |
| Maximum Queue (m) | 59.6 | 112.4 | 313.3 | 117.3 | 37.5 | 15.0 | 58.2 | 61.5 | 79.3 | 17.9 | 62.2 | 121.8 |
| Average Queue (m) | 27.0 | 35.5 | 45.4 | 45.9 | 8.2 | 2.8 | 13.2 | 16.7 | 18.9 | 3.1 | 47.7 | 34.6 |
| 95th Queue (m) | 50.3 | 86.6 | 170.0 | 105.9 | 28.0 | 10.2 | 38.4 | 40.9 | 52.3 | 12.0 | 71.3 | 109.7 |
| Link Distance (m) | | 691.9 | 691.9 | 691.9 | | | 616.1 | 616.1 | 616.1 | | | 316.7 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (m) | 160.0 | | | | 30.0 | 105.0 | | | | 130.0 | 55.0 | |
| Storage Blk Time (%) | | | | 8 | 0 | | | | | | 24 | |
| Queuing Penalty (veh) | | | | 9 | 0 | | | | | | 8 | |

## Intersection: 7: Street B & Mayfield Road

| Movement | SB | SB |
|---|---|---|
| Directions Served | L | TR |
| Maximum Queue (m) | 28.4 | 25.5 |
| Average Queue (m) | 6.2 | 7.5 |
| 95th Queue (m) | 18.4 | 18.3 |
| Link Distance (m) | | 832.6 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | 55.0 | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

## Intersection: 8: Torbram Road & Street C

| Movement | EB | EB | WB | WB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | TR | L | TR | L | T | TR | L | T | TR |
| Maximum Queue (m) | 10.6 | 53.8 | 27.0 | 8.6 | 45.1 | 25.1 | 29.0 | 14.4 | 40.1 | 44.8 |
| Average Queue (m) | 2.0 | 27.0 | 11.5 | 1.2 | 19.7 | 4.0 | 11.4 | 4.0 | 16.8 | 16.2 |
| 95th Queue (m) | 8.1 | 43.5 | 22.0 | 6.0 | 35.8 | 13.2 | 24.4 | 11.9 | 32.7 | 34.4 |
| Link Distance (m) | | 273.1 | | 660.5 | | 1434.6 | 1434.6 | | 838.1 | 838.1 |
| Upstream Blk Time (%) | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | |
| Storage Bay Dist (m) | 55.0 | | 55.0 | | 55.0 | | | 55.0 | | |
| Storage Blk Time (%) | | 0 | | | 0 | | | | | |
| Queuing Penalty (veh) | | 0 | | | 0 | | | | | |

## Zone Summary

Zone wide Queuing Penalty: 758

## Intersection: 1: Airport Road & Mayfield Road

| Movement | EB | EB | EB | EB | EB | WB | WB | WB | WB | WB | NB | NB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | T | R | L | T | T | T | R | L | T |
| Maximum Queue (m) | 252.8 | 436.3 | 430.6 | 362.7 | 47.8 | 87.5 | 84.6 | 81.9 | 84.3 | 25.2 | 175.0 | 447.9 |
| Average Queue (m) | 225.1 | 290.7 | 207.4 | 145.8 | 18.8 | 40.4 | 61.1 | 58.7 | 50.5 | 5.1 | 163.8 | 321.0 |
| 95th Queue (m) | 320.4 | 659.3 | 575.0 | 476.8 | 37.8 | 76.0 | 81.5 | 80.9 | 74.2 | 18.1 | 201.0 | 560.1 |
| Link Distance (m) | | 616.1 | 616.1 | 616.1 | | | 591.9 | 591.9 | 591.9 | | | 432.2 |
| Upstream Blk Time (%) | | 10 | 3 | 0 | | | | | | | | 39 |
| Queuing Penalty (veh) | | 51 | 18 | 1 | | | | | | | | 0 |
| Storage Bay Dist (m) | 200.0 | | | | 60.0 | 165.0 | | | | 60.0 | 95.0 | |
| Storage Blk Time (%) | 58 | 24 | | 9 | 0 | | | | 3 | | 86 | 10 |
| Queuing Penalty (veh) | 143 | 87 | | 20 | 0 | | | | 2 | | 315 | 33 |

## Intersection: 1: Airport Road & Mayfield Road

| Movement | NB | NB | SB | SB | SB | SB |
|---|---|---|---|---|---|---|
| Directions Served | T | R | UL | T | T | R |
| Maximum Queue (m) | 449.3 | 120.0 | 85.4 | 85.6 | 84.6 | 115.0 |
| Average Queue (m) | 310.6 | 28.6 | 39.2 | 47.0 | 47.7 | 52.6 |
| 95th Queue (m) | 558.9 | 86.1 | 75.1 | 70.4 | 72.6 | 94.2 |
| Link Distance (m) | 432.2 | | | 416.7 | 416.7 | |
| Upstream Blk Time (%) | 24 | | | | | |
| Queuing Penalty (veh) | 0 | | | | | |
| Storage Bay Dist (m) | | 60.0 | 100.0 | | | 105.0 |
| Storage Blk Time (%) | 21 | 0 | | 0 | | 0 |
| Queuing Penalty (veh) | 24 | 0 | | 0 | | 1 |

## Intersection: 2: Torbram Road & Mayfield Road

| Movement | EB | EB | EB | EB | EB | WB | WB | WB | WB | WB | WB | NB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | UL | T | T | T | R | L | L | T | T | T | R | L |
| Maximum Queue (m) | 150.0 | 349.8 | 334.4 | 239.1 | 106.2 | 46.5 | 150.0 | 423.9 | 436.0 | 442.3 | 130.0 | 150.0 |
| Average Queue (m) | 132.6 | 231.4 | 209.3 | 128.4 | 32.1 | 23.3 | 80.8 | 264.3 | 278.3 | 282.0 | 43.3 | 149.9 |
| 95th Queue (m) | 175.8 | 444.2 | 423.5 | 300.3 | 68.5 | 38.2 | 182.4 | 456.6 | 474.7 | 474.0 | 136.6 | 149.9 |
| Link Distance (m) | | 426.2 | 426.2 | 426.2 | | | | 691.9 | 691.9 | 691.9 | | |
| Upstream Blk Time (%) | | 6 | 3 | 1 | | | | | | | | |
| Queuing Penalty (veh) | | 0 | 0 | 0 | | | | | | | | |
| Storage Bay Dist (m) | 100.0 | | | | 125.0 | 75.0 | 75.0 | | | | 60.0 | 80.0 |
| Storage Blk Time (%) | 65 | 8 | | 2 | | | | 60 | | 66 | | 95 |
| Queuing Penalty (veh) | 306 | 25 | | 7 | | | | 97 | | 32 | | 313 |

## Intersection: 2: Torbram Road & Mayfield Road

| Movement | NB | NB | SB | SB | SB | SB |
|---|---|---|---|---|---|---|
| Directions Served | T | TR | L | T | T | R |
| Maximum Queue (m) | 482.2 | 480.9 | 47.4 | 61.6 | 66.8 | 55.5 |
| Average Queue (m) | 465.3 | 460.9 | 17.2 | 38.1 | 39.7 | 25.9 |
| 95th Queue (m) | 520.4 | 527.6 | 43.2 | 58.1 | 57.9 | 46.1 |
| Link Distance (m) | 469.5 | 469.5 | | 1434.6 | 1434.6 | |
| Upstream Blk Time (%) | 80 | 50 | | | | |
| Queuing Penalty (veh) | 0 | 0 | | | | |
| Storage Bay Dist (m) | | | 80.0 | | | 80.0 |
| Storage Blk Time (%) | 6 | | | 0 | 0 | |
| Queuing Penalty (veh) | 26 | | | 0 | 0 | |

## Intersection: 3: Old School Road & Torbram Road

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | TR | L | T | TR | L | T | TR | L | T | TR |
| Maximum Queue (m) | 24.9 | 38.9 | 32.9 | 14.8 | 45.8 | 46.9 | 16.8 | 48.8 | 61.7 | 4.3 | 25.0 | 32.3 |
| Average Queue (m) | 8.9 | 23.8 | 14.2 | 5.3 | 30.7 | 31.7 | 5.7 | 14.8 | 20.5 | 0.4 | 10.6 | 10.3 |
| 95th Queue (m) | 20.7 | 36.7 | 27.5 | 12.9 | 43.7 | 43.9 | 14.0 | 35.9 | 43.1 | 3.9 | 21.0 | 21.8 |
| Link Distance (m) | | 505.2 | 505.2 | | 663.8 | 663.8 | | 727.4 | 727.4 | | 790.3 | 790.3 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (m) | 55.0 | | | 55.0 | | | 55.0 | | | 55.0 | | |
| Storage Blk Time (%) | | | | | | | | 0 | | | | |
| Queuing Penalty (veh) | | | | | | | | 0 | | | | |

## Intersection: 5: Airport Road & Street A/12333 Airport Road

| Movement | EB | EB | WB | WB | NB | NB | NB | NB | SB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | TR | L | TR | UL | T | T | R | L | T | T | R |
| Maximum Queue (m) | 62.2 | 255.9 | 62.8 | 7.2 | 91.4 | 216.5 | 228.6 | 76.6 | 6.7 | 67.6 | 62.0 | 15.0 |
| Average Queue (m) | 45.9 | 57.0 | 14.8 | 1.7 | 13.4 | 27.9 | 29.8 | 3.2 | 0.4 | 23.8 | 27.1 | 1.8 |
| 95th Queue (m) | 71.5 | 199.4 | 38.8 | 6.4 | 66.6 | 124.0 | 127.3 | 40.2 | 2.9 | 51.4 | 55.7 | 7.9 |
| Link Distance (m) | | 639.1 | 253.3 | 253.3 | | 414.2 | 414.2 | | | 1469.2 | 1469.2 | |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (m) | 55.0 | | | | 120.0 | | | 145.0 | 80.0 | | | 100.0 |
| Storage Blk Time (%) | 28 | 0 | | | | 5 | 5 | | | 0 | | |
| Queuing Penalty (veh) | 24 | 0 | | | | 3 | 1 | | | 0 | | |

## Intersection: 6: Airport Road & Perdue Court/Davis Lane

| Movement | EB | EB | WB | WB | NB | NB | NB | NB | SB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | TR | L | TR | UL | T | T | R | UL | T | T | R |
| Maximum Queue (m) | 10.1 | 23.7 | 37.0 | 37.2 | 29.8 | 64.7 | 68.5 | 18.5 | 31.4 | 38.1 | 48.8 | 11.1 |
| Average Queue (m) | 1.4 | 8.8 | 19.4 | 2.4 | 7.1 | 18.2 | 20.5 | 3.8 | 7.5 | 13.3 | 19.6 | 0.4 |
| 95th Queue (m) | 6.4 | 17.4 | 36.5 | 15.4 | 21.5 | 48.5 | 52.0 | 14.2 | 23.4 | 31.1 | 40.6 | 4.5 |
| Link Distance (m) | 101.9 | 101.9 | | 257.3 | | 416.7 | 416.7 | | | 414.2 | 414.2 | |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (m) | | | 30.0 | | 70.0 | | | 65.0 | 70.0 | | | 60.0 |
| Storage Blk Time (%) | | | 6 | | | 0 | 0 | | | | 0 | |
| Queuing Penalty (veh) | | | 0 | | | 0 | 0 | | | | 0 | |

## Intersection: 7: Street B & Mayfield Road

| Movement | EB | EB | EB | EB | EB | WB | WB | WB | WB | WB | NB | NB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | T | R | L | T | T | T | R | L | TR |
| Maximum Queue (m) | 44.5 | 310.9 | 108.8 | 115.0 | 37.5 | 21.4 | 93.3 | 100.8 | 104.9 | 12.8 | 49.9 | 12.9 |
| Average Queue (m) | 14.9 | 51.9 | 41.3 | 41.5 | 8.1 | 7.0 | 47.2 | 53.5 | 58.4 | 2.5 | 25.4 | 4.0 |
| 95th Queue (m) | 32.9 | 185.1 | 116.5 | 108.9 | 28.0 | 17.4 | 81.2 | 88.6 | 97.7 | 10.1 | 44.9 | 10.2 |
| Link Distance (m) | | 691.9 | 691.9 | 691.9 | | | 616.1 | 616.1 | 616.1 | | | 316.7 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (m) | 160.0 | | | | 30.0 | 105.0 | | | | 130.0 | 55.0 | |
| Storage Blk Time (%) | | 0 | | 7 | 0 | | 0 | | | | 0 | |
| Queuing Penalty (veh) | | 0 | | 7 | 0 | | 0 | | | | 0 | |

## Intersection: 7: Street B & Mayfield Road

| Movement | SB | SB |
|---|---|---|
| Directions Served | L | TR |
| Maximum Queue (m) | 36.4 | 64.9 |
| Average Queue (m) | 10.9 | 26.7 |
| 95th Queue (m) | 27.6 | 50.2 |
| Link Distance (m) | | 832.6 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | 55.0 | |
| Storage Blk Time (%) | | 1 |
| Queuing Penalty (veh) | | 0 |

## Intersection: 8: Torbram Road & Street C

| Movement | EB | EB | WB | WB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | TR | L | TR | L | T | TR | L | T | TR |
| Maximum Queue (m) | 12.6 | 33.9 | 40.0 | 17.5 | 62.4 | 121.0 | 50.7 | 7.6 | 23.3 | 22.6 |
| Average Queue (m) | 2.2 | 17.8 | 17.6 | 6.1 | 42.4 | 31.7 | 17.2 | 0.9 | 5.8 | 7.1 |
| 95th Queue (m) | 8.7 | 27.5 | 34.2 | 13.8 | 71.1 | 96.2 | 39.7 | 4.8 | 16.1 | 18.0 |
| Link Distance (m) | | 273.1 | | 660.5 | | 1434.6 | 1434.6 | | 838.1 | 838.1 |
| Upstream Blk Time (%) | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | |
| Storage Bay Dist (m) | 55.0 | | 55.0 | | 55.0 | | | 55.0 | | |
| Storage Blk Time (%) | | | | | 8 | | | | | |
| Queuing Penalty (veh) | | | | | 21 | | | | | |

## Zone Summary

Zone wide Queuing Penalty: 1561

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 371 | 1014 | 506 | 104 | 589 | 81 | 257 | 443 | 157 | 105 | 622 | 232 |
| v/c Ratio | 0.89 | 0.49 | 0.66 | 0.48 | 0.37 | 0.19 | 0.87 | 0.46 | 0.31 | 0.35 | 0.67 | 0.39 |
| Control Delay (s/veh) | 32.6 | 16.6 | 13.1 | 24.2 | 32.0 | 2.8 | 55.0 | 35.2 | 6.5 | 32.7 | 49.1 | 22.1 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 32.6 | 16.6 | 13.1 | 24.2 | 32.0 | 2.8 | 55.0 | 35.2 | 6.5 | 32.7 | 49.1 | 22.1 |
| Queue Length 50th (m) | 35.3 | 68.3 | 75.4 | 12.9 | 40.9 | 0.0 | 41.9 | 46.5 | 0.0 | 18.4 | 79.6 | 32.7 |
| Queue Length 95th (m) | #115.4 | 76.2 | 114.9 | 23.2 | 52.2 | 5.0 | #84.0 | 62.9 | 15.8 | 42.1 | 106.3 | 53.6 |
| Internal Link Dist (m) | | 619.7 | | | 595.2 | | | 434.9 | | | 422.4 | |
| Turn Bay Length (m) | 200.0 | | 60.0 | 165.0 | | 60.0 | 95.0 | | 60.0 | 100.0 | | 105.0 |
| Base Capacity (vph) | 415 | 2073 | 761 | 220 | 1573 | 433 | 295 | 962 | 502 | 307 | 933 | 595 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.89 | 0.49 | 0.66 | 0.47 | 0.37 | 0.19 | 0.87 | 0.46 | 0.31 | 0.34 | 0.67 | 0.39 |

Intersection Summary

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

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 174 | 1831 | 362 | 201 | 974 | 73 | 322 | 411 | 72 | 836 | 256 |
| v/c Ratio | 0.57 | 0.94 | 0.43 | 0.96 | 0.57 | 0.11 | 1.07 | 0.29 | 0.30 | 0.93 | 0.46 |
| Control Delay (s/veh) | 26.0 | 51.3 | 5.0 | 118.5 | 36.8 | 2.7 | 111.6 | 21.3 | 48.5 | 70.7 | 12.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 26.0 | 51.3 | 5.0 | 118.5 | 36.8 | 2.7 | 111.6 | 21.3 | 48.5 | 70.7 | 12.6 |
| Queue Length 50th (m) | 27.2 | 192.6 | 2.9 | 31.8 | 83.9 | 0.0 | ~89.7 | 31.3 | 17.8 | 131.1 | 10.6 |
| Queue Length 95th (m) | 41.8 | #218.5 | 23.9 | #58.0 | 104.3 | 5.9 | #153.3 | 44.4 | 33.8 | #170.6 | 36.6 |
| Internal Link Dist (m) | | 418.3 | | | 692.7 | | | 469.9 | | 1445.5 | |
| Turn Bay Length (m) | 100.0 | | 125.0 | 75.0 | | 60.0 | 80.0 | | 80.0 | | 80.0 |
| Base Capacity (vph) | 394 | 1953 | 833 | 210 | 1722 | 680 | 300 | 1426 | 238 | 897 | 551 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.44 | 0.94 | 0.43 | 0.96 | 0.57 | 0.11 | 1.07 | 0.29 | 0.30 | 0.93 | 0.46 |

Intersection Summary

~ 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.

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 357 | 734 | 234 | 227 | 955 | 77 | 342 | 733 | 113 | 144 | 525 | 432 |
| v/c Ratio | 1.01 | 0.41 | 0.28 | 0.60 | 0.61 | 0.20 | 0.96 | 0.74 | 0.26 | 0.69 | 0.61 | 0.73 |
| Control Delay (s/veh) | 103.2 | 28.1 | 3.9 | 25.6 | 43.0 | 1.7 | 69.3 | 48.1 | 9.0 | 43.9 | 47.6 | 18.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 103.2 | 28.1 | 3.9 | 25.6 | 43.0 | 1.7 | 69.3 | 48.1 | 9.0 | 43.9 | 47.6 | 18.3 |
| Queue Length 50th (m) | ~86.1 | 38.0 | 5.0 | 34.0 | 84.6 | 0.0 | 67.8 | 98.1 | 1.4 | 25.3 | 68.5 | 22.3 |
| Queue Length 95th (m) | #147.9 | 45.1 | 13.0 | 51.3 | 100.4 | 1.8 | #131.1 | 122.4 | 16.4 | #43.4 | 88.5 | 67.1 |
| Internal Link Dist (m) | | 619.7 | | | 595.2 | | | 434.9 | | | 422.4 | |
| Turn Bay Length (m) | 200.0 | | 60.0 | 165.0 | | 60.0 | 95.0 | | 60.0 | 100.0 | | 105.0 |
| Base Capacity (vph) | 352 | 1788 | 842 | 420 | 1554 | 393 | 357 | 988 | 429 | 214 | 860 | 592 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 1.01 | 0.41 | 0.28 | 0.54 | 0.61 | 0.20 | 0.96 | 0.74 | 0.26 | 0.67 | 0.61 | 0.73 |

Intersection Summary

~ 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.

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 327 | 1421 | 333 | 163 | 1720 | 48 | 414 | 853 | 52 | 420 | 230 |
| v/c Ratio | 1.09 | 0.72 | 0.39 | 0.64 | 1.04 | 0.07 | 1.06 | 0.63 | 0.38 | 0.46 | 0.41 |
| Control Delay (s/veh) | 119.8 | 38.4 | 4.1 | 77.1 | 78.8 | 0.2 | 97.8 | 37.8 | 54.8 | 48.3 | 9.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 119.8 | 38.4 | 4.1 | 77.1 | 78.8 | 0.2 | 97.8 | 37.8 | 54.8 | 48.3 | 9.0 |
| Queue Length 50th (m) | ~93.8 | 131.4 | 0.0 | 25.0 | ~205.1 | 0.0 | ~105.2 | 106.4 | 13.1 | 57.1 | 3.2 |
| Queue Length 95th (m) | #158.0 | 152.0 | 19.5 | 37.6 | #235.8 | 0.0 | #188.8 | 129.6 | 27.9 | 74.5 | 25.8 |
| Internal Link Dist (m) | | 418.3 | | | 692.7 | | | 469.9 | | 1445.5 | |
| Turn Bay Length (m) | 100.0 | | 125.0 | 75.0 | | 60.0 | 80.0 | | 80.0 | | 80.0 |
| Base Capacity (vph) | 299 | 1961 | 851 | 289 | 1653 | 654 | 391 | 1353 | 138 | 906 | 558 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 1.09 | 0.72 | 0.39 | 0.56 | 1.04 | 0.07 | 1.06 | 0.63 | 0.38 | 0.46 | 0.41 |

Intersection Summary

~ 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.

# Junctions 8

## ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]


For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk



**Filename:** Airport_Healey_OldSchool(new_improved).arc8
**Path:** J:\2200\2278- Broccolini\7228 - Broccolini Secondary Plan\Design\Traffic\Analysis\Arcady
**Report generation date:** 2025-04-11 11:19:08 AM

« (Default Analysis Set) - FT_2044, AM
» Junction Network
» Arms
» Traffic Flows
» Entry Flows
» Turning Proportions
» Vehicle Mix
» Results
» Lane Results

## Summary of junction performance

| | AM | | | | | | |
|---|---|---|---|---|---|---|---|
| | Queue (PCU) | 95% Queue (PCU) | Delay (s) | RFC | LOS | Junction Delay (s) | Junction LOS |
| | A1 [Entry Lane Simulation] - FT_2044 | | | | | | |
| **Arm 1** | 1.91 | 7.20 | 10.27 | N/A | B | 8.95 | A |
| **Arm 2** | 0.91 | 3.82 | 2.67 | N/A | A | | |
| **Arm 3** | 0.09 | 0.32 | 1.05 | N/A | A | | |
| **Arm 4** | 8.98 | 28.44 | 12.01 | N/A | B | | |

*Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.*

*"D3 - FB_2044, AM" model duration: 8:00 AM - 8:15 AM*
*"D6 - FB_2044, PM" model duration: 5:00 PM - 5:15 PM*
*"D9 - FT_2044, AM " model duration: 8:00 AM - 8:15 AM*
*"D12 - FT_2044, PM" model duration: 5:00 PM - 5:15 PM*

*Run using Junctions 8.0.6.541 at 2025-04-11 11:19:08 AM*

## File summary

| | |
|---|---|
| **Title** | Airport Road and Healey Road / Old School Road |
| **Location** | |
| **Site Number** | |
| **Date** | 2025-03-31 |
| **Version** | |
| **Status** | (new file) |
| **Identifier** | |
| **Client** | |
| **Jobnumber** | |
| **Enumerator** | ahallsworth |
| **Description** | |

## Analysis Options

| Vehicle Length (m) | Do Queue Variations | Calculate Residual Capacity | Residual Capacity Criteria Type | RFC Threshold | Average Delay Threshold (s) | Queue Threshold (PCU) |
|---|---|---|---|---|---|---|
| 5.75 | ✓ | | N/A | 0.85 | 36.00 | 20.00 |

## Units

| Distance Units | Speed Units | Traffic Units Input | Traffic Units Results | Flow Units | Average Delay Units | Total Delay Units | Rate Of Delay Units |
|---|---|---|---|---|---|---|---|
| m | kph | Veh | PCU | perHour | s | -Min | perMin |

## Entry Lane Analysis Options

| Stop Criteria (%) | Random Seed | Results Refresh Speed (s) | Individual Vehicle Animation Number Of Trials | Time Step Size (s) | Last Run Random Seed | Last Run Number Of Trials |
|---|---|---|---|---|---|---|
| 1.00 | -1 | 3 | 1 | 10 | 784599361 | 947 |

# (Default Analysis Set) - FT_2044, AM

## Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Entry Lane Analysis | A1 [Entry Lane Simulation] | This analysis set uses entry lane simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results. |

## Analysis Set Details

| Name | Roundabout Capacity Model | Description | Include In Report | Use Specific Demand Set(s) | Specific Demand Set (s) | Locked | Network Flow Scaling Factor (%) | Network Capacity Scaling Factor (%) | Reason For Scaling Factors |
|---|---|---|---|---|---|---|---|---|---|
| (Default Analysis Set) | Entry Lane Simulation | | ✓ | | | | 100.000 | 100.000 | Consistent with Airport Road EA |

## Demand Set Details

| Name | Scenario Name | Time Period Name | Description | Traffic Profile Type | Model Start Time (HH:mm) | Model Finish Time (HH:mm) | Model Time Period Length (min) | Time Segment Length (min) | Results For Central Hour Only | Single Time Segment Only | Locked | Run Automatically | Use Relationship | Relations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FT_2044, AM | FT_2044 | AM | 2031 AM Future Total | PHF | 08:00 | 08:15 | 15 | 15 | | ✓ | | ✓ | | |

# Junction Network

## Junctions

| Junction | Name | Junction Type | Arm Order | Grade Separated | Large Roundabout | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|
| 1 | Roundabout 1 | Roundabout | 1,2,3,4 | | | 8.95 | A |

## Junction Network Options

| Driving Side | Lighting |
|---|---|
| Right | Normal/unknown |

# Arms

## Arms

| Arm | Arm | Name | Description |
|---|---|---|---|
| **1** | 1 | Old School Road | West Approach |
| **2** | 2 | Airport Road | South Approach |
| **3** | 3 | Healey Road | East Approach |
| **4** | 4 | Airport Road | North Approach |

## Capacity Options

| Arm | Minimum Capacity (PCU/hr) | Maximum Capacity (PCU/hr) |
|---|---|---|
| **1** | 0.00 | 99999.00 |
| **2** | 0.00 | 99999.00 |
| **3** | 0.00 | 99999.00 |
| **4** | 0.00 | 99999.00 |

## Roundabout Geometry

| Arm | V - Approach road half-width (m) | E - Entry width (m) | l' - Effective flare length (m) | R - Entry radius (m) | D - Inscribed circle diameter (m) | PHI - Conflict (entry) angle (deg) | Exit Only |
|---|---|---|---|---|---|---|---|
| **1** | 7.40 | 10.00 | 30.00 | 38.00 | 55.00 | 11.00 | |
| **2** | 7.40 | 9.80 | 30.00 | 32.00 | 55.00 | 8.00 | |
| **3** | 7.40 | 10.00 | 30.00 | 28.00 | 55.00 | 26.00 | |
| **4** | 7.40 | 10.00 | 30.00 | 28.00 | 55.00 | 12.00 | |

## Slope / Intercept / Capacity

### Arm Intercept Adjustments

| Arm | Type | Reason | Direct Intercept Adjustment (PCU/hr) | Percentage Intercept Adjustment (%) |
|---|---|---|---|---|
| **1** | Percentage | MTO | | 90.00 |
| **2** | Percentage | MTO | | 90.00 |
| **3** | Percentage | MTO | | 90.00 |
| **4** | Percentage | MTO | | 90.00 |

### Roundabout Slope and Intercept used in model

| Arm | Enter slope and intercept directly | Entered slope | Entered intercept (PCU/hr) | Final Slope | Final Intercept (PCU/hr) |
|---|---|---|---|---|---|
| **1** | | (calculated) | (calculated) | 0.866 | 2802.300 |
| **2** | | (calculated) | (calculated) | 0.863 | 2779.455 |
| **3** | | (calculated) | (calculated) | 0.817 | 2644.722 |
| **4** | | (calculated) | (calculated) | 0.856 | 2769.721 |

*The slope and intercept shown above include any corrections and adjustments.*

## Entry Lane Analysis: Arm options

| Arm | Lane Capacity Source | Traffic Considering Secondary Lanes (%) |
|---|---|---|
| 1 | Evenly split | 10.00 |
| 2 | Evenly split | 10.00 |
| 3 | Evenly split | 10.00 |
| 4 | Evenly split | 10.00 |

## Lanes

| Arm | Lane Level | Lane | Has Limited Storage | Storage (PCU) | Minimum Capacity (PCU/hr) | Maximum Capacity (PCU/hr) |
|---|---|---|---|---|---|---|
| 1 | 1 | 1 | | Infinity | 0.00 | 99999.00 |
| 1 | 1 | 2 | | Infinity | 0.00 | 99999.00 |
| 2 | 1 | 1 | | Infinity | 0.00 | 99999.00 |
| 2 | 1 | 2 | | Infinity | 0.00 | 99999.00 |
| 3 | 1 | 1 | | Infinity | 0.00 | 99999.00 |
| 3 | 1 | 2 | | Infinity | 0.00 | 99999.00 |
| 4 | 1 | 1 | | Infinity | 0.00 | 99999.00 |
| 4 | 1 | 2 | | Infinity | 0.00 | 99999.00 |

## Entry Lane slope and intercept

| Arm | Slope | Intercept (PCU/hr) | Final Slope | Final Intercept (PCU/hr) |
|---|---|---|---|---|
| 1 | (calculated) | (calculated) | 0.433 | 1401.150 |
| 1 | (calculated) | (calculated) | 0.433 | 1401.150 |
| 2 | (calculated) | (calculated) | 0.431 | 1389.727 |
| 2 | (calculated) | (calculated) | 0.431 | 1389.727 |
| 3 | (calculated) | (calculated) | 0.409 | 1322.361 |
| 3 | (calculated) | (calculated) | 0.409 | 1322.361 |
| 4 | (calculated) | (calculated) | 0.428 | 1384.860 |
| 4 | (calculated) | (calculated) | 0.428 | 1384.860 |

### Lane Movements

| Junction | Arm | Lane Level | Lane | Arm | | | |
|---|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 | 4 |
| 1 | 1 | 1 | 1 | | ✓ | ✓ | |
| 1 | 1 | 1 | 2 | ✓ | | ✓ | ✓ |
| 1 | 2 | 1 | 1 | | | ✓ | ✓ |
| 1 | 2 | 1 | 2 | ✓ | ✓ | | ✓ |
| 1 | 3 | 1 | 1 | ✓ | | | ✓ |
| 1 | 3 | 1 | 2 | ✓ | ✓ | ✓ | |
| 1 | 4 | 1 | 1 | ✓ | ✓ | | |
| 1 | 4 | 1 | 2 | | ✓ | ✓ | ✓ |

# Traffic Flows

## Demand Set Data Options

| Default Vehicle Mix | Vehicle Mix Varies Over Time | Vehicle Mix Varies Over Turn | Vehicle Mix Varies Over Entry | Vehicle Mix Source | PCU Factor for a HV (PCU) | Default Turning Proportions | Estimate from entry/exit counts | Turning Proportions Vary Over Time | Turning Proportions Vary Over Turn | Turning Proportions Vary Over Entry |
|---|---|---|---|---|---|---|---|---|---|---|
| | | ✓ | ✓ | HV Percentages | 2.00 | | | | ✓ | ✓ |

# Entry Flows

## General Flows Data

| Arm | Profile Type | Use Turning Counts | Average Demand Flow (Veh/hr) | Flow Scaling Factor (%) |
|---|---|---|---|---|
| 1 | PHF | ✓ | 559.00 | 100.000 |
| 2 | PHF | ✓ | 653.00 | 100.000 |
| 3 | PHF | ✓ | 254.00 | 100.000 |
| 4 | PHF | ✓ | 2046.00 | 100.000 |

## Peak Hour Factor Data

| Arm | Hourly Volume (Veh/hr) | Peak Hour Factor | Peak Time Segment |
|---|---|---|---|
| 1 | 559.00 | 1.00 | N/A |
| 2 | 653.00 | 1.00 | N/A |
| 3 | 254.00 | 1.00 | N/A |
| 4 | 2046.00 | 1.00 | N/A |

# Turning Proportions

### Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 0.000 | 64.000 | 432.000 | 63.000 |
| | 2 | 13.000 | 0.000 | 120.000 | 520.000 |
| | 3 | 153.000 | 47.000 | 0.000 | 54.000 |
| | 4 | 269.000 | 1531.000 | 246.000 | 0.000 |

### Turning Proportions (Veh) - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 0.00 | 0.11 | 0.77 | 0.11 |
| | 2 | 0.02 | 0.00 | 0.18 | 0.80 |
| | 3 | 0.60 | 0.19 | 0.00 | 0.21 |
| | 4 | 0.13 | 0.75 | 0.12 | 0.00 |

# Vehicle Mix

### Average PCU Per Vehicle - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 1.000 | 1.020 | 1.020 | 1.050 |
| | 2 | 1.090 | 1.000 | 1.070 | 1.430 |
| | 3 | 1.040 | 1.070 | 1.000 | 1.000 |
| | 4 | 1.010 | 1.160 | 1.010 | 1.000 |

### Heavy Vehicle Percentages - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 0.0 | 2.0 | 2.0 | 5.0 |
| | 2 | 9.0 | 0.0 | 7.0 | 43.0 |
| | 3 | 4.0 | 7.0 | 0.0 | 0.0 |
| | 4 | 1.0 | 16.0 | 1.0 | 0.0 |

# Results

## Results Summary for whole modelled period

| Arm | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) | Total Queueing Delay (PCU-min) | Average Queueing Delay (s) | Rate Of Queueing Delay (PCU-min/min) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 10.27 | 1.91 | 7.20 | B | 573.52 | 143.38 | 25.26 | 10.57 | 1.68 |
| 2 | 2.67 | 0.91 | 3.82 | A | 907.29 | 226.82 | 11.10 | 2.94 | 0.74 |
| 3 | 1.05 | 0.09 | 0.32 | A | 259.13 | 64.78 | 1.25 | 1.16 | 0.08 |
| 4 | 12.01 | 8.98 | 28.44 | B | 2284.63 | 571.16 | 118.21 | 12.42 | 7.88 |

## Main Results for each time segment

### Main results: (08:00-08:15)

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Entry Flow (PCU/hr) | Exit Flow (PCU/hr) | Circulating Flow (PCU/hr) | Start Queue (PCU) | End Queue (PCU) | Delay (s) | LOS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 573.52 | 143.38 | 592.65 | 441.41 | 2069.71 | 0.00 | 1.91 | 10.272 | B |
| 2 | 907.29 | 226.82 | 901.65 | 1898.14 | 764.22 | 0.00 | 0.91 | 2.671 | A |
| 3 | 259.13 | 64.78 | 258.63 | 828.53 | 837.34 | 0.00 | 0.09 | 1.050 | A |
| 4 | 2284.63 | 571.16 | 2290.01 | 874.85 | 221.12 | 0.00 | 8.98 | 12.014 | B |

## Queueing Delay Results for each time segment

### Queueing Delay results: (08:00-08:15)

| Arm | Queueing Total Delay (PCU-min) | Queueing Rate Of Delay (PCU-min/min) | Average Delay Per Arriving Vehicle (s) | Unsignalised Level Of Service | Signalised Level Of Service |
|---|---|---|---|---|---|
| 1 | 25.26 | 1.68 | 10.272 | B | B |
| 2 | 11.10 | 0.74 | 2.671 | A | A |
| 3 | 1.25 | 0.08 | 1.050 | A | A |
| 4 | 118.21 | 7.88 | 12.014 | B | B |

## Queue Variation Results for each time segment

### Queue Variation results: (08:00-08:15)

| Arm | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) |
|---|---|---|---|---|---|
| 1 | 1.91 | 0.00 | 0.49 | 5.01 | 7.20 |
| 2 | 0.91 | 0.00 | 0.00 | 2.40 | 3.82 |
| 3 | 0.09 | 0.00 | 0.00 | 0.00 | 0.32 |
| 4 | 8.98 | 0.00 | 4.94 | 22.30 | 28.44 |

# Lane Results

## Lanes: Main Results for each time segment

### Main results: (08:00-08:15)

| Arm | Lane Level | Lane | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Entry Flow (PCU/hr) | Capacity (PCU/hr) | RFC | Start Queue (PCU) | End Queue (PCU) | Delay (s) | LOS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 289.74 | 72.43 | 298.42 | 505.51 | 0.573 | 0.00 | 0.95 | 10.214 | B |
| 1 | 1 | 2 | 283.78 | 70.95 | 294.23 | 505.51 | 0.561 | 0.00 | 0.96 | 10.332 | B |
| 2 | 1 | 1 | 485.70 | 121.43 | 483.61 | 1060.06 | 0.458 | 0.00 | 0.48 | 2.736 | A |
| 2 | 1 | 2 | 421.58 | 105.40 | 418.04 | 1060.06 | 0.398 | 0.00 | 0.43 | 2.592 | A |
| 3 | 1 | 1 | 125.96 | 31.49 | 126.08 | 980.26 | 0.128 | 0.00 | 0.04 | 1.014 | A |
| 3 | 1 | 2 | 133.18 | 33.29 | 132.54 | 980.26 | 0.136 | 0.00 | 0.05 | 1.088 | A |
| 4 | 1 | 1 | 1139.68 | 284.92 | 1144.82 | 1290.25 | 0.883 | 0.00 | 4.48 | 12.045 | B |
| 4 | 1 | 2 | 1144.94 | 286.24 | 1145.20 | 1290.25 | 0.887 | 0.00 | 4.50 | 11.982 | B |

## Lanes: Queueing Delay Results for each time segment

### Queueing Delay results: (08:00-08:15)

| Arm | Lane Level | Lane | Queueing Total Delay (PCU-min) | Queueing Rate Of Delay (PCU-min/min) | Average Delay Per Arriving Vehicle (s) | Unsignalised Level Of Service | Signalised Level Of Service |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 12.54 | 0.84 | 10.214 | B | B |
| 1 | 1 | 2 | 12.72 | 0.85 | 10.332 | B | B |
| 2 | 1 | 1 | 5.95 | 0.40 | 2.736 | A | A |
| 2 | 1 | 2 | 5.15 | 0.34 | 2.592 | A | A |
| 3 | 1 | 1 | 0.59 | 0.04 | 1.014 | A | A |
| 3 | 1 | 2 | 0.66 | 0.04 | 1.088 | A | A |
| 4 | 1 | 1 | 59.29 | 3.95 | 12.045 | B | B |
| 4 | 1 | 2 | 58.91 | 3.93 | 11.982 | B | B |

# Lanes: Queue Variation Results for each time segment

## Queue Variation results: (08:00-08:15)

| Arm | Lane Level | Lane | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 0.95 | 0.00 | 0.00 | 2.51 | 3.55 |
| 1 | 1 | 2 | 0.96 | 0.00 | 0.00 | 2.56 | 3.63 |
| 2 | 1 | 1 | 0.48 | 0.00 | 0.00 | 1.59 | 2.17 |
| 2 | 1 | 2 | 0.43 | 0.00 | 0.00 | 1.52 | 1.97 |
| 3 | 1 | 1 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 1 | 2 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 1 | 1 | 4.48 | 0.00 | 2.40 | 10.89 | 14.15 |
| 4 | 1 | 2 | 4.50 | 0.00 | 2.43 | 11.14 | 14.58 |

# Junctions 8

## ARCADY 8 - Roundabout Module



**Filename:** Airport_Healey_OldSchool(new_improved).arc8
**Path:** J:\2200\2278- Broccolini\7228 - Broccolini Secondary Plan\Design\Traffic\Analysis\Arcady
**Report generation date:** 2025-04-11 11:19:47 AM

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« (Default Analysis Set) - FT_2044, PM
» Junction Network
» Arms
» Traffic Flows
» Entry Flows
» Turning Proportions
» Vehicle Mix
» Results
» Lane Results

## Summary of junction performance

*There are warnings associated with this model run - see the 'Data Errors and Warnings' tables.*

| | PM | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Queue (PCU)** | **95% Queue (PCU)** | **Delay (s)** | **RFC** | **LOS** | **Junction Delay (s)** | **Junction LOS** |
| | **A1 [Entry Lane Simulation] - FT_2044** | | | | | | |
| **Arm 1** | 0.41 | 1.80 | 2.32 | N/A | A | 23.21 | C |
| **Arm 2** | 16.07 | 45.81 | 19.44 | N/A | C | | |
| **Arm 3** | 37.03 | 75.75 | 69.12 | N/A | F | | |
| **Arm 4** | 0.99 | 3.88 | 2.59 | N/A | A | | |

*Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.*

*"D3 - FB_2044, AM" model duration: 8:00 AM - 8:15 AM*
*"D6 - FB_2044, PM" model duration: 5:00 PM - 5:15 PM*
*"D9 - FT_2044, AM" model duration: 8:00 AM - 8:15 AM*
*"D12 - FT_2044, PM " model duration: 5:00 PM - 5:15 PM*

*Run using Junctions 8.0.6.541 at 2025-04-11 11:19:47 AM*

## File summary

| | |
|---|---|
| **Title** | Airport Road and Healey Road / Old School Road |
| **Location** | |
| **Site Number** | |
| **Date** | 2025-03-31 |
| **Version** | |
| **Status** | (new file) |
| **Identifier** | |
| **Client** | |
| **Jobnumber** | |
| **Enumerator** | ahallsworth |
| **Description** | |

## Analysis Options

| Vehicle Length (m) | Do Queue Variations | Calculate Residual Capacity | Residual Capacity Criteria Type | RFC Threshold | Average Delay Threshold (s) | Queue Threshold (PCU) |
|---|---|---|---|---|---|---|
| 5.75 | ✓ | | N/A | 0.85 | 36.00 | 20.00 |

## Units

| Distance Units | Speed Units | Traffic Units Input | Traffic Units Results | Flow Units | Average Delay Units | Total Delay Units | Rate Of Delay Units |
|---|---|---|---|---|---|---|---|
| m | kph | Veh | PCU | perHour | s | -Min | perMin |

## Entry Lane Analysis Options

| Stop Criteria (%) | Random Seed | Results Refresh Speed (s) | Individual Vehicle Animation Number Of Trials | Time Step Size (s) | Last Run Random Seed | Last Run Number Of Trials |
|---|---|---|---|---|---|---|
| 1.00 | -1 | 3 | 1 | 10 | 1228416195 | 635 |

# (Default Analysis Set) - FT_2044, PM

## Data Errors and Warnings

| Severity | Area | Item | Description |
|---|---|---|---|
| Warning | Entry Lane Analysis | A1 [Entry Lane Simulation] | This analysis set uses entry lane simulation mode. This is provided as an investigative tool and the user should apply judgement when interpreting the results. |
| Last Run | Entry Lane Analysis | Arm 2 - Entry Lane Analysis | Arm 2: Queue at end of modelled period is greater than 10 PCU. Delay for these vehicles has NOT been included in calculations. You may want to increase the modelled period to take account of these vehicles. |
| Last Run | Entry Lane Analysis | Arm 3 - Entry Lane Analysis | Arm 3: Queue at end of modelled period is greater than 10 PCU. Delay for these vehicles has NOT been included in calculations. You may want to increase the modelled period to take account of these vehicles. |

## Analysis Set Details

| Name | Roundabout Capacity Model | Description | Include In Report | Use Specific Demand Set(s) | Specific Demand Set (s) | Locked | Network Flow Scaling Factor (%) | Network Capacity Scaling Factor (%) | Reason For Scaling Factors |
|---|---|---|---|---|---|---|---|---|---|
| (Default Analysis Set) | Entry Lane Simulation | | ✓ | | | | 100.000 | 100.000 | Consistent with Airport Road EA |

## Demand Set Details

| Name | Scenario Name | Time Period Name | Description | Traffic Profile Type | Model Start Time (HH:mm) | Model Finish Time (HH:mm) | Model Time Period Length (min) | Time Segment Length (min) | Results For Central Hour Only | Single Time Segment Only | Locked | Run Automatically | Use Relationship | Relations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FT_2044, PM | FT_2044 | PM | 2031 PM Future Total | PHF | 17:00 | 17:15 | 15 | 15 | | ✓ | | ✓ | | |

# Junction Network

## Junctions

| Junction | Name | Junction Type | Arm Order | Grade Separated | Large Roundabout | Junction Delay (s) | Junction LOS |
|---|---|---|---|---|---|---|---|
| 1 | Roundabout 1 | Roundabout | 1,2,3,4 | | | 23.21 | C |

## Junction Network Options

| Driving Side | Lighting |
|---|---|
| Right | Normal/unknown |

# Arms

## Arms

| Arm | Arm | Name | Description |
|---|---|---|---|
| **1** | 1 | Old School Road | West Approach |
| **2** | 2 | Airport Road | South Approach |
| **3** | 3 | Healey Road | East Approach |
| **4** | 4 | Airport Road | North Approach |

## Capacity Options

| Arm | Minimum Capacity (PCU/hr) | Maximum Capacity (PCU/hr) |
|---|---|---|
| **1** | 0.00 | 99999.00 |
| **2** | 0.00 | 99999.00 |
| **3** | 0.00 | 99999.00 |
| **4** | 0.00 | 99999.00 |

## Roundabout Geometry

| Arm | V - Approach road half-width (m) | E - Entry width (m) | l' - Effective flare length (m) | R - Entry radius (m) | D - Inscribed circle diameter (m) | PHI - Conflict (entry) angle (deg) | Exit Only |
|---|---|---|---|---|---|---|---|
| **1** | 7.40 | 10.00 | 30.00 | 38.00 | 55.00 | 11.00 | |
| **2** | 7.40 | 9.80 | 30.00 | 32.00 | 55.00 | 8.00 | |
| **3** | 7.40 | 10.00 | 30.00 | 28.00 | 55.00 | 26.00 | |
| **4** | 7.40 | 10.00 | 30.00 | 28.00 | 55.00 | 12.00 | |

# Slope / Intercept / Capacity

## Arm Intercept Adjustments

| Arm | Type | Reason | Direct Intercept Adjustment (PCU/hr) | Percentage Intercept Adjustment (%) |
|---|---|---|---|---|
| 1 | Percentage | MTO | | 90.00 |
| 2 | Percentage | MTO | | 90.00 |
| 3 | Percentage | MTO | | 90.00 |
| 4 | Percentage | MTO | | 90.00 |

## Roundabout Slope and Intercept used in model

| Arm | Enter slope and intercept directly | Entered slope | Entered intercept (PCU/hr) | Final Slope | Final Intercept (PCU/hr) |
|---|---|---|---|---|---|
| 1 | | (calculated) | (calculated) | 0.866 | 2802.300 |
| 2 | | (calculated) | (calculated) | 0.863 | 2779.455 |
| 3 | | (calculated) | (calculated) | 0.817 | 2644.722 |
| 4 | | (calculated) | (calculated) | 0.856 | 2769.721 |

*The slope and intercept shown above include any corrections and adjustments.*

# Entry Lane Analysis: Arm options

| Arm | Lane Capacity Source | Traffic Considering Secondary Lanes (%) |
|---|---|---|
| 1 | Evenly split | 10.00 |
| 2 | Evenly split | 10.00 |
| 3 | Evenly split | 10.00 |
| 4 | Evenly split | 10.00 |

# Lanes

| Arm | Lane Level | Lane | Has Limited Storage | Storage (PCU) | Minimum Capacity (PCU/hr) | Maximum Capacity (PCU/hr) |
|---|---|---|---|---|---|---|
| 1 | 1 | 1 | | Infinity | 0.00 | 99999.00 |
| 1 | 1 | 2 | | Infinity | 0.00 | 99999.00 |
| 2 | 1 | 1 | | Infinity | 0.00 | 99999.00 |
| 2 | 1 | 2 | | Infinity | 0.00 | 99999.00 |
| 3 | 1 | 1 | | Infinity | 0.00 | 99999.00 |
| 3 | 1 | 2 | | Infinity | 0.00 | 99999.00 |
| 4 | 1 | 1 | | Infinity | 0.00 | 99999.00 |
| 4 | 1 | 2 | | Infinity | 0.00 | 99999.00 |

# Entry Lane slope and intercept

| Arm | Slope | Intercept (PCU/hr) | Final Slope | Final Intercept (PCU/hr) |
|---|---|---|---|---|
| 1 | (calculated) | (calculated) | 0.433 | 1401.150 |
| 1 | (calculated) | (calculated) | 0.433 | 1401.150 |
| 2 | (calculated) | (calculated) | 0.431 | 1389.727 |
| 2 | (calculated) | (calculated) | 0.431 | 1389.727 |
| 3 | (calculated) | (calculated) | 0.409 | 1322.361 |
| 3 | (calculated) | (calculated) | 0.409 | 1322.361 |
| 4 | (calculated) | (calculated) | 0.428 | 1384.860 |
| 4 | (calculated) | (calculated) | 0.428 | 1384.860 |

### Lane Movements

| Junction | Arm | Lane Level | Lane | Arm | | | |
|---|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 | 4 |
| 1 | 1 | 1 | 1 | | ✓ | ✓ | |
| 1 | 1 | 1 | 2 | ✓ | | ✓ | ✓ |
| 1 | 2 | 1 | 1 | | | ✓ | ✓ |
| 1 | 2 | 1 | 2 | ✓ | ✓ | | ✓ |
| 1 | 3 | 1 | 1 | ✓ | | | ✓ |
| 1 | 3 | 1 | 2 | ✓ | ✓ | ✓ | |
| 1 | 4 | 1 | 1 | ✓ | ✓ | | |
| 1 | 4 | 1 | 2 | | ✓ | ✓ | ✓ |

# Traffic Flows

## Demand Set Data Options

| Default Vehicle Mix | Vehicle Mix Varies Over Time | Vehicle Mix Varies Over Turn | Vehicle Mix Varies Over Entry | Vehicle Mix Source | PCU Factor for a HV (PCU) | Default Turning Proportions | Estimate from entry/exit counts | Turning Proportions Vary Over Time | Turning Proportions Vary Over Turn | Turning Proportions Vary Over Entry |
|---|---|---|---|---|---|---|---|---|---|---|
| | | ✓ | ✓ | HV Percentages | 2.00 | | | | ✓ | ✓ |

# Entry Flows

## General Flows Data

| Arm | Profile Type | Use Turning Counts | Average Demand Flow (Veh/hr) | Flow Scaling Factor (%) |
|---|---|---|---|---|
| 1 | PHF | ✓ | 585.00 | 100.000 |
| 2 | PHF | ✓ | 1812.00 | 100.000 |
| 3 | PHF | ✓ | 913.00 | 100.000 |
| 4 | PHF | ✓ | 868.00 | 100.000 |

## Peak Hour Factor Data

| Arm | Hourly Volume (Veh/hr) | Peak Hour Factor | Peak Time Segment |
|---|---|---|---|
| 1 | 585.00 | 1.00 | N/A |
| 2 | 1812.00 | 1.00 | N/A |
| 3 | 913.00 | 1.00 | N/A |
| 4 | 868.00 | 1.00 | N/A |

# Turning Proportions

### Turning Counts / Proportions (Veh/hr) - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 0.000 | 31.000 | 264.000 | 290.000 |
| | 2 | 57.000 | 0.000 | 97.000 | 1658.000 |
| | 3 | 569.000 | 98.000 | 0.000 | 246.000 |
| | 4 | 100.000 | 685.000 | 83.000 | 0.000 |

### Turning Proportions (Veh) - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 0.00 | 0.05 | 0.45 | 0.50 |
| | 2 | 0.03 | 0.00 | 0.05 | 0.92 |
| | 3 | 0.62 | 0.11 | 0.00 | 0.27 |
| | 4 | 0.12 | 0.79 | 0.10 | 0.00 |

# Vehicle Mix

### Average PCU Per Vehicle - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 1.000 | 1.100 | 1.030 | 1.010 |
| | 2 | 1.040 | 1.000 | 1.040 | 1.170 |
| | 3 | 1.010 | 1.050 | 1.000 | 1.010 |
| | 4 | 1.010 | 1.280 | 1.020 | 1.000 |

### Heavy Vehicle Percentages - Junction 1 (for whole period)

| | | To | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| From | 1 | 0.0 | 10.0 | 3.0 | 1.0 |
| | 2 | 4.0 | 0.0 | 4.0 | 17.0 |
| | 3 | 1.0 | 5.0 | 0.0 | 1.0 |
| | 4 | 1.0 | 28.0 | 2.0 | 0.0 |

# Results

## Results Summary for whole modelled period

| Arm | Max Delay (s) | Max Queue (PCU) | Max 95th percentile Queue (PCU) | Max LOS | Average Demand (PCU/hr) | Total Junction Arrivals (PCU) | Total Queueing Delay (PCU-min) | Average Queueing Delay (s) | Rate Of Queueing Delay (PCU-min/min) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.32 | 0.41 | 1.80 | A | 604.72 | 151.18 | 5.98 | 2.37 | 0.40 |
| 2 | 19.44 | 16.07 | 45.81 | C | 2100.47 | 525.12 | 175.25 | 20.02 | 11.68 |
| 3 | 69.12 | 37.03 | 75.75 | F | 926.93 | 231.73 | 286.15 | 74.09 | 19.08 |
| 4 | 2.59 | 0.99 | 3.88 | A | 1068.47 | 267.12 | 12.74 | 2.86 | 0.85 |

## Main Results for each time segment

### Main results: (17:00-17:15)

| Arm | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Entry Flow (PCU/hr) | Exit Flow (PCU/hr) | Circulating Flow (PCU/hr) | Start Queue (PCU) | End Queue (PCU) | Delay (s) | LOS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 604.72 | 151.18 | 603.12 | 650.83 | 1052.79 | 0.00 | 0.41 | 2.317 | A |
| 2 | 2100.47 | 525.12 | 2086.77 | 1006.11 | 649.80 | 0.00 | 16.07 | 19.444 | C |
| 3 | 926.93 | 231.73 | 785.10 | 461.76 | 2274.80 | 0.00 | 37.03 | 69.117 | F |
| 4 | 1068.47 | 267.12 | 1062.71 | 2418.99 | 640.91 | 0.00 | 0.99 | 2.594 | A |

## Queueing Delay Results for each time segment

### Queueing Delay results: (17:00-17:15)

| Arm | Queueing Total Delay (PCU-min) | Queueing Rate Of Delay (PCU-min/min) | Average Delay Per Arriving Vehicle (s) | Unsignalised Level Of Service | Signalised Level Of Service |
|---|---|---|---|---|---|
| 1 | 5.98 | 0.40 | 2.317 | A | A |
| 2 | 175.25 | 11.68 | 19.444 | C | B |
| 3 | 286.15 | 19.08 | 69.117 | F | E |
| 4 | 12.74 | 0.85 | 2.594 | A | A |

## Queue Variation Results for each time segment

### Queue Variation results: (17:00-17:15)

| Arm | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) |
|---|---|---|---|---|---|
| 1 | 0.41 | 0.00 | 0.00 | 1.06 | 1.80 |
| 2 | 16.07 | 0.00 | 11.65 | 36.63 | 45.81 |
| 3 | 37.03 | 3.82 | 34.28 | 66.83 | 75.75 |
| 4 | 0.99 | 0.00 | 0.00 | 2.68 | 3.88 |

# Lane Results

## Lanes: Main Results for each time segment

### Main results: (17:00-17:15)

| Arm | Lane Level | Lane | Total Demand (PCU/hr) | Junction Arrivals (PCU) | Entry Flow (PCU/hr) | Capacity (PCU/hr) | RFC | Start Queue (PCU) | End Queue (PCU) | Delay (s) | LOS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 215.24 | 53.81 | 215.24 | 945.39 | 0.228 | 0.00 | 0.10 | 1.530 | A |
| 1 | 1 | 2 | 389.48 | 97.37 | 387.87 | 945.39 | 0.412 | 0.00 | 0.31 | 2.730 | A |
| 2 | 1 | 1 | 1047.40 | 261.85 | 1042.30 | 1109.43 | 0.944 | 0.00 | 8.04 | 19.525 | C |
| 2 | 1 | 2 | 1053.07 | 263.27 | 1044.47 | 1109.43 | 0.949 | 0.00 | 8.03 | 19.363 | C |
| 3 | 1 | 1 | 464.79 | 116.20 | 393.73 | 393.10 | 1.182 | 0.00 | 18.93 | 70.589 | F |
| 3 | 1 | 2 | 462.14 | 115.54 | 391.37 | 393.10 | 1.176 | 0.00 | 18.10 | 67.587 | F |
| 4 | 1 | 1 | 537.92 | 134.48 | 534.61 | 1110.63 | 0.484 | 0.00 | 0.51 | 2.602 | A |
| 4 | 1 | 2 | 530.55 | 132.64 | 528.09 | 1110.63 | 0.478 | 0.00 | 0.48 | 2.586 | A |

# Lanes: Queueing Delay Results for each time segment

## Queueing Delay results: (17:00-17:15)

| Arm | Lane Level | Lane | Queueing Total Delay (PCU-min) | Queueing Rate Of Delay (PCU-min/min) | Average Delay Per Arriving Vehicle (s) | Unsignalised Level Of Service | Signalised Level Of Service |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 1.44 | 0.10 | 1.530 | A | A |
| 1 | 1 | 2 | 4.54 | 0.30 | 2.730 | A | A |
| 2 | 1 | 1 | 87.99 | 5.87 | 19.525 | C | B |
| 2 | 1 | 2 | 87.26 | 5.82 | 19.363 | C | B |
| 3 | 1 | 1 | 148.11 | 9.87 | 70.589 | F | E |
| 3 | 1 | 2 | 138.03 | 9.20 | 67.587 | F | E |
| 4 | 1 | 1 | 6.43 | 0.43 | 2.602 | A | A |
| 4 | 1 | 2 | 6.31 | 0.42 | 2.586 | A | A |

# Lanes: Queue Variation Results for each time segment

## Queue Variation results: (17:00-17:15)

| Arm | Lane Level | Lane | Mean (PCU) | Q05 (PCU) | Q50 (PCU) | Q90 (PCU) | Q95 (PCU) |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 0.10 | 0.00 | 0.00 | 0.00 | 0.49 |
| 1 | 1 | 2 | 0.31 | 0.00 | 0.00 | 0.80 | 1.54 |
| 2 | 1 | 1 | 8.04 | 0.00 | 5.77 | 18.77 | 22.54 |
| 2 | 1 | 2 | 8.03 | 0.00 | 5.50 | 17.59 | 22.89 |
| 3 | 1 | 1 | 18.93 | 2.40 | 17.45 | 34.07 | 37.89 |
| 3 | 1 | 2 | 18.10 | 1.43 | 16.70 | 32.25 | 36.73 |
| 4 | 1 | 1 | 0.51 | 0.00 | 0.00 | 1.69 | 2.45 |
| 4 | 1 | 2 | 0.48 | 0.00 | 0.00 | 1.55 | 2.15 |

## Intersection: 1: Airport Road & Mayfield Road

| Movement | EB | EB | EB | EB | EB | WB | WB | WB | WB | WB | NB | NB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | T | R | UL | T | T | T | R | L | T |
| Maximum Queue (m) | 164.6 | 67.4 | 73.2 | 81.8 | 80.2 | 48.4 | 77.8 | 72.9 | 59.3 | 25.7 | 163.2 | 191.5 |
| Average Queue (m) | 83.1 | 31.6 | 36.9 | 42.0 | 32.1 | 19.4 | 44.7 | 42.2 | 30.0 | 3.9 | 98.9 | 77.3 |
| 95th Queue (m) | 148.1 | 58.0 | 65.6 | 71.3 | 65.5 | 42.3 | 70.8 | 66.0 | 53.6 | 14.0 | 176.4 | 156.2 |
| Link Distance (m) | | 616.1 | 616.1 | 616.1 | | | 591.9 | 591.9 | 591.9 | | | 432.2 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (m) | 200.0 | | | | 60.0 | 165.0 | | | | 60.0 | 95.0 | |
| Storage Blk Time (%) | | | | 2 | 2 | | | | 0 | | 34 | 1 |
| Queuing Penalty (veh) | | | | 9 | 5 | | | | 0 | | 82 | 3 |

## Intersection: 1: Airport Road & Mayfield Road

| Movement | NB | NB | SB | SB | SB | SB |
|---|---|---|---|---|---|---|
| Directions Served | T | R | L | T | T | R |
| Maximum Queue (m) | 159.4 | 54.8 | 58.6 | 88.8 | 85.1 | 45.4 |
| Average Queue (m) | 61.4 | 21.0 | 23.1 | 47.6 | 50.7 | 19.8 |
| 95th Queue (m) | 123.3 | 38.7 | 46.1 | 76.9 | 80.1 | 37.9 |
| Link Distance (m) | 432.2 | | | 416.7 | 416.7 | |
| Upstream Blk Time (%) | | | | | | |
| Queuing Penalty (veh) | | | | | | |
| Storage Bay Dist (m) | | 60.0 | 100.0 | | | 105.0 |
| Storage Blk Time (%) | 4 | 0 | | 0 | | |
| Queuing Penalty (veh) | 6 | 1 | | 0 | | |

## Intersection: 2: Torbram Road & Mayfield Road

| Movement | EB | EB | EB | EB | EB | WB | WB | WB | WB | WB | WB | NB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | T | R | L | L | T | T | T | R | L |
| Maximum Queue (m) | 149.9 | 445.4 | 441.8 | 445.4 | 195.0 | 100.7 | 109.6 | 116.9 | 120.1 | 133.0 | 92.1 | 149.8 |
| Average Queue (m) | 131.0 | 407.5 | 402.9 | 397.5 | 177.8 | 65.2 | 70.4 | 75.4 | 82.1 | 86.0 | 14.8 | 114.2 |
| 95th Queue (m) | 194.5 | 503.8 | 504.2 | 520.3 | 257.6 | 100.7 | 106.9 | 115.1 | 118.1 | 123.3 | 61.3 | 174.6 |
| Link Distance (m) | | 426.2 | 426.2 | 426.2 | | | | 691.9 | 691.9 | 691.9 | | |
| Upstream Blk Time (%) | | 42 | 37 | 40 | | | | | | | | |
| Queuing Penalty (veh) | | 0 | 0 | 0 | | | | | | | | |
| Storage Bay Dist (m) | 100.0 | | | | 125.0 | 75.0 | 75.0 | | | | 60.0 | 80.0 |
| Storage Blk Time (%) | 2 | 63 | | 61 | | 16 | 26 | 8 | | 27 | | 55 |
| Queuing Penalty (veh) | 16 | 151 | | 221 | | 54 | 89 | 16 | | 20 | | 80 |

## Intersection: 2: Torbram Road & Mayfield Road

| Movement | NB | NB | SB | SB | SB | SB |
|---|---|---|---|---|---|---|
| Directions Served | T | TR | L | T | T | R |
| Maximum Queue (m) | 261.4 | 212.0 | 179.9 | 444.6 | 456.4 | 145.0 |
| Average Queue (m) | 127.1 | 102.9 | 82.7 | 294.4 | 302.1 | 132.8 |
| 95th Queue (m) | 304.8 | 270.6 | 215.3 | 549.4 | 557.1 | 192.6 |
| Link Distance (m) | 469.5 | 469.5 | | 1434.6 | 1434.6 | |
| Upstream Blk Time (%) | | | | | | |
| Queuing Penalty (veh) | | | | | | |
| Storage Bay Dist (m) | | | 80.0 | | | 80.0 |
| Storage Blk Time (%) | 1 | | | 76 | 78 | 2 |
| Queuing Penalty (veh) | 2 | | | 55 | 209 | 6 |

## Intersection: 3: Old School Road & Torbram Road

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | TR | L | T | TR | L | T | TR | L | T | TR |
| Maximum Queue (m) | 20.8 | 58.6 | 69.6 | 20.8 | 19.6 | 19.7 | 17.6 | 14.6 | 20.2 | 22.4 | 39.6 | 37.2 |
| Average Queue (m) | 7.6 | 35.8 | 37.3 | 4.8 | 6.3 | 7.9 | 4.3 | 3.6 | 8.0 | 7.2 | 20.3 | 18.3 |
| 95th Queue (m) | 17.8 | 53.6 | 58.1 | 14.4 | 14.5 | 18.5 | 13.4 | 10.6 | 18.4 | 18.0 | 34.2 | 35.1 |
| Link Distance (m) | | 505.2 | 505.2 | | 663.8 | 663.8 | | 727.4 | 727.4 | | 790.3 | 790.3 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (m) | 55.0 | | | 55.0 | | | 55.0 | | | 55.0 | | |
| Storage Blk Time (%) | | 1 | | | | | | | | | | |
| Queuing Penalty (veh) | | 0 | | | | | | | | | | |

## Intersection: 5: Airport Road & Street A/12333 Airport Road

| Movement | EB | EB | WB | WB | NB | NB | NB | NB | SB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | TR | L | TR | UL | T | T | R | L | T | T | R |
| Maximum Queue (m) | 27.6 | 41.8 | 49.5 | 13.2 | 43.8 | 37.8 | 43.1 | 14.7 | 11.1 | 29.2 | 31.2 | 13.5 |
| Average Queue (m) | 7.0 | 12.8 | 15.9 | 0.7 | 18.5 | 7.4 | 9.7 | 1.3 | 0.7 | 5.3 | 7.5 | 1.9 |
| 95th Queue (m) | 20.9 | 27.1 | 34.4 | 5.5 | 37.8 | 25.7 | 29.1 | 6.9 | 4.9 | 18.4 | 22.7 | 8.3 |
| Link Distance (m) | | 639.1 | 253.3 | 253.3 | | 414.2 | 414.2 | | | 1469.2 | 1469.2 | |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (m) | 55.0 | | | | 120.0 | | | 145.0 | 80.0 | | | 100.0 |
| Storage Blk Time (%) | | 0 | | | | | | | | | | |
| Queuing Penalty (veh) | | 0 | | | | | | | | | | |

## Intersection: 6: Airport Road & Perdue Court/Davis Lane

| Movement | EB | EB | WB | WB | NB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | TR | L | TR | UL | T | T | R | L | T | T |
| Maximum Queue (m) | 12.6 | 22.6 | 31.4 | 19.2 | 27.3 | 59.2 | 53.1 | 11.8 | 10.6 | 34.3 | 43.6 |
| Average Queue (m) | 1.1 | 9.6 | 10.1 | 2.9 | 9.7 | 15.6 | 15.0 | 1.0 | 0.5 | 7.9 | 10.7 |
| 95th Queue (m) | 7.5 | 22.1 | 25.8 | 12.9 | 21.1 | 44.4 | 43.9 | 6.2 | 4.0 | 25.2 | 32.4 |
| Link Distance (m) | 101.9 | 101.9 | | 257.3 | | 416.7 | 416.7 | | | 414.2 | 414.2 |
| Upstream Blk Time (%) | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | |
| Storage Bay Dist (m) | | | 30.0 | | 70.0 | | | 65.0 | 70.0 | | |
| Storage Blk Time (%) | | | 1 | | | 0 | 0 | | | | |
| Queuing Penalty (veh) | | | 0 | | | 0 | 0 | | | | |

## Intersection: 7: Street B & Mayfield Road

| Movement | EB | EB | EB | EB | EB | WB | WB | WB | WB | WB | NB | NB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | T | R | L | T | T | T | R | L | TR |
| Maximum Queue (m) | 91.7 | 99.0 | 106.5 | 117.2 | 37.5 | 12.9 | 68.7 | 86.6 | 88.3 | 30.0 | 62.4 | 215.2 |
| Average Queue (m) | 46.3 | 28.9 | 31.8 | 37.8 | 9.1 | 3.7 | 23.1 | 25.2 | 31.3 | 7.0 | 56.6 | 123.8 |
| 95th Queue (m) | 77.8 | 76.8 | 83.8 | 91.9 | 31.7 | 11.4 | 57.2 | 61.7 | 72.3 | 19.5 | 74.7 | 299.8 |
| Link Distance (m) | | 691.9 | 691.9 | 691.9 | | | 616.1 | 616.1 | 616.1 | | | 316.7 |
| Upstream Blk Time (%) | | | | | | | | | | | | 2 |
| Queuing Penalty (veh) | | | | | | | | | | | | 0 |
| Storage Bay Dist (m) | 160.0 | | | | 30.0 | 105.0 | | | | 130.0 | 55.0 | |
| Storage Blk Time (%) | | | | 8 | 0 | | | | | | 59 | |
| Queuing Penalty (veh) | | | | 9 | 0 | | | | | | 21 | |

## Intersection: 7: Street B & Mayfield Road

| Movement | SB | SB |
|---|---|---|
| Directions Served | L | TR |
| Maximum Queue (m) | 39.8 | 36.6 |
| Average Queue (m) | 10.4 | 12.4 |
| 95th Queue (m) | 24.7 | 26.9 |
| Link Distance (m) | | 832.6 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | 55.0 | |
| Storage Blk Time (%) | | 0 |
| Queuing Penalty (veh) | | 0 |

## Intersection: 8: Torbram Road & Street C

| Movement | EB | EB | WB | WB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | TR | L | TR | L | T | TR | L | T | TR |
| Maximum Queue (m) | 10.3 | 56.8 | 29.0 | 8.6 | 50.4 | 25.0 | 35.4 | 10.3 | 50.6 | 56.4 |
| Average Queue (m) | 2.3 | 25.1 | 11.4 | 1.2 | 21.2 | 7.5 | 14.8 | 2.7 | 19.1 | 18.2 |
| 95th Queue (m) | 8.4 | 42.4 | 23.7 | 6.1 | 40.7 | 19.3 | 28.1 | 8.7 | 38.9 | 38.6 |
| Link Distance (m) | | 273.1 | | 660.5 | | 1434.6 | 1434.6 | | 838.1 | 838.1 |
| Upstream Blk Time (%) | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | |
| Storage Bay Dist (m) | 55.0 | | 55.0 | | 55.0 | | | 55.0 | | |
| Storage Blk Time (%) | | 0 | | | 0 | | | | 0 | |
| Queuing Penalty (veh) | | 0 | | | 0 | | | | 0 | |

## Zone Summary

Zone wide Queuing Penalty: 1055

## Intersection: 1: Airport Road & Mayfield Road

| Movement | EB | EB | EB | EB | EB | WB | WB | WB | WB | WB | NB | NB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | T | R | L | T | T | T | R | L | T |
| Maximum Queue (m) | 270.0 | 567.9 | 556.8 | 494.8 | 61.9 | 92.6 | 116.4 | 107.8 | 93.4 | 47.2 | 159.3 | 308.4 |
| Average Queue (m) | 242.3 | 296.6 | 185.8 | 115.2 | 21.3 | 42.6 | 65.4 | 63.2 | 53.3 | 7.3 | 120.7 | 162.0 |
| 95th Queue (m) | 314.9 | 606.0 | 501.1 | 365.7 | 46.3 | 80.2 | 92.6 | 90.7 | 80.2 | 26.8 | 198.9 | 341.8 |
| Link Distance (m) | | 616.1 | 616.1 | 616.1 | | | 591.9 | 591.9 | 591.9 | | | 432.2 |
| Upstream Blk Time (%) | | 7 | 1 | 0 | | | | | | | | 3 |
| Queuing Penalty (veh) | | 39 | 5 | 1 | | | | | | | | 0 |
| Storage Bay Dist (m) | 200.0 | | | | 60.0 | 165.0 | | | | 60.0 | 95.0 | |
| Storage Blk Time (%) | 66 | 21 | | 7 | 1 | | | | 3 | 0 | 40 | 17 |
| Queuing Penalty (veh) | 164 | 80 | | 20 | 1 | | | | 3 | 0 | 148 | 58 |

## Intersection: 1: Airport Road & Mayfield Road

| Movement | NB | NB | SB | SB | SB | SB |
|---|---|---|---|---|---|---|
| Directions Served | T | R | UL | T | T | R |
| Maximum Queue (m) | 301.1 | 95.3 | 70.2 | 81.6 | 85.4 | 112.0 |
| Average Queue (m) | 150.7 | 26.8 | 35.4 | 49.3 | 52.1 | 43.3 |
| 95th Queue (m) | 325.1 | 80.7 | 66.6 | 73.4 | 78.8 | 82.5 |
| Link Distance (m) | 432.2 | | | 416.7 | 416.7 | |
| Upstream Blk Time (%) | 3 | | | | | |
| Queuing Penalty (veh) | 0 | | | | | |
| Storage Bay Dist (m) | | 60.0 | 100.0 | | | 105.0 |
| Storage Blk Time (%) | 34 | | | | | 1 |
| Queuing Penalty (veh) | 38 | | | | | 2 |

## Intersection: 2: Torbram Road & Mayfield Road

| Movement | EB | EB | EB | EB | EB | WB | WB | WB | WB | WB | WB | NB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | UL | T | T | T | R | L | L | T | T | T | R | L |
| Maximum Queue (m) | 149.6 | 358.5 | 353.3 | 250.0 | 111.8 | 48.8 | 149.9 | 400.7 | 503.6 | 425.0 | 130.0 | 150.0 |
| Average Queue (m) | 121.7 | 230.1 | 216.0 | 153.2 | 37.3 | 25.9 | 105.4 | 292.4 | 312.0 | 308.3 | 49.6 | 149.9 |
| 95th Queue (m) | 174.6 | 454.6 | 440.5 | 351.4 | 91.2 | 45.5 | 201.8 | 438.2 | 471.9 | 453.7 | 146.0 | 150.2 |
| Link Distance (m) | | 426.2 | 426.2 | 426.2 | | | | 691.9 | 691.9 | 691.9 | | |
| Upstream Blk Time (%) | | 13 | 5 | 0 | | | | | 0 | | | |
| Queuing Penalty (veh) | | 0 | 0 | 0 | | | | | 0 | | | |
| Storage Bay Dist (m) | 100.0 | | | | 125.0 | 75.0 | 75.0 | | | | 60.0 | 80.0 |
| Storage Blk Time (%) | 49 | 13 | | 2 | | | | 63 | | 68 | | 96 |
| Queuing Penalty (veh) | 238 | 46 | | 7 | | | | 126 | | 33 | | 321 |

## Intersection: 2: Torbram Road & Mayfield Road

| Movement | NB | NB | SB | SB | SB | SB |
|---|---|---|---|---|---|---|
| Directions Served | T | TR | L | T | T | R |
| Maximum Queue (m) | 482.2 | 478.7 | 55.7 | 70.8 | 72.0 | 82.0 |
| Average Queue (m) | 460.3 | 456.3 | 17.0 | 45.4 | 47.5 | 38.5 |
| 95th Queue (m) | 532.3 | 533.7 | 44.0 | 66.1 | 68.7 | 68.5 |
| Link Distance (m) | 469.5 | 469.5 | | 1434.6 | 1434.6 | |
| Upstream Blk Time (%) | 82 | 47 | | | | |
| Queuing Penalty (veh) | 0 | 0 | | | | |
| Storage Bay Dist (m) | | | 80.0 | | | 80.0 |
| Storage Blk Time (%) | 9 | | | 0 | | 0 |
| Queuing Penalty (veh) | 35 | | | 0 | | 1 |

## Intersection: 3: Old School Road & Torbram Road

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | TR | L | T | TR | L | T | TR | L | T | TR |
| Maximum Queue (m) | 23.0 | 38.1 | 36.2 | 14.7 | 48.8 | 51.8 | 26.8 | 37.4 | 40.8 | 12.0 | 24.8 | 32.7 |
| Average Queue (m) | 9.0 | 22.3 | 15.5 | 4.0 | 29.8 | 31.7 | 10.6 | 12.8 | 18.0 | 2.3 | 12.8 | 11.8 |
| 95th Queue (m) | 18.8 | 36.5 | 30.4 | 12.2 | 43.8 | 45.9 | 22.3 | 28.1 | 33.1 | 8.6 | 22.3 | 23.9 |
| Link Distance (m) | | 505.2 | 505.2 | | 663.8 | 663.8 | | 727.4 | 727.4 | | 790.3 | 790.3 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (m) | 55.0 | | | 55.0 | | | 55.0 | | | 55.0 | | |
| Storage Blk Time (%) | | | | | 0 | | | | | | | |
| Queuing Penalty (veh) | | | | | 0 | | | | | | | |

## Intersection: 5: Airport Road & Street A/12333 Airport Road

| Movement | EB | EB | WB | WB | NB | NB | NB | NB | SB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | TR | L | TR | UL | T | T | R | L | T | T | R |
| Maximum Queue (m) | 62.3 | 596.9 | 49.1 | 11.8 | 219.9 | 424.3 | 421.3 | 215.0 | 4.5 | 37.3 | 50.0 | 17.0 |
| Average Queue (m) | 51.9 | 195.3 | 14.2 | 1.8 | 42.5 | 156.5 | 158.0 | 27.1 | 0.2 | 14.5 | 21.1 | 1.9 |
| 95th Queue (m) | 73.8 | 539.4 | 34.3 | 7.6 | 173.8 | 459.1 | 459.4 | 142.8 | 1.8 | 34.1 | 43.1 | 9.9 |
| Link Distance (m) | | 639.1 | 253.3 | 253.3 | | 414.2 | 414.2 | | | 1469.2 | 1469.2 | |
| Upstream Blk Time (%) | | 2 | | | | 15 | 13 | | | | | |
| Queuing Penalty (veh) | | 3 | | | | 91 | 78 | | | | | |
| Storage Bay Dist (m) | 55.0 | | | | 120.0 | | | 145.0 | 80.0 | | | 100.0 |
| Storage Blk Time (%) | 56 | 2 | | | | 37 | 36 | | | | | |
| Queuing Penalty (veh) | 49 | 3 | | | | 26 | 10 | | | | | |

## Intersection: 6: Airport Road & Perdue Court/Davis Lane

| Movement | EB | EB | WB | WB | NB | NB | NB | NB | SB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | TR | L | TR | UL | T | T | R | UL | T | T | R |
| Maximum Queue (m) | 7.9 | 27.9 | 35.7 | 29.2 | 104.2 | 423.0 | 426.2 | 115.0 | 31.2 | 41.1 | 49.9 | 13.9 |
| Average Queue (m) | 1.1 | 8.6 | 17.0 | 3.3 | 16.3 | 110.9 | 114.1 | 13.6 | 7.1 | 14.7 | 21.5 | 0.8 |
| 95th Queue (m) | 5.3 | 20.0 | 31.7 | 16.6 | 74.4 | 360.4 | 362.4 | 69.9 | 21.7 | 35.4 | 46.4 | 6.0 |
| Link Distance (m) | 101.9 | 101.9 | | 257.3 | | 416.7 | 416.7 | | | 414.2 | 414.2 | |
| Upstream Blk Time (%) | | | | | | 4 | 5 | | | | | |
| Queuing Penalty (veh) | | | | | | 26 | 31 | | | | | |
| Storage Bay Dist (m) | | | 30.0 | | 70.0 | | | 65.0 | 70.0 | | | 60.0 |
| Storage Blk Time (%) | | | 3 | | | 25 | 26 | | | | 0 | |
| Queuing Penalty (veh) | | | 0 | | | 10 | 13 | | | | 0 | |

## Intersection: 7: Street B & Mayfield Road

| Movement | EB | EB | EB | EB | EB | WB | WB | WB | WB | WB | NB | NB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | T | R | L | T | T | T | R | L | TR |
| Maximum Queue (m) | 123.6 | 237.0 | 206.5 | 199.6 | 37.5 | 33.8 | 102.8 | 119.0 | 119.1 | 18.8 | 57.8 | 14.2 |
| Average Queue (m) | 29.4 | 53.9 | 50.2 | 53.4 | 6.8 | 9.3 | 36.9 | 44.3 | 47.3 | 4.4 | 28.5 | 3.8 |
| 95th Queue (m) | 75.1 | 166.4 | 156.2 | 149.2 | 26.4 | 23.5 | 87.6 | 95.9 | 97.8 | 15.0 | 49.9 | 11.2 |
| Link Distance (m) | | 691.9 | 691.9 | 691.9 | | | 616.1 | 616.1 | 616.1 | | | 316.7 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (m) | 160.0 | | | | 30.0 | 105.0 | | | | 130.0 | 55.0 | |
| Storage Blk Time (%) | | 4 | | 10 | 0 | | 0 | | 0 | | 1 | |
| Queuing Penalty (veh) | | 4 | | 10 | 0 | | 0 | | 0 | | 0 | |

## Intersection: 7: Street B & Mayfield Road

| Movement | SB | SB |
|---|---|---|
| Directions Served | L | TR |
| Maximum Queue (m) | 62.3 | 112.5 |
| Average Queue (m) | 28.1 | 45.1 |
| 95th Queue (m) | 59.3 | 84.4 |
| Link Distance (m) | | 832.6 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | 55.0 | |
| Storage Blk Time (%) | 0 | 7 |
| Queuing Penalty (veh) | 1 | 6 |

## Intersection: 8: Torbram Road & Street C

| Movement | EB | EB | WB | WB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | TR | L | TR | L | T | TR | L | T | TR |
| Maximum Queue (m) | 12.4 | 33.4 | 39.1 | 15.7 | 62.4 | 169.5 | 108.2 | 13.7 | 30.2 | 35.1 |
| Average Queue (m) | 2.4 | 17.7 | 18.0 | 7.2 | 47.1 | 45.9 | 24.0 | 1.5 | 10.7 | 13.8 |
| 95th Queue (m) | 8.9 | 27.3 | 34.0 | 14.4 | 75.1 | 144.3 | 75.9 | 7.1 | 23.9 | 27.7 |
| Link Distance (m) | | 273.1 | | 660.5 | | 1434.6 | 1434.6 | | 838.1 | 838.1 |
| Upstream Blk Time (%) | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | |
| Storage Bay Dist (m) | 55.0 | | 55.0 | | 55.0 | | | 55.0 | | |
| Storage Blk Time (%) | | | | | 20 | | | | | |
| Queuing Penalty (veh) | | | | | 52 | | | | | |

## Zone Summary

Zone wide Queuing Penalty: 1781

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 425 | 1019 | 515 | 104 | 634 | 105 | 292 | 478 | 157 | 111 | 638 | 254 |
| v/c Ratio | 0.93 | 0.47 | 0.61 | 0.47 | 0.44 | 0.25 | 0.93 | 0.50 | 0.32 | 0.40 | 0.82 | 0.44 |
| Control Delay (s/veh) | 50.4 | 31.0 | 11.2 | 26.3 | 42.8 | 6.0 | 66.4 | 44.0 | 7.2 | 32.1 | 61.9 | 18.8 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 50.4 | 31.0 | 11.2 | 26.3 | 42.8 | 6.0 | 66.4 | 44.0 | 7.2 | 32.1 | 61.9 | 18.8 |
| Queue Length 50th (m) | 80.1 | 80.5 | 27.0 | 15.2 | 57.5 | 0.0 | 61.2 | 63.3 | 0.0 | 20.9 | 96.8 | 32.7 |
| Queue Length 95th (m) | #137.6 | 95.6 | 67.1 | 26.0 | 70.6 | 11.3 | #115.2 | 81.7 | 17.6 | 35.2 | 121.3 | 56.5 |
| Internal Link Dist (m) | | 619.7 | | | 595.2 | | | 434.9 | | | 422.4 | |
| Turn Bay Length (m) | 200.0 | | 60.0 | 165.0 | | 60.0 | 95.0 | | 60.0 | 100.0 | | 105.0 |
| Base Capacity (vph) | 465 | 2191 | 846 | 238 | 1439 | 419 | 316 | 947 | 493 | 285 | 777 | 583 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.91 | 0.47 | 0.61 | 0.44 | 0.44 | 0.25 | 0.92 | 0.50 | 0.32 | 0.39 | 0.82 | 0.44 |

Intersection Summary

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

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 239 | 1984 | 362 | 208 | 1017 | 73 | 322 | 487 | 72 | 850 | 268 |
| v/c Ratio | 0.74 | 1.03 | 0.44 | 0.99 | 0.64 | 0.11 | 1.07 | 0.34 | 0.33 | 0.95 | 0.48 |
| Control Delay (s/veh) | 34.1 | 69.1 | 5.1 | 126.3 | 41.0 | 3.0 | 111.6 | 21.7 | 49.6 | 73.2 | 13.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 34.1 | 69.1 | 5.1 | 126.3 | 41.0 | 3.0 | 111.6 | 21.7 | 49.6 | 73.2 | 13.2 |
| Queue Length 50th (m) | 38.9 | ~233.3 | 3.1 | 32.9 | 92.7 | 0.0 | ~89.7 | 37.8 | 17.9 | 133.9 | 11.8 |
| Queue Length 95th (m) | 57.6 | #263.1 | 24.1 | #60.6 | 116.4 | 6.2 | #153.3 | 52.4 | 34.2 | #175.3 | 39.0 |
| Internal Link Dist (m) | | 418.3 | | | 692.7 | | | 469.9 | | 1445.5 | |
| Turn Bay Length (m) | 100.0 | | 125.0 | 75.0 | | 60.0 | 80.0 | | 80.0 | | 80.0 |
| Base Capacity (vph) | 378 | 1935 | 832 | 210 | 1593 | 646 | 300 | 1440 | 221 | 897 | 556 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.63 | 1.03 | 0.44 | 0.99 | 0.64 | 0.11 | 1.07 | 0.34 | 0.33 | 0.95 | 0.48 |

Intersection Summary

~ 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.

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 377 | 750 | 281 | 227 | 967 | 84 | 351 | 741 | 113 | 160 | 618 | 483 |
| v/c Ratio | 1.04 | 0.41 | 0.32 | 0.64 | 0.67 | 0.23 | 1.02 | 0.73 | 0.26 | 0.75 | 0.76 | 0.82 |
| Control Delay (s/veh) | 94.5 | 35.2 | 10.1 | 29.4 | 49.6 | 3.6 | 86.0 | 50.3 | 10.6 | 51.4 | 58.2 | 25.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 94.5 | 35.2 | 10.1 | 29.4 | 49.6 | 3.6 | 86.0 | 50.3 | 10.6 | 51.4 | 58.2 | 25.0 |
| Queue Length 50th (m) | ~100.1 | 61.8 | 22.0 | 36.9 | 95.7 | 0.0 | ~80.1 | 106.2 | 3.0 | 30.5 | 92.1 | 35.4 |
| Queue Length 95th (m) | #166.8 | 76.6 | 41.7 | 54.6 | 112.5 | 5.2 | #146.3 | 130.8 | 18.6 | #49.4 | 115.4 | #94.2 |
| Internal Link Dist (m) | | 619.7 | | | 595.2 | | | 434.9 | | | 422.4 | |
| Turn Bay Length (m) | 200.0 | | 60.0 | 165.0 | | 60.0 | 95.0 | | 60.0 | 100.0 | | 105.0 |
| Base Capacity (vph) | 362 | 1812 | 871 | 388 | 1433 | 371 | 343 | 1009 | 430 | 216 | 810 | 590 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 1.04 | 0.41 | 0.32 | 0.59 | 0.67 | 0.23 | 1.02 | 0.73 | 0.26 | 0.74 | 0.76 | 0.82 |

Intersection Summary

~ 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.

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 342 | 1470 | 333 | 201 | 1819 | 48 | 414 | 871 | 52 | 496 | 294 |
| v/c Ratio | 1.14 | 0.77 | 0.40 | 0.74 | 1.12 | 0.07 | 1.17 | 0.64 | 0.39 | 0.55 | 0.53 |
| Control Delay (s/veh) | 136.0 | 40.2 | 4.7 | 81.7 | 105.9 | 0.2 | 134.3 | 38.2 | 56.0 | 50.1 | 17.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 136.0 | 40.2 | 4.7 | 81.7 | 105.9 | 0.2 | 134.3 | 38.2 | 56.0 | 50.1 | 17.2 |
| Queue Length 50th (m) | ~103.4 | 140.2 | 2.0 | 30.9 | ~231.1 | 0.0 | ~119.2 | 109.5 | 13.2 | 69.2 | 19.8 |
| Queue Length 95th (m) | #168.9 | 159.9 | 22.0 | 45.1 | #261.7 | 0.0 | #204.0 | 133.1 | 28.2 | 88.4 | 50.9 |
| Internal Link Dist (m) | | 418.3 | | | 692.7 | | | 469.9 | | 1445.5 | |
| Turn Bay Length (m) | 100.0 | | 125.0 | 75.0 | | 60.0 | 80.0 | | 80.0 | | 80.0 |
| Base Capacity (vph) | 299 | 1920 | 838 | 292 | 1624 | 654 | 355 | 1352 | 132 | 906 | 555 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 1.14 | 0.77 | 0.40 | 0.69 | 1.12 | 0.07 | 1.17 | 0.64 | 0.39 | 0.55 | 0.53 |

Intersection Summary

~ 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.

## Intersection: 11: Torbram Road Connection

| Movement |
|---|
| Directions Served |
| Maximum Queue (m) |
| Average Queue (m) |
| 95th Queue (m) |
| Link Distance (m) |
| Upstream Blk Time (%) |
| Queuing Penalty (veh) |
| Storage Bay Dist (m) |
| Storage Blk Time (%) |
| Queuing Penalty (veh) |

## Intersection: 13: Airport Road Connection

| Movement | WB | WB | WB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | R | T | TR | L | T | TR |
| Maximum Queue (m) | 60.0 | 34.2 | 45.1 | 41.6 | 45.3 | 52.9 | 14.1 | 20.2 |
| Average Queue (m) | 25.7 | 1.1 | 22.4 | 11.2 | 15.5 | 21.8 | 2.6 | 7.2 |
| 95th Queue (m) | 52.5 | 18.9 | 36.5 | 29.9 | 35.4 | 39.6 | 8.5 | 17.8 |
| Link Distance (m) | | 178.5 | | 1469.2 | 1469.2 | | 633.5 | 633.5 |
| Upstream Blk Time (%) | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | |
| Storage Bay Dist (m) | 55.0 | | 55.0 | | | 80.0 | | |
| Storage Blk Time (%) | 2 | | | | | | | |
| Queuing Penalty (veh) | 3 | | | | | | | |

## Intersection: 14: Old School Road Connection

| Movement |
|---|
| Directions Served |
| Maximum Queue (m) |
| Average Queue (m) |
| 95th Queue (m) |
| Link Distance (m) |
| Upstream Blk Time (%) |
| Queuing Penalty (veh) |
| Storage Bay Dist (m) |
| Storage Blk Time (%) |
| Queuing Penalty (veh) |

## Zone Summary

Zone wide Queuing Penalty: 3

## Intersection: 11: Torbram Road Connection

| Movement |
|---|
| Directions Served |
| Maximum Queue (m) |
| Average Queue (m) |
| 95th Queue (m) |
| Link Distance (m) |
| Upstream Blk Time (%) |
| Queuing Penalty (veh) |
| Storage Bay Dist (m) |
| Storage Blk Time (%) |
| Queuing Penalty (veh) |

## Intersection: 13: Airport Road Connection

| Movement | WB | WB | WB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | R | T | TR | L | T | TR |
| Maximum Queue (m) | 54.2 | 197.7 | 62.5 | 1300.9 | 1305.4 | 60.3 | 41.4 | 48.1 |
| Average Queue (m) | 15.9 | 189.0 | 62.4 | 788.8 | 792.5 | 30.5 | 21.4 | 23.8 |
| 95th Queue (m) | 38.0 | 207.8 | 63.1 | 1512.1 | 1518.8 | 51.8 | 37.3 | 40.1 |
| Link Distance (m) | | 178.5 | | 1469.2 | 1469.2 | | 633.5 | 633.5 |
| Upstream Blk Time (%) | | 92 | | 6 | 7 | | | |
| Queuing Penalty (veh) | | 0 | | 36 | 38 | | | |
| Storage Bay Dist (m) | 55.0 | | 55.0 | | | 80.0 | | |
| Storage Blk Time (%) | 1 | 9 | 90 | 93 | | | | |
| Queuing Penalty (veh) | 3 | 63 | 184 | 0 | | | | |

## Intersection: 14: Old School Road Connection

| Movement |
|---|
| Directions Served |
| Maximum Queue (m) |
| Average Queue (m) |
| 95th Queue (m) |
| Link Distance (m) |
| Upstream Blk Time (%) |
| Queuing Penalty (veh) |
| Storage Bay Dist (m) |
| Storage Blk Time (%) |
| Queuing Penalty (veh) |

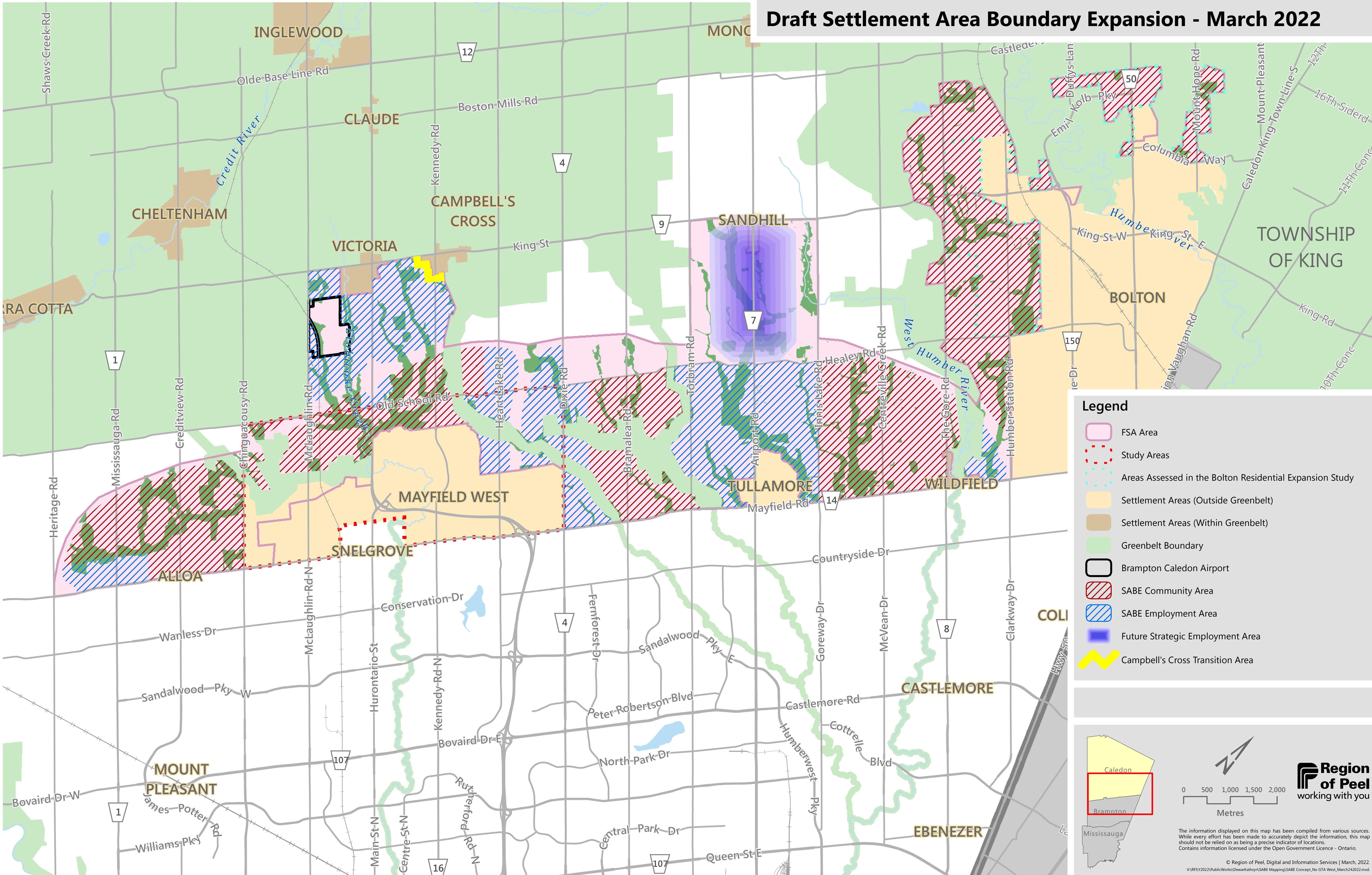
## Zone Summary

Zone wide Queuing Penalty: 324

# APPENDIX G:

## Transportation Planning Policy Excerpts

# Draft Settlement Area Boundary Expansion - March 2022



# Region of Peel

# Settlement Area Boundary Expansion (SABE)

# Transportation Technical Study – Phase 2 Detailed Assessment

Paradigm Transportation Solutions Limited

August 2021
190486

ptsl.com

# 1 Introduction

## 1.1 Overview

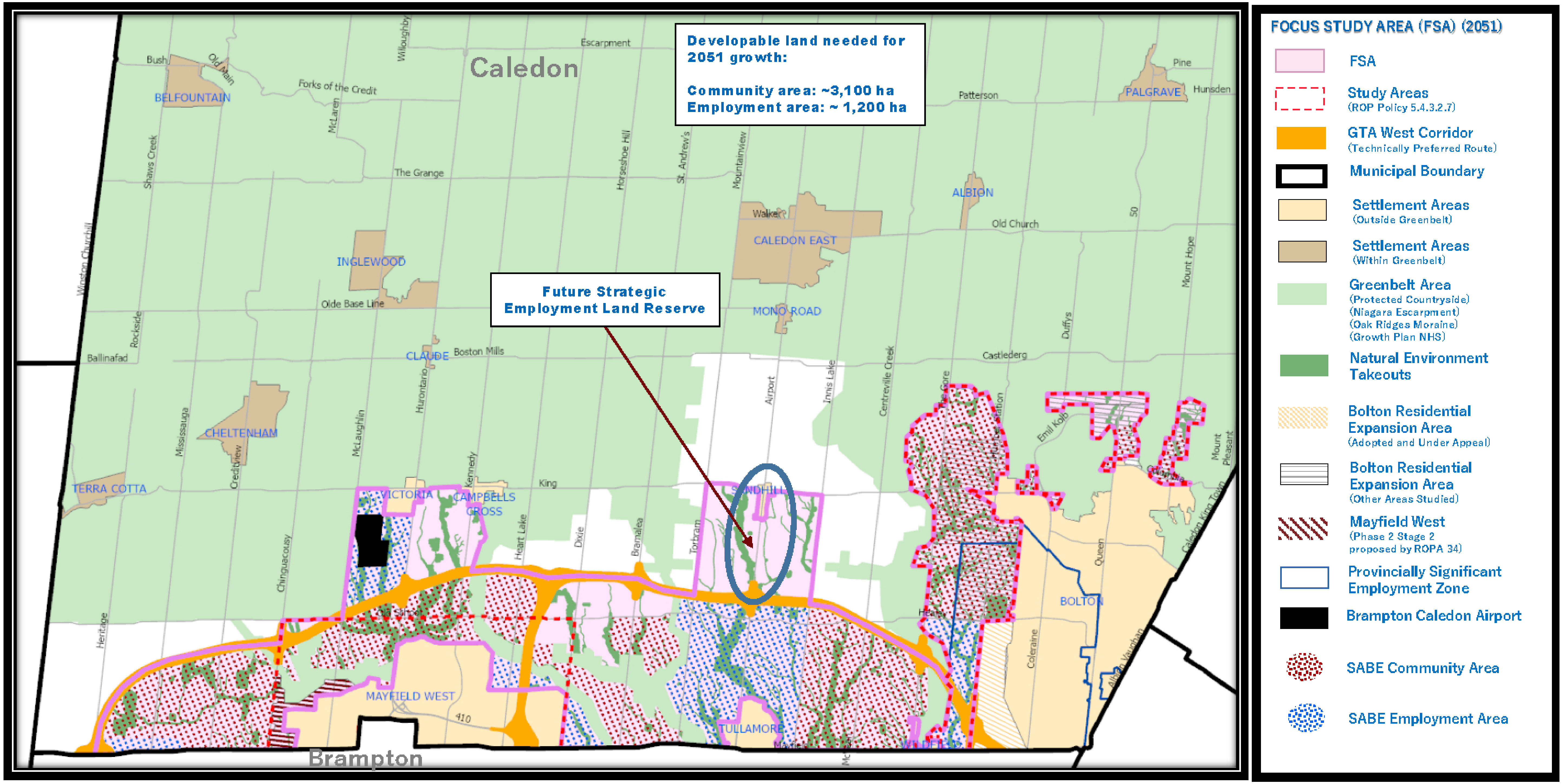
The Region of Peel is undertaking a municipal comprehensive review of the Regional Official Plan (ROP) with the objective of updating policies and mapping that guide growth in Peel to the year 2051. Through the results of the Peel 2051 study, the updated ROP will make provisions for approximately 2.3 million residents and 1.1 million jobs in Peel Region to the year 2051 consistent with projections contained in *A Place to Grow*, the Provincial Growth Plan for the Greater Golden Horseshoe (the Growth Plan).

The land needs assessment (LNA) for Peel 2051 has identified the need for an additional 3,000 hectares to support Community Areas and 1,400 hectares to support Employment Areas outside the existing settlement area boundary in the Town of Caledon. The Region has retained Hemson Consulting to undertake the **Settlement Area Boundary Expansion (SABE) Study** to determine the appropriate location(s) for the additional lands needed to serve this growth. The recommended SABE will be defined, in part, based on the results of a series of technical studies, including the **Transportation Technical Study** being completed by Paradigm Transportation Solutions Limited as part of the Hemson team.

This report presents the findings of the Phase 2 detailed assessment of the Transportation Technical Study. The intent of these analyses is to determine roadway infrastructure requirements and cost impacts to serve new projected residential and employment growth between the years 2041 and 2051 in the conceptual SABE area and assess the financial implications of different growth scenarios.

The analyses presented in this report follow-on from the initial transportation assessment (Phase 1) completed in November 2020[1]. The Phase 1 study involved a preliminary examination of the most suitable location for settlement expansion based on the results of existing conditions in the broader Focus Study Area (FSA), available servicing capacity, planned major road expansion, knowledge of high-level infrastructure cost impacts, and the Provincial policy context. The detailed transportation assessment (Phase 2) summarized in this report identifies more precise infrastructure needs and associated costs of the conceptual SABE area(s) derived through Phase 1 based

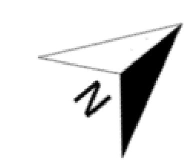
[1] See Paradigm Transportation Solutions Limited, *Region of Peel Settlement Boundary Area Expansion Study, Transportation Technical Study, Technical Memorandum A – Assessment and Evaluation Process and Initial Assessment*, November 6, 2020




***Disclaimer:*** This map has been developed for the Settlement Area Boundary Expansion (SABE) Study and represents a conceptual area for the SABE based on technical studies.
For additional information, please refer to the technical studies at http://www.peelregion.ca/officialplan/review/focus-areas/settlement-area-boundary.asp

***Notes:***

1) Other natural environmental constraints not identified on this map, including potential restoration lands, will be identified through further analysis and may further limit development.
2) ROP Policy 5.4.3.2.7 as it relates to the area surrounding Bolton is under appeal.
3) The ~4,300 ha SABE is based on a draft land needs assessment which is under review.




1 cm = 1 km

paradigm TRANSPORTATION SOLUTIONS LIMITED

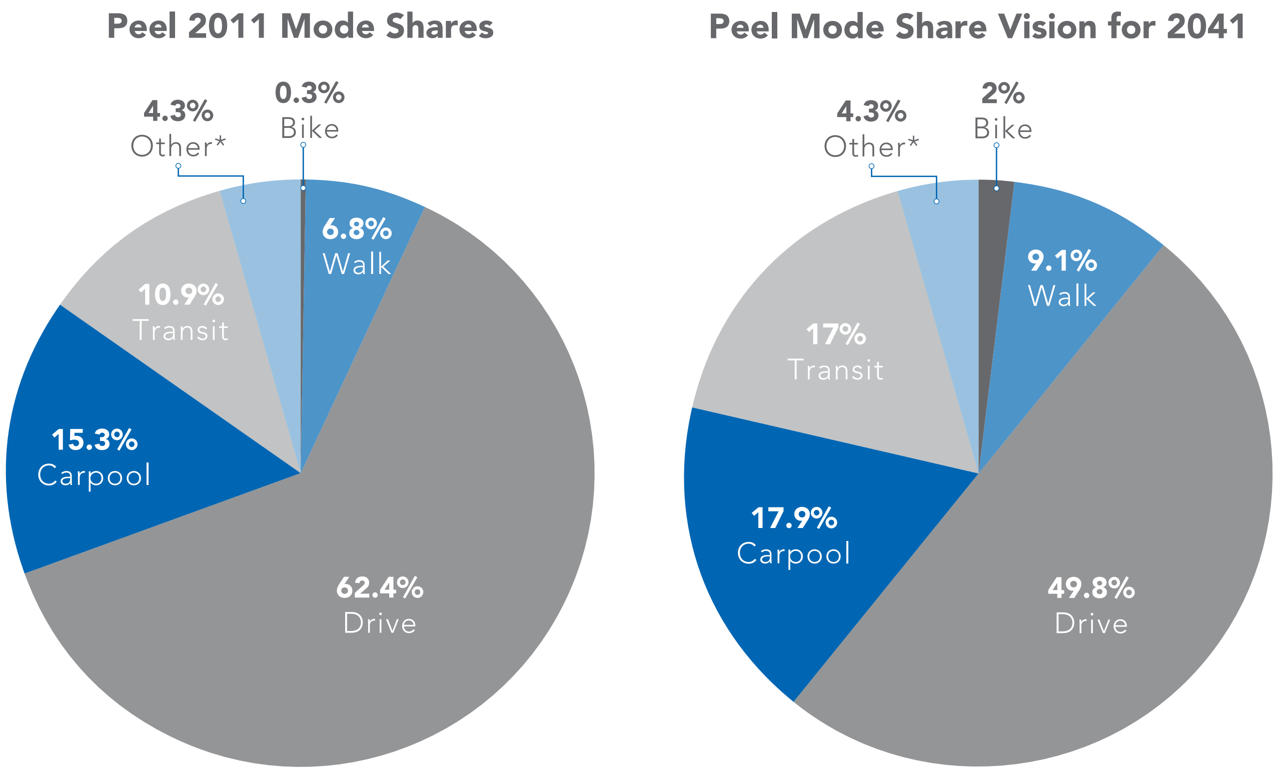
## Draft SABE Concept – December 10, 2020

# Let’sMovePeel

## Long Range Transportation Plan **2019**

Region of Peel
working with you

**FIGURE 3-3**
Current and Desired Mode Share Targets, Region of Peel




*"Other" modes include school buses, taxis, and motorcycles.

## 3.2.2 Transportation Demand Management (TDM)

Transportation demand management (TDM) refers to policies, programs, and services that promote travel by sustainable modes while reducing driving by individuals, particularly in weekday peak periods. The travel modes most often associated with TDM are transit, carpooling/vanpooling, cycling and walking. TDM is also associated with options that reduce commuting such as compressed work weeks, alternative work schedules and teleworking.

TDM tools and techniques represent an economical and efficient way to maximize the return on investment in major transportation infrastructure and services such as rapid transit lines, cycling facilities and carpool lots.

TDM strategies embedded within the STS, and by extension the LRTP, are aligned with the Metrolinx 2041 RTP for the GTHA.[22] This alignment will help ensure a seamless inter and intra-regional travel network and viable non-driving travel options to alleviate the future transportation system from pressures associated with growth.

*For a full account of Transportation Demand Management measures, refer to the Sustainable Transportation Strategy (STS) 2018-2022.*

# A

# Appendix A

## Region of Peel 50% Sustainable Mode Share Target Background Paper

**TABLE 12**: Final Targets: Peel Region Mode Share Targets by Municipality 2041
(Source: IBI Group/Region of Peel)

| Peel Region | 2011 | 2041 Vision |
|---|---|---|
| Driving | 62.5% | 49.8% |
| Walking | 6.8% | 9.1% |
| Cycling | 0.3% | 2.0% |
| Transit | 10.8% | 17.0% |
| Carpool | 15.2% | 17.9% |
| Other | 4.3% | 4.3% |
| Sustainable Transportation | 37.5% | 50.3% |

| Caledon | 2011 | 2041 Vision |
|---|---|---|
| Driving | 71.0% | 68.1% |
| Walking | 3.5% | 3.6% |
| Cycling | 0.0% | 0.8% |
| Transit | 2.0% | 2.5% |
| Carpool | 8.2% | 9.9% |
| Other | 15.3% | 15.1% |
| Sustainable Transportation | 29.0% | 31.9% |

| Brampton | 2011 | 2041 Vision |
|---|---|---|
| Driving | 62.7% | 51.8% |
| Walking | 7.4% | 9.1% |
| Cycling | 0.2% | 1.8% |
| Transit | 8.8% | 14.6% |
| Carpool | 16.5% | 18.6% |
| Other | 4.4% | 4.0% |
| Sustainable Transportation | 37.3% | 48.1% |

| Mississauga | 2011 | 2041 Vision |
|---|---|---|
| Driving | 61.8% | 45.4% |
| Walking | 6.6% | 9.8% |
| Cycling | 0.4% | 2.3% |
| Transit | 12.9% | 21.1% |
| Carpool | 14.8% | 18.3% |
| Other | 3.4% | 3.1% |
| Sustainable Transportation | 38.2% | 54.6% |

Schedule A to BL-2024-014

# FUTURE CALEDON OFFICIAL PLAN

**March 2024**

# 11. TRANSPORTATION

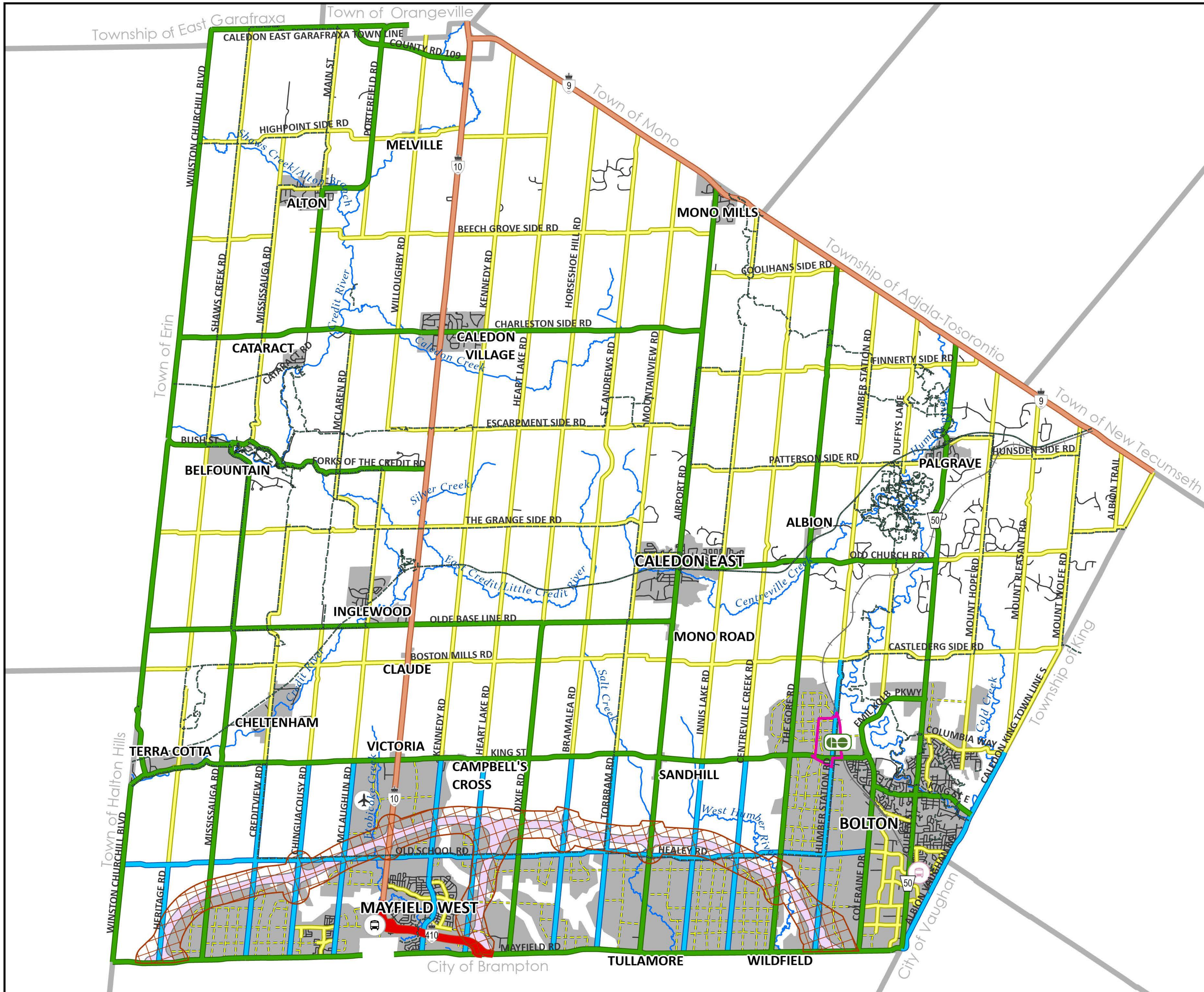
The Town of Caledon has developed transportation policies to ensure high quality mobility options are available to users of all ages, abilities and income levels. Caledon's *transportation system* is vital to the Town's economy and connects people to jobs, education, healthcare facilities, essential services, entertainment and recreation, and with loved ones. Businesses and residents rely on our *transportation system* to move goods and services safely and efficiently.

The Town envisions a *multimodal transportation system* that is safe, equitable, convenient, economical, efficient, minimizes environmental impacts, and manages future demand and congestion and is well-integrated with the land use and development within the Town and across the Region.

The Town recognizes that over half of Caledon's greenhouse gas emissions are attributed to transportation. This includes commuters, commercial vehicles, and trucks. A *sustainable* and low carbon *transportation system* is crucial for realizing the Town's objective of *net-zero* emissions by 2050 and supporting the Federal Government's commitment of 100 percent zero-emission vehicle sales by 2035. To reach *sustainability* targets and *net-zero* emissions, the Town intends to reduce single-occupant vehicle dependency by supporting and promoting *sustainable* modes through:

- efficient local and inter-regional transit connections;
- the introduction, implementation and periodic update of an Active Transportation Master Plan;
- people-first complete streets design principles;
- parking strategies that balance modal choice objectives with operational needs;
- support for carpooling and carsharing initiatives; and,
- support for the use of zero-emission vehicles through the implementation of more electric vehicle charging *infrastructure*.

High volumes of truck and commuter traffic passing through the Town places an additional burden on Caledon roads and financial resources, and impacts residential neighbourhoods. Growth in inter-regional traffic should be serviced by improvements to the Provincial road network including the planned Highway 413 Transportation Corridor, and the Highway 10 corridor. The Peel Regional road network should facilitate and address the goods movement needs in southern Caledon as growth occurs.




TOWN OF CALEDON

# OFFICIAL PLAN

## Schedule C1

## Town-wide Transportation Network

- Primary Major Transit Station Area
- Planned Major Transit Station Area
- Potential Major Transit Station Area
- Future Caledon GO Station
- Brampton-Caledon Airport
- Provincial Freeway
- Provincial Highway
- Regional Arterial
- Town Arterial
- Collector Road
- Conceptual Collector Road
- Local Road
- Rail
- Active Transportation - Trail System
- Urban Area and Settlement Area
- Planned Highway 413 Transportation Corridor
- Planned Highway 413 and NWGTA Transmission Corridor Protection Area

March 2024

Date of print: 3/12/2024
Sources: Town of Caledon, Regional Municipality of Peel
Contains information licensed under the Open Government Licence – Ontario

This map forms part of the Future Caledon Official Plan of the Town of Caledon and must be read in conjunction with the text, other schedules and secondary plans. The boundaries/alignments of designations on this schedule are approximate and are not intended to be scaled.

# Town of Caledon

## Multi-Modal Transportation Master Plan

June 2024

TOWN OF CALEDON

FUTURE CALEDON

In Collaboration with
R.J. Burnside & Associates Ltd.

BURNSIDE

- **Capacity of Commuter Accommodation:** The need for public commuting by automobile includes a range of purposes such as travel to work, medical, shopping or leisure purposes from/to locations that are not adequately served by transit / active transportation and/or do not adequately serve users with mobility or other barriers to travel by other modes. Capacity improvements aim to facilitate these driving trips while minimizing congestion.

- **Accommodation of Alternative Modes of Travel:** In order for Caledon roads to provide all the necessary street elements and subsurface utilities for successful Complete Streets, the Town must acquire the necessary property and public right-of-way. This right-of-way will not only be used to facilitate mobility, but in an urbanized environment like the future SABE, the public right-of-way can be used to support an active transportation, pedestrian-oriented community.

- **Capacity for Goods Movement:** Within urbanized areas, the economic competitiveness of a municipality is affected by the efficiency and capacity of the movement of goods to / from business areas. Traffic congestion or lack of direct routes can significantly add to the cost of goods and services through transportation costs. Economic competitiveness often relies upon the connectivity between industry and transportation infrastructure including freeways, regional arterial roads and intermodal terminals. Capacity improvements aim to ensure that efficient goods movement is provided.

- **Network efficiency and connectivity:** Network efficiency and road connectivity needs commonly result from discontinuous or misaligned roadways. Misaligned intersections can contribute to poor roadway geometry and/or traffic movements that are not adequately supported by roadway conditions.

- **Community Circulation and Land Access Accommodation:** Within the Town of Caledon, new collector road networks are established by the Town's Secondary Plans. Secondary plans provide more detailed policies for the area it covers, and also establishes a collector road network within the lands. Guiding principles are provided to assist in the development of a Secondary Plan framework for the SABE.

Road improvement recommendations were summarized for the 2031, 2041, and 2051 horizon years. These road recommendations are presented in **Table ES-1, ES-2, and ES-3** respectively. The proposed ultimate (2051) road network is illustrated in **Figure ES-1**.

**Table ES-1: Road Improvement Recommendations (2031)**

| ID | Road | From | To | Recommendation |
|---|---|---|---|---|
| 1 | Chinguacousy Road | Mayfield Road | Old School Road | Urbanization and widening from 2 to 4 lanes |
| 2 | McLaughlin Road | Mayfield Road | Old School Road | Urbanization and widening from 2 to 4 lanes |

| ID | Road | From | To | Recommendation |
|---|---|---|---|---|
| 3 | Albion Vaughan Road | Mayfield Road | King Street | Urbanization and widening from 2 to 4 lanes |
| 4 | Humber Station Road | Mayfield Road | North of King Street (Settlement Area Limits) | Urbanization and widening from 2 to 4 lanes |
| 5 | Abbotside Way | Bonnieglen Farm Boulevard | Heart Lake Road | Extension (4 Lanes) |
| 6 | Healey Road | The Gore Road | Coleraine Drive | Urbanization and widening from 2 to 4 lanes |
| 7 | Torbram Road | Mayfield Road | Old School Road | Urbanization and widening from 2 to 4 lanes |
| 8 | George Bolton Parkway | West of Coleraine Drive | Humber Station Road | Extension (4 Lanes) |
| 9 | Kennedy Road | Newhouse Boulevard | Old School Road | Urbanization and widening from 2 to 4 lanes |

**Table ES-2: Road Improvement Recommendations (2041)**

| ID | Road | From | To | Recommendation |
|---|---|---|---|---|
| 10 | Innis Lake Road | Mayfield Road | Old School Road | Urbanization and widening from 2 to 4 lanes |
| 11 | Centreville Creek Road | Mayfield Road | Old School Road | Urbanization and widening from 2 to 4 lanes |
| 12 | Old School Road | Winston Churchill Boulevard | Airport Road | Urbanization and widening from 2 to 4 lanes |
| 13 | Healey Road | Airport Road | The Gore Road | Urbanization and widening from 2 to 4 lanes |
| 14 | Kennedy Road | Old School Road | King Street | Urbanization and widening from 2 to 4 lanes |
| 15 | Caledon King Townline | King Street | Columbia Way | Urbanization and widening from 2 to 4 lanes |
| 16 | Columbia Way | Regional Road 50 | Caledon King Townline | Urbanization and widening from 2 to 4 lanes |

**Table ES-3: Road Improvement Recommendations (2051)**

| ID | Road | From | To | Recommendation |
|---|---|---|---|---|
| 17 | Chinguacousy Road | Old School Road | King Street | Urbanization and widening from 2 to 4 lanes |
| 18 | McLaughlin Road | Old School Road | King Street | Urbanization and widening from 2 to 4 lanes |
| 19 | Bramalea Road | Mayfield Road | King Street | Urbanization and widening from 2 to 4 lanes |
| 20 | Heritage Road | Mayfield Road | Old School Road | Urbanization and widening from 2 to 4 lanes |
| 21 | Creditview Road | Mayfield Road | Old School Road | Urbanization and widening from 2 to 4 lanes |
| 22 | Heart Lake Road | Mayfield Road | Old School Road | Urbanization and widening from 2 to 4 lanes |

Additional road connectivity and network studies are listed below in **Table ES-4**

**Table ES-4: Additional Road Studies and Classifications**

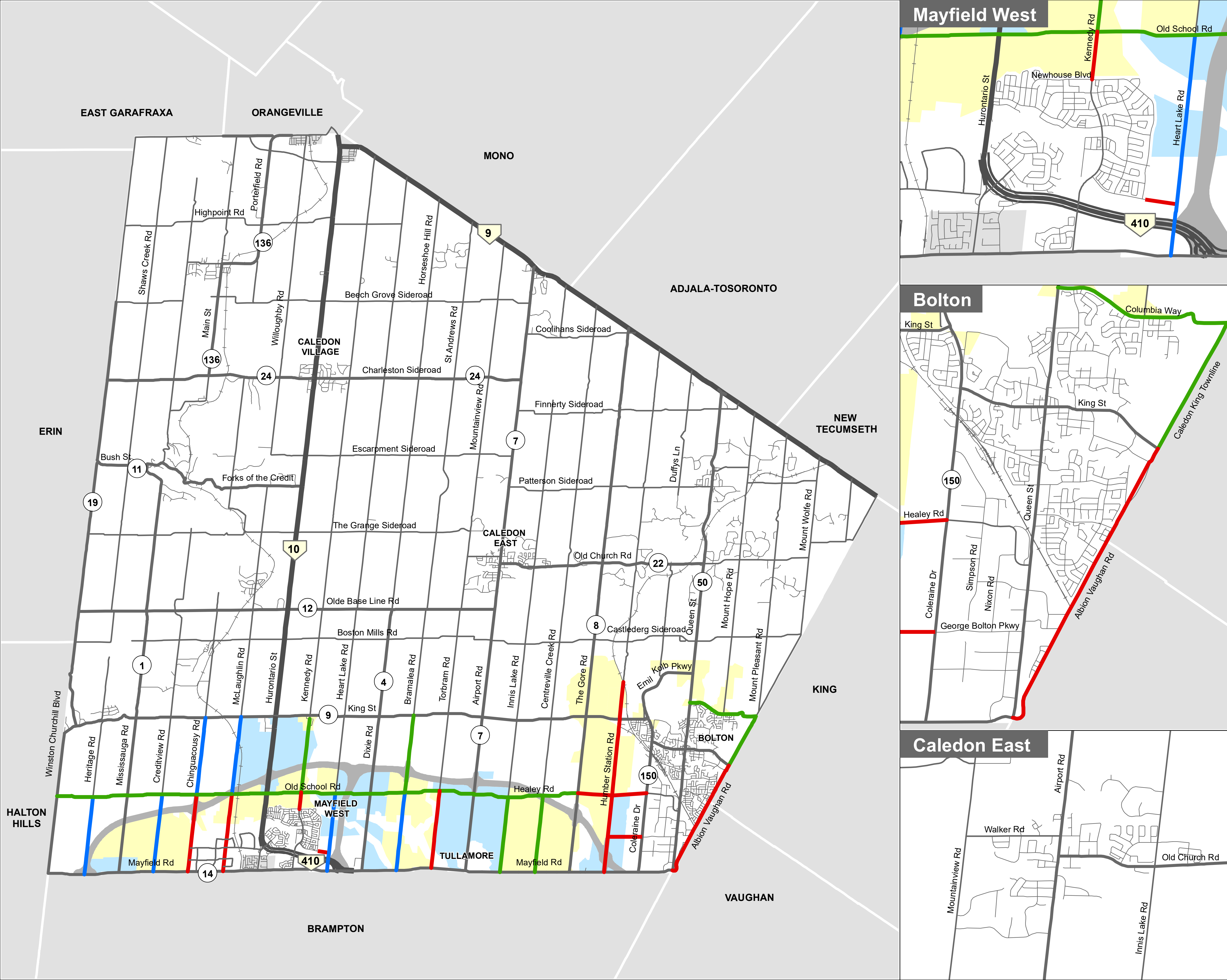
| ID | Additional Study | Description | Study Classification | Lead Agency |
|---|---|---|---|---|
| 18 | Alternative Routes to Bolton and Established Communities | MTO to collaborate with the Region and the Town to extend Highway 427 to Highway 9. | Alternate Route Study | MTO |
| 19 | Mis-aligned intersections (see **Appendix E**) | Monitor mis-aligned intersections for future improvements | Intersection Monitoring | Town of Caledon / Region of Peel |
| 20 | Horseshoe Hill from Olde Base Line Road to Highway 9 | Remove from Region's Strategic Goods Movement Network | Goods Movement Update | Region of Peel |
| 21 | Mountainview Road from Olde Base Line Road to Charleston Sideroad | Remove from Region's Strategic Goods Movement Network | Goods Movement Update | Region of Peel |

# Town of Caledon

## Transportation Master Plan

**FIGURE ES-1**

Road Network Improvements




**Road Improvements (Phasing)**

- Widening to 4 lanes (by 2031)
- Widening to 4 lanes (by 2041)
- Widening to 4 lanes (by 2051)

**Future Land Uses**

- Community
- Employment

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R.J. Burnside & Associates Limited is not responsible for the accuracy of the spatial, temporal, or other aspects of the data represented on this map. It is recommended that users confirm the accuracy of the information represented.

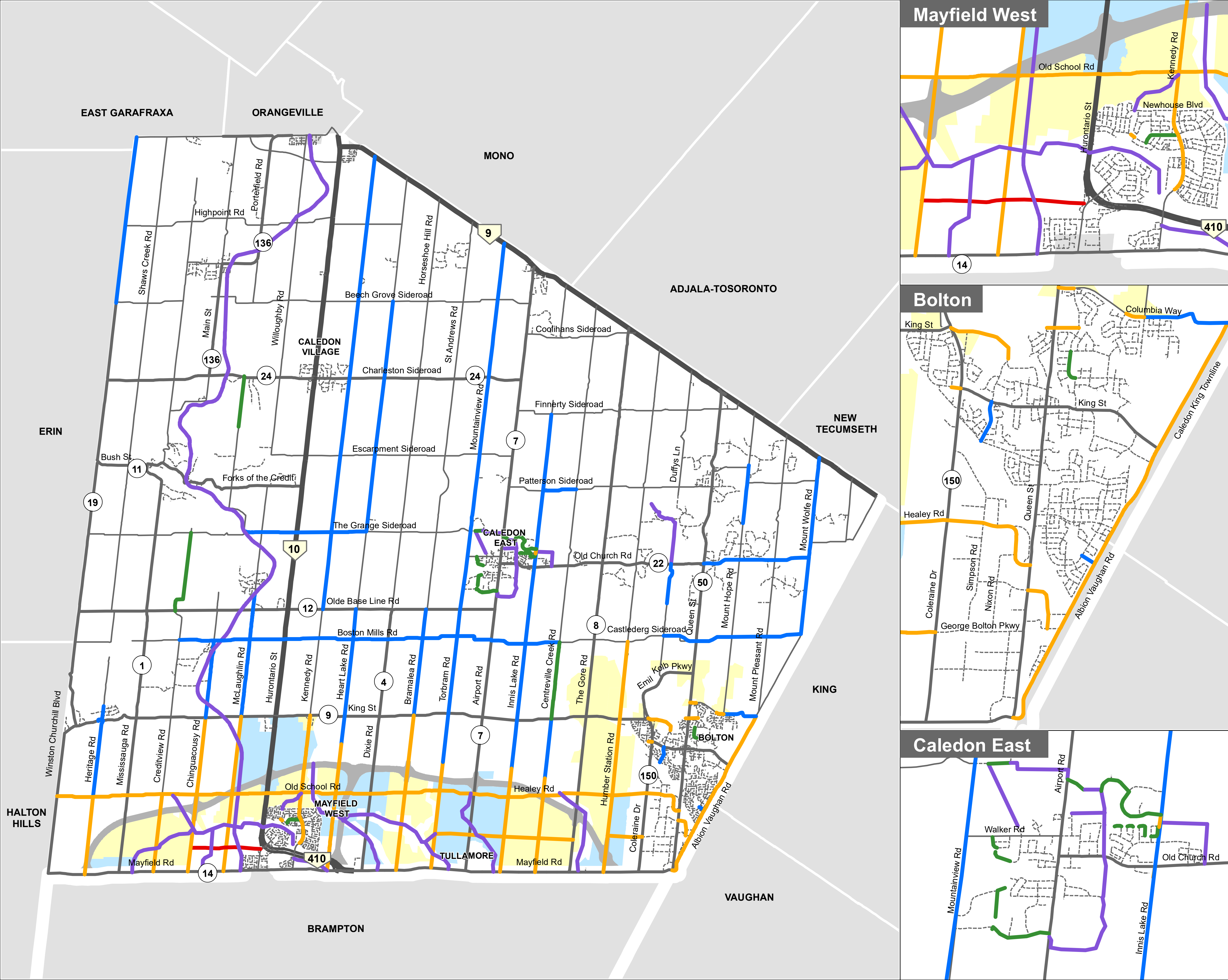
This map is the product of a Geographic Information System (GIS). As such, the data represented on this map may be subject to updates and future reproductions may not be identical.

# Town of Caledon

## Transportation Master Plan

### FIGURE ES-2

Future Active Transportation Network




**Proposed Facility Type**

- Multi-use Trail
- Painted Bike Lane
- Physically Separated
- Shared
- Visually Separated

**Future Land Uses**

- Community
- Employment

Source: Town of Caledon ATMP

0 1 2 4 6 8 km

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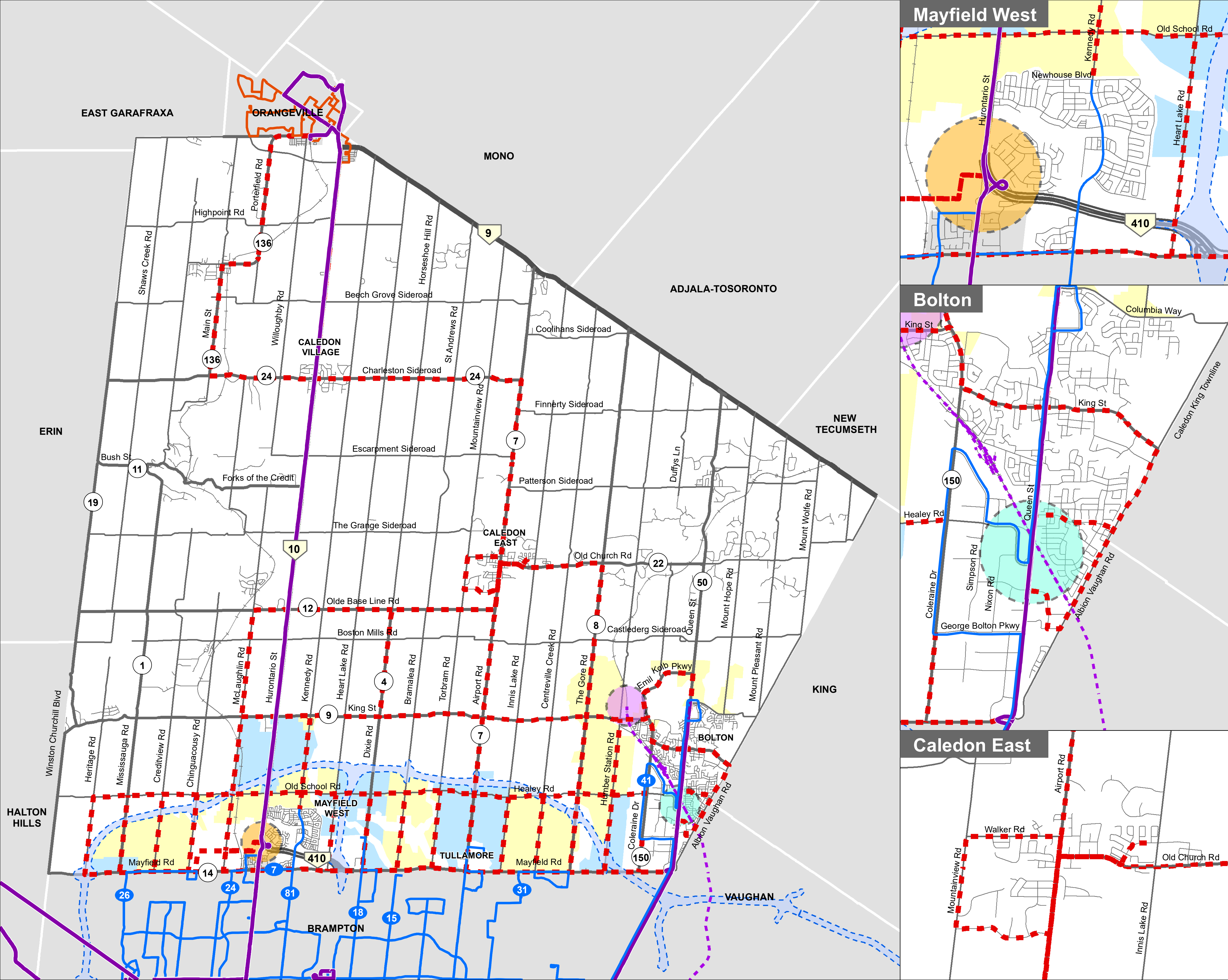
# Town of Caledon

## Transportation Master Plan

### FIGURE ES-3

Proposed Transit Network




**Existing**

- GO Transit
- Brampton Transit
- Orangeville Transit

**Future**

- Proposed Corridors
- Bolton GO Rail
- Caledon GO Station
- Potential Second GO Station
- Mayfield Transit Hub
- GTA West Preferred Route

**Future Land Uses**

- Community
- Employment

0 1 2 4 6 8 km

BURNSIDE

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This map is the product of a Geographic Information System (GIS). As such, the data represented on this map may be subject to updates and future reproductions may not be identical.

- There has been a reduction in the use of other shared transportation modes such as carpooling and ride-hailing due to perceived health risks.
- Perceived health risks from shared transportation modes may exacerbate the use of the personal vehicles.
- The emerging trend of "working from home" from primarily knowledge workers, most prevalent near the peak of the pandemic, may persist post-pandemic.
- The trip purpose for regional transit may shift away from essential, commuter trips to non-essential trips like for leisure and sporting events, local tourism, airport travel.
- Rising housing prices during the pandemic and other factors caused relocation of many residents away from urban centres to more suburban municipalities. This relocation may lead to lengthier trip distances and commute times which have negative environmental consequences. Increased auto dependence and rising fuel prices during the beginning of 2022 have increased the need for alternate, affordable, and sustainable modes of transportation.

Transportation shocks within this plan's horizon include the adoption of emerging technologies such as autonomous and electric vehicles, extreme climate change, and economic trends that can alter trip making behavior of people and goods such as fuel prices, inflation, and supply chain disruptions. A future-ready transportation system ensures that the system can absorb these potential shocks and adapt using a multi-modal transportation approach supported by growth management and land use planning.

## 4.6 Sustainable Mode Share Objectives

The Region of Peel's 2019 *Long Term Transportation Plan* (LRTP) targets a region-wide sustainable mode share of 50% by 2041. Sustainable mode share includes carpooling, walking, transit, biking and other non-single occupancy vehicle trips (e.g., school bus, taxis, etc.). The 2041 sustainable target mode share for Caledon is 32%, which is 3% higher than the 2011 sustainable mode share for the AM peak period. This target non-auto mode split corresponds to the following breakdown shown in **Table 4-3**.

However, these objectives were established before the Region of Peel allocated land uses to the Town of Caledon by 2051 through the Municipal Comprehensive Review (MCR); it is anticipated that a higher transit modal share will be required for development of the SABE and a population of 300,000 for the Town of Caledon. Therefore, the target 2051 mode splits as shown in the table were developed as part of this MMTMP based on a benchmarking exercise of municipalities that currently have a population density comparable to SABE.

**Table 4-3: Caledon Mode Share Target Breakdown**

| Mode of Travel | 2011 [2] | 2041 Vision [2] | 2051 Vision |
|---|---|---|---|
| Driving | 71.0% | 68.1% | 60% |
| Walking | 3.5% | 3.6% | 6% |
| Cycling | 0.0% | 0.8% | 1% |

| Mode of Travel | 2011 [2] | 2041 Vision [2] | 2051 Vision |
|---|---|---|---|
| Transit | 2.0% | 2.5% | 6% |
| Carpool | 8.2% | 9.9% | 13% |
| Other [1] | 15.3% | 15.1% | 14% |
| **Sustainable Transportation** | **29.0%** | **31.9%** | **40%** |

Note: 1. "Other" modes include motorcycle and school bus.
2. Source: Region of Peel's 2019 Long Term Transportation Plan (LRTP)

## 4.7 MMTMP Vision and Objectives

By 2051, the Town will have a transportation system that provides **accessible**, **affordable**, **safe**, and **sustainable** travel choices for all, and is well-integrated, effective to use, promotes healthy lifestyles, and supports economic prosperity, livable communities and climate commitments. The MMTMP's objectives include:

1. Develop a future-ready transportation plan for the Town and expand the multi-modality of the transportation system including driving, transit, walking, cycling, and other emerging mobility options.

2. Provide infrastructure to support and manage future land use growth and address the needs and priorities for both rural and urban communities.

3. Deliver sustainable strategies that protect natural heritage assets while reducing transportation's effects on climate change.

4. Build a safe and inclusive transportation system that supports age-friendly communities and promotes healthy living.

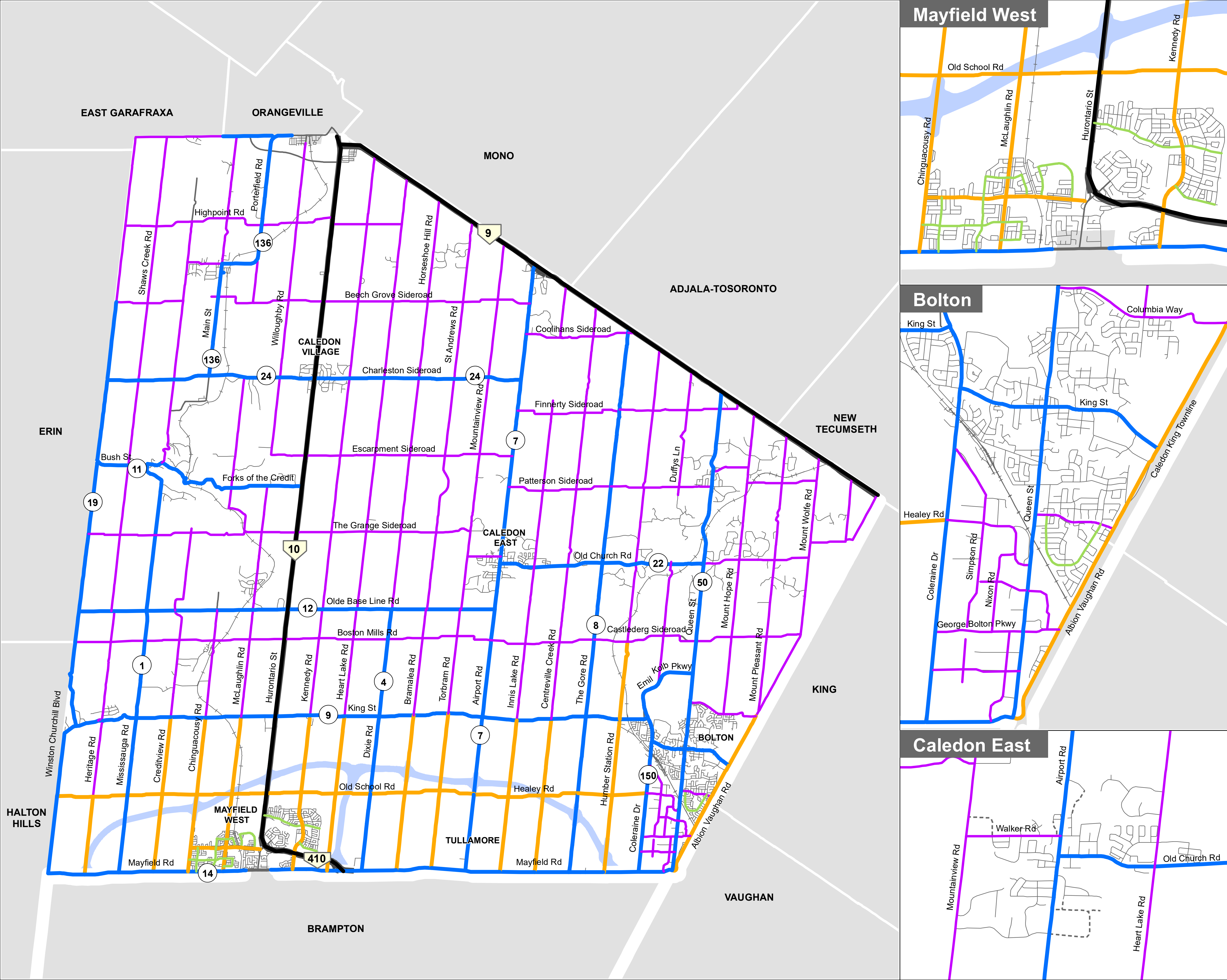
5. Develop complementary transportation solutions that support Provincial, Regional, and Local policies and the Town's Official Plan (OP).

# Town of Caledon

## Transportation Master Plan

**FIGURE 9-2**

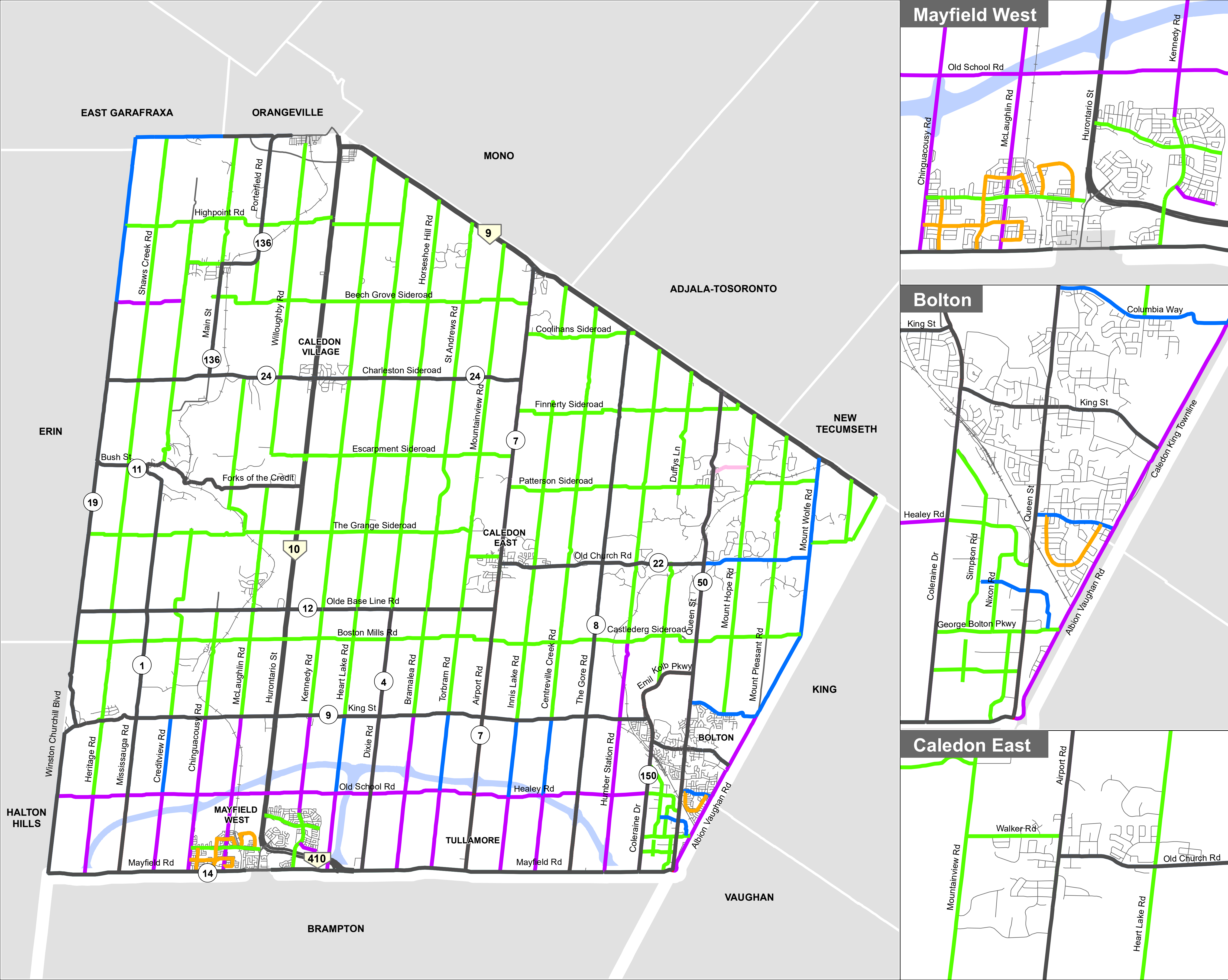
Road Classifications




- Provincial Highway / Freeway
- Regional Arterial
- Town Arterial
- Major Collector
- Minor Collector
- Local
- GTA West Corridor

0 1 2 4 6 8 km

BURNSIDE




# Town of Caledon

## Transportation Master Plan

**FIGURE 9-3**

Right of Way (ROW) Widths

**ROW Width (m)**

- 20
- 22
- 26
- 30
- 36
- Regional Roads
- GTA West Corridor

*** Note: ROW widths along Regional roads are based on the Region's 2019 Long Range Transportation Plan. Refer to Region for latest Regional Road ROWs.**

0 1 2 4 6 8 km

BURNSIDE

FUTURE CALEDON

BURNSIDE



# Appendix F

## Complete Streets Framework

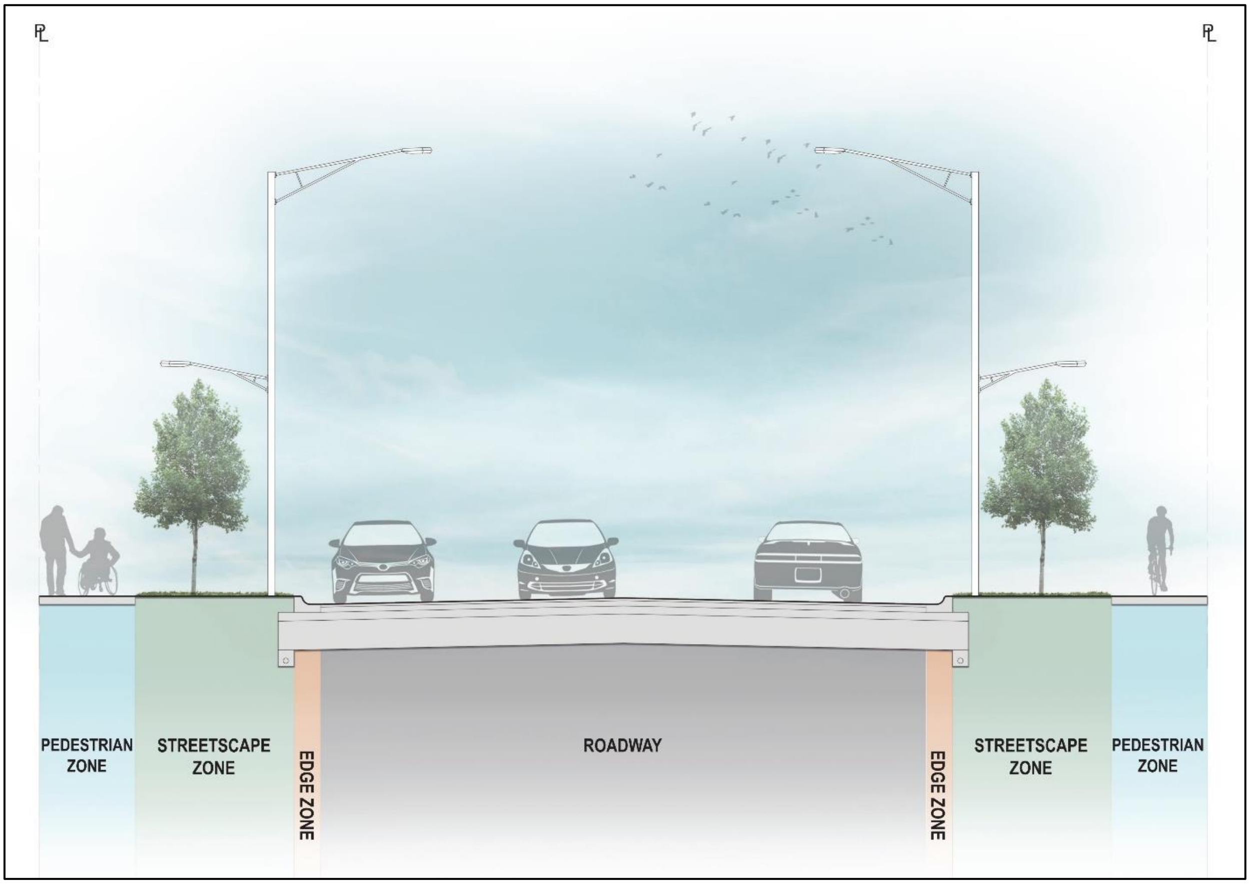


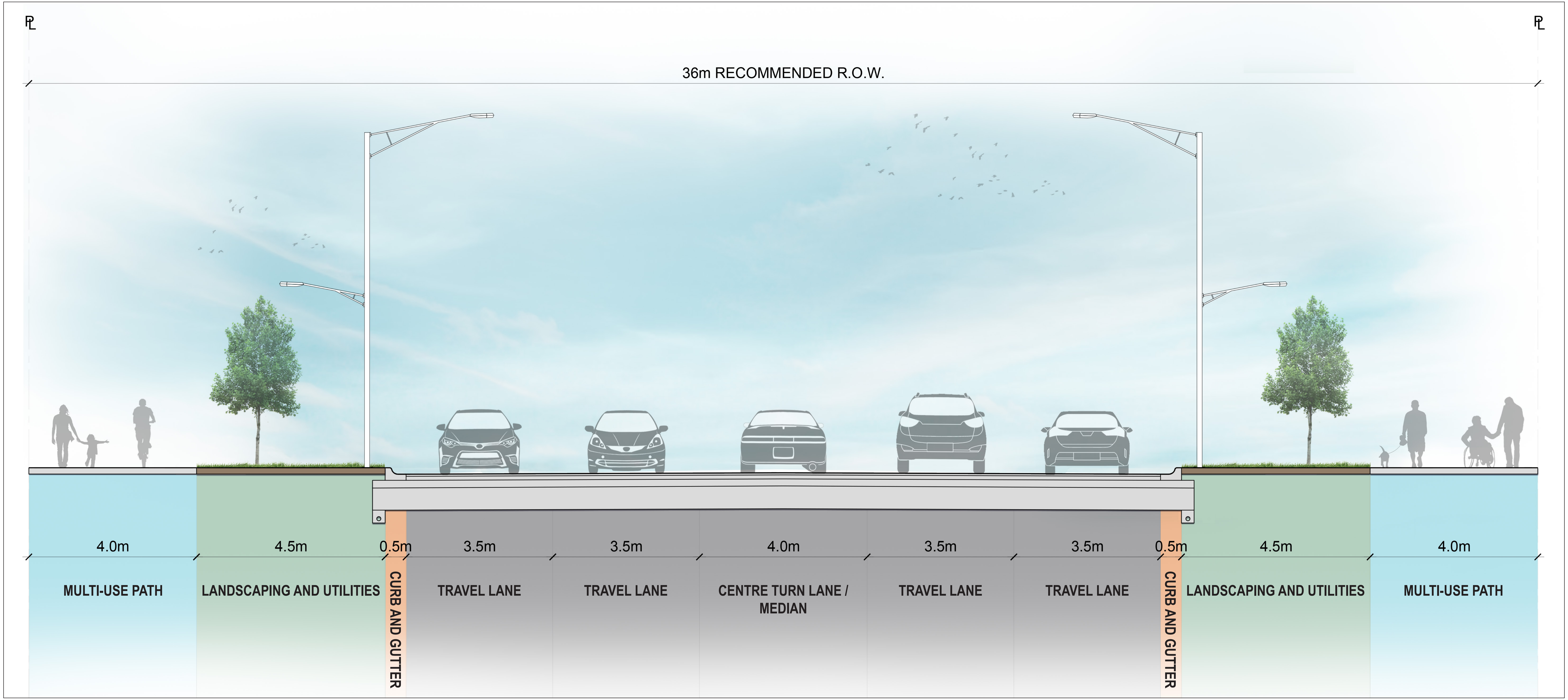

**Figure F-1: Cross Section Elements**

**Table F-2: Complete Streets Cross-Section Elements**

| | Description | Potential Elements | Design Guidelines |
|---|---|---|---|
| **Roadway** | Provide for the safe and efficient movement of vehicles, and may accommodate bike lanes or parking | Travel lanes | • The number of travel lanes and lane widths should consider the users of the street, including impacts on pedestrian crossing distances and the role of medians<br>• Travel lanes should not exceed 3.5 m unless it is a shared vehicle lane<br>• Passing / curb lanes should be a minimum of 3.25 m and should be sufficiently wide to accommodate the anticipated range of transit vehicles<br>• In urban areas, where lower speeds are desired, narrower travel lane widths may be more appropriate |
| | | Shared vehicle lane | • A desired minimum vehicle lane width of 4.5 m for vehicle lanes that are shared with cyclists |
| | | Auxiliary Left Turn Lane | • To provision for auxiliary left turns at intersections, a lane width as narrow as 3.0 m plus a 2.0 m median separation to opposing traffic is acceptable if trucks and buses make up less than 15 veh/h of the turning traffic; otherwise, a minimum left turn lane of 3.3 m is desired |
| | | Parking lane | • A minimum on-street parking width of 2.4 m is desired; however, a width of 2.0 m can be considered in constrained areas<br>• On-street parking is discouraged along roads with operating speeds of over 60 km/h |
| | | Centre turn lane | • Widths are generally the same as the adjacent through lane<br>• A centre turn lane width of 4.0 m is desired for roads with design speeds greater than 60 km/h; otherwise a 3.5 m width is acceptable<br>• A width of 5.0 m should be avoided due to operational concerns |
| | | Medians | • An overall median width of 6.0 m width (including the gutter) is desired to accommodate a protected structural pier or left-turn auxiliary lanes<br>• Wider medians with barriers are desirable along high speed, arterial roads |
| | | On-street bicycle lanes | • See **Town Active Transportation Master Plan (ATMP)** for details on bicycle facility design requirements, including the appropriateness of facility type based on the context of the road and environment<br>• A bicycle lane that is greater than 2.0 m, not including buffer width, is discouraged as vehicles may use it as a travel / passing lane |

| | Description | Potential Elements | Design Guidelines |
|---|---|---|---|
| **Edge Zone** | Located between the vehicle lanes and green zone and may include curbing or shoulders | Paved shoulder | • See **Town ATMP** for details on bicycle facility design requirements, including the appropriateness of facility type based on the context of the road and environment<br>• A paved shoulder that is greater than 2.0 m, not including buffer width, is discouraged as vehicles may use it as a travel / passing lane<br>• Paved shoulders should not include bicycle lane signage as they also serve as a refuge for disabled vehicles |
| | | Cycle Track | • A minimum and desired width of 1.5 m and 2.0-2.5 m, respectively, is recommended for a one-way cycle track<br>• A minimum and desired width of 3.0 m and 3.5-4.0 m, respectively, is recommended for a two-way cycle track |
| | | Curb and gutter | • A curb and gutter should be provided along roads within urbanized areas or with main street environments |
| **Streetscape Zone** | Located within the boulevard and provides aesthetic and low impact development (LID) elements, street furniture, lighting, and a buffer to pedestrians | Lighting, road signs, above and below ground utilities | • In urban areas, lighting should be designed to accommodate pedestrians (i.e., illumination of sidewalks)<br>• In rural areas, lighting should be incorporated for the purpose of enhancing roadway safety and visibility |
| | | Planting and furnishing | • Provides space for plantation, street furniture, pedestrian amenities (e.g., benches), transit amenities (e.g., shelters) and utilities<br>• Planting / furnishing zones is typically 1.0 to 3.0 m wide, but can vary on a corridor basis<br>• No elements should impede pedestrian movement |
| | | Low Impact Development (LID) | • Cost effective LID practices should be incorporated, where possible, for stormwater management |
| | | Rural swale | • Edges of rural roads, except those in main street environments, should include swales for drainage |
| **Pedestrian Zone** | Boulevard space dedicated to sidewalks for pedestrians or a multi-use path for both pedestrians and cyclists | Sidewalk | • Sidewalks should be provided directly adjacent to the building frontage, property line or marketing zone depending on the context of the corridor<br>• Sidewalks should be free of obstructions and constructed to meet AODA standards<br>• A minimum width of 1.8 m is recommended<br>• Within urban areas or along main streets, sidewalks and/or multi-use paths should be provided along both sides of the road |

| | Description | Potential Elements | Design Guidelines |
|---|---|---|---|
| | | Multi-use path | • See **Town ATMP** for details on bicycle facility design requirements, including the appropriateness of facility type based on the context of the road and environment<br>• Within urban areas or along main streets, sidewalks and/or multi-use paths should be provided along both sides of the road<br>• Supportive amenities, including benches, waste bins, lighting and signage, are recommended |
| **Marketing Zone** | Located between the pedestrian zone and the building frontage | Patios<br>Spil-out retail<br>Awnings<br>Building entrances<br>Street furniture | • Marketing zone encouraged in urban areas to provide street identify / character and promote pedestrian activity<br>• Elements should be installed such that pedestrian movement is not impeded |




CALEDON MULTI-MODEL TRANSPORTATION PLAN

## URBAN ARTERIAL STREET - 4 LANES

2023.08.08

BURNSIDE

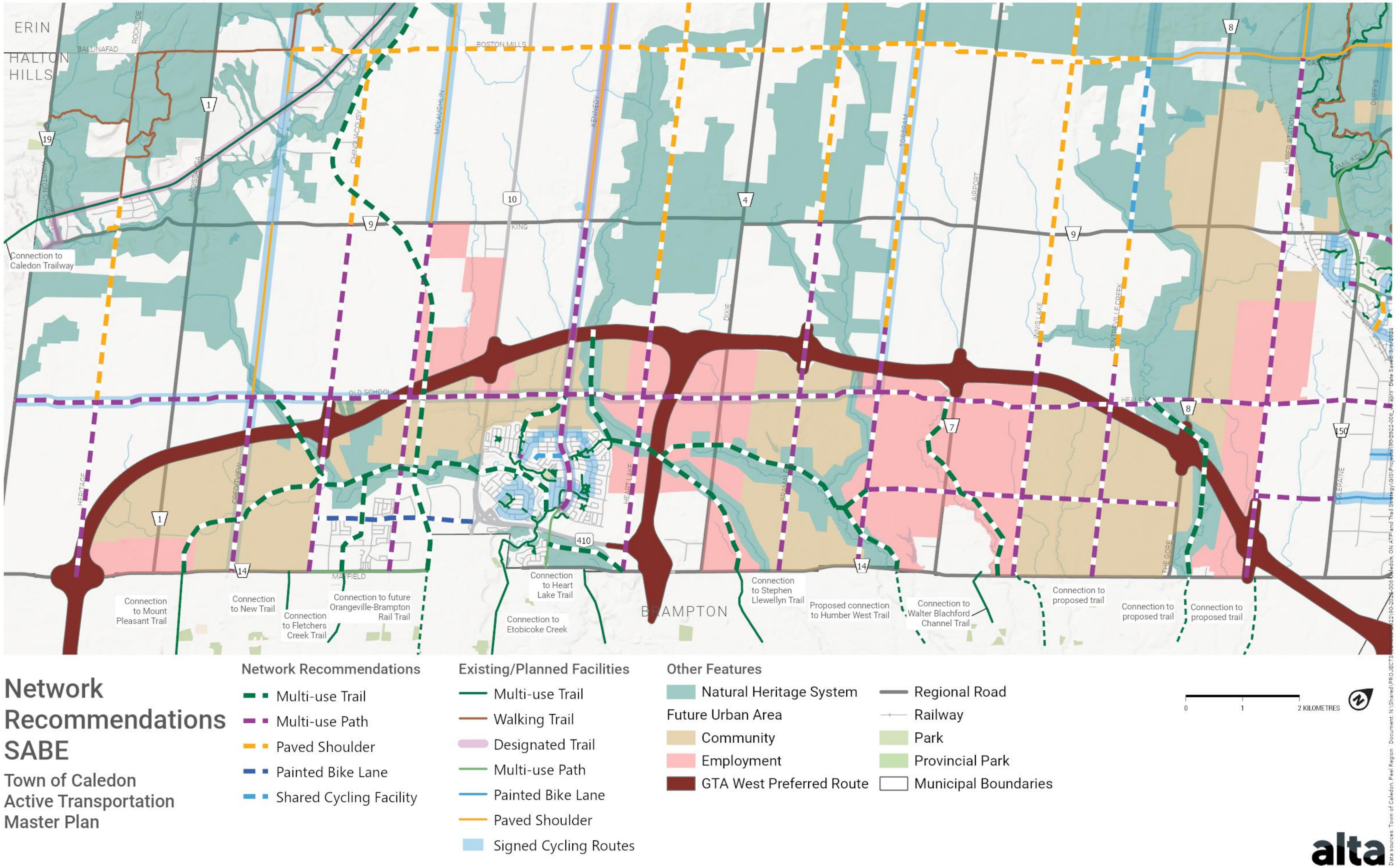
# Town of Caledon

## Active Transportation Master Plan

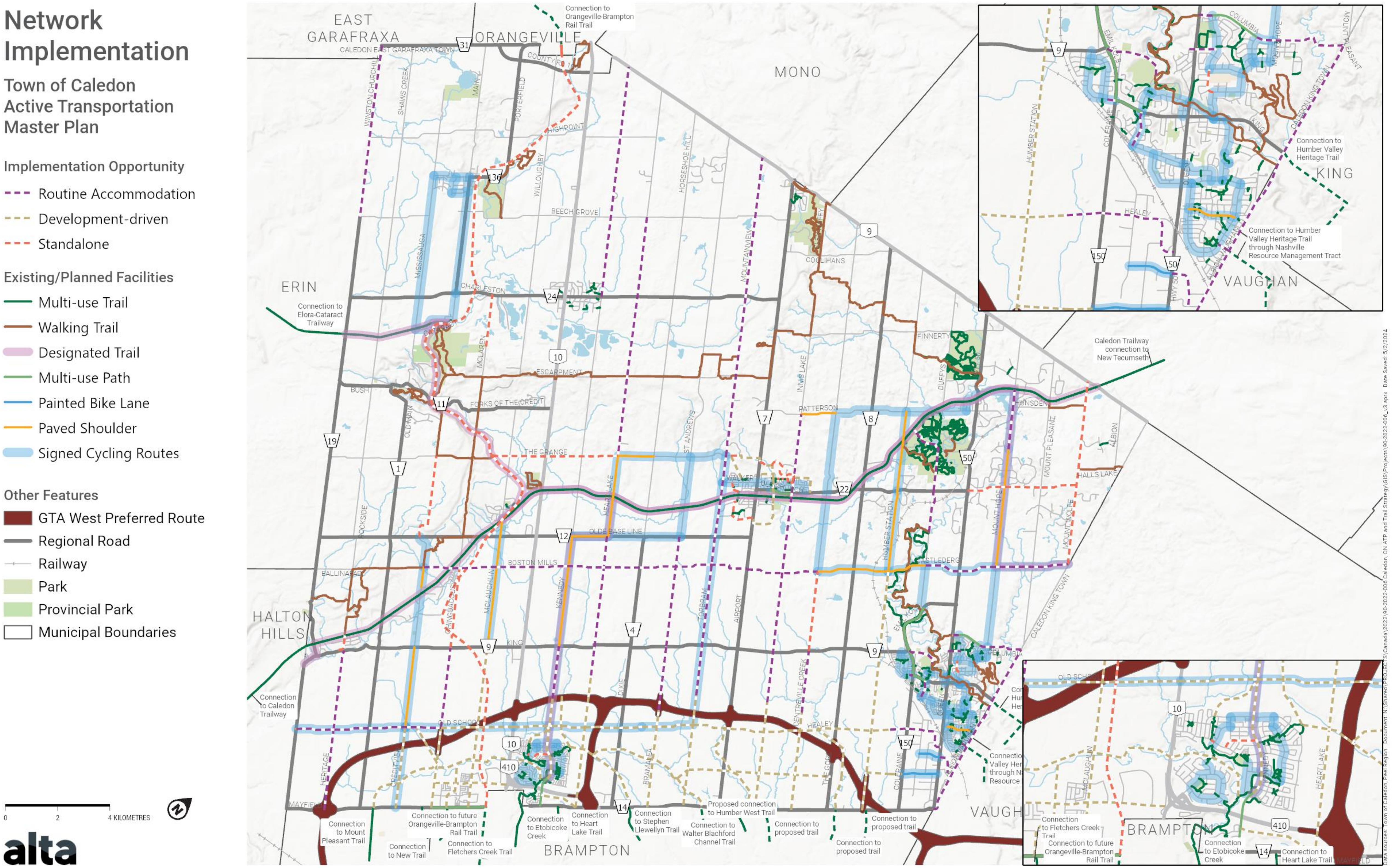
**June 2024**

TOWN OF CALEDON

Map 6. Network recommendations in the Settlement Area Boundary Expansion area



Map 7. Network implementation



# APPENDIX H:

## Transportation Improvement Excerpts

Project Number:
2007-317P

April/2013

# Mayfield Road Improvements

Airport Road to Coleraine Drive –
Class Environmental Assessment

## ENVIRONMENTAL STUDY REPORT

Volume 1 of 5
Environmental Study Report

April 5, 2013

Region of Peel
Working for you

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# 5.0 Design Concepts

## 5.1 ALTERNATIVE DESIGN CONCEPTS

### 5.1.1 Background and Introduction

Based on the results of the evaluation of alternative solutions and feedback following Public Information Centre No. 1, the Recommended Alternative Solution of Widening Mayfield Road was confirmed by the Study team. This solution includes intersection improvements, consideration of roundabouts, minimizing impacts on property and the environment, and private property access management. Other items such as upgrading or building other routes/roads, and providing enhanced transit service throughout the Region will also be implemented with all Alternative Design Concepts. The next step in the study process was to identify and assess practical design alternatives and select a preferred design alternative for presentation to the public.

### 5.1.2 Roadway Design Criteria

Roadway design criteria were established and refined early in the study to arrive at a suitable set of design criteria that would be applied to the development of roadway designs as part of the preferred solution. The following table summarizes the existing and proposed design criteria and which form the basis for the design alternatives prepared as part of the Class EA and preliminary design:

**Table 5.1.2.1 – Roadway Design Criteria**

| CRITERIA/ DESCRIPTION | EXISTING CONDITIONS | URBAN ARTERIAL UNDIVIDED Controlled Access | URBAN ARTERIAL DIVIDED Controlled Access |
|---|---|---|---|
| **Design Classification:** | **Built up areas**: Rural Arterial Road Undivided Posted Speed 60 km/hr<br><br>**Rural Areas**: Rural Arterial Road Undivided Posted Speed 80 km/hr | **Built up areas**: UAU 70, Design Speed 70 km/hr, Posted Speed 60 km/hr<br><br>**Rural Areas**: UAD 90, Design Speed 90 km/hr, Posted Speed 80 km/hr | **Built up areas**: UAD 70, Design Speed 70 km/hr, Posted Speed 60 km/hr<br><br>**Rural Areas**: UAD 90 Design Speed 90 km/hr, Posted Speed 80 km/hr |
| **Cross Section:** | **Right of Way:** Varies but generally 30 meters or larger. | **Right of Way**: 50 metres (165 feet nominally) | **Right of Way**: 50 metres (165 feet nominally) |

**Table 5.1.2.1 – Roadway Design Criteria**

| CRITERIA/ DESCRIPTION | EXISTING CONDITIONS | URBAN ARTERIAL UNDIVIDED Controlled Access | URBAN ARTERIAL DIVIDED Controlled Access |
|---|---|---|---|
| | **Road Platform:** 2 paved lanes with gravel shoulders and turn lanes at Intersections. Drainage by means of ditches with some minor storm sewers in built up areas. | **Road Platform:** 6 lanes no center median. Curb & gutter with storm sewers | **Road Platform**: 6 lanes divided by 6.0 m raised median. Curb & gutter with storm sewers |
| **Maximum Gradient:** | Approx. 4% east of Goreway Drive | 6.0% | 6.0% |
| **Minimum Gradient:** | - | 0.5% | 0.5% |
| **Crest/Sag(1) Minimum K Values** | - | UAU70:<br>Crest: SSD:32 PSD:350<br>Sag: SSD: 30<br><br>UAU90:<br>Crest: SSD: 16 PSD: 250<br>Sag: SSD: 20 | UAD70:<br>Crest: SSD:32 PSD:350<br>Sag: SSD: 30<br><br>UAD90:<br>Crest: SSD: 16 PSD: 250<br>Sag: SSD: 20 |
| **Minimum Stopping Sight Distance:** | - | UAU70: 94 m<br>UAU90: 131 m | UAD70: 94 m<br>UAD90: 131 m |
| **Equivalent Minimum "K" Factor:** | - | UAU70: 16<br>UAU90: 32 | UAD70: 16<br>UAD90: 32 |
| **Minimum Radius of Horizontal Curvature:** | Approx. 320m @ 60kmh posted (i.e. east of Airport Road) | UAU70: 200 m<br>UAU90: 375 m | UAD70: 200 m<br>UAD90: 375 m |
| **Super elevation:** | - | Maximum (eMax) = 4% | Maximum (eMax) = 4% |
| **Lane Widths(2)** | Generally 3.75m through lanes | Through Lanes: 3.75 m<br>Turn Lanes: 3.5 m | Through Lanes: 3.75 m<br>Turn Lanes: 3.5 m |
| **Sidewalk Width** | N/A | 1.5 m | 1.5 m |
| **Multi-use Trail Width** | N/A | 3.0 m | 3.0 m |

# 6.0 Recommended Design Concept

## 6.1 DESCRIPTION OF RECOMMENDED DESIGN CONCEPT

Following a comprehensive evaluation process, the study team has confirmed the Recommended Design Alternative is "Concept 4 – Modified Widening of Mayfield Road about the Centerline". The recommended Design Concept was developed based on the various discussions, comments, investigations, studies, etc. undertaken as part of the Class Environmental Assessment Study. Figures 6.1.1.1 and 6.1.1.2 illustrate the proposed road cross section with and without median.

***Following a comprehensive evaluation process, the study team has confirmed the Recommended Design Alternative is "Concept 4 – Modified Widening of Mayfield Road about the Centerline"***


**Figure 6.1.1 – Landscape Cross Section – Ultimate 6 Lanes Without Median**

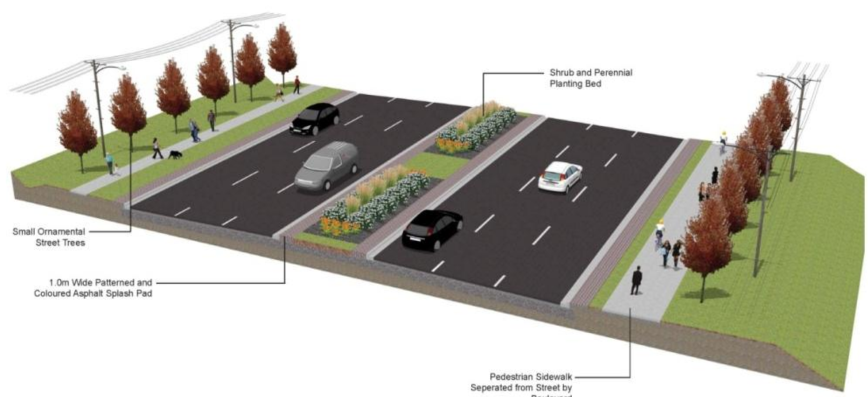



**Figure 6.1.2 – Landscape Cross Section – Ultimate 6 Lanes With Median**

The Recommended Design Concept is illustrated in the foldout plans included accompanying this section and is described in more detail as follows:

### 6.1.1 Mayfield Road – Airport Road to Maisonneuve Boulevard

Details of this section include:

Current rural cross section of two lanes plus turn lanes is upgraded to four lanes plus turn lanes with a continuous 6.0 m wide two-way left turn lane (TWTL) in the interim phase (prior to 2017) and further upgraded in the ultimate phase (prior to 2032) to six (6) lanes with turning lanes, continuous two way left turn lane. This may also include the recommended replacement of the TWTL with raised median based on adjacent area development progression. Within this section is one culvert crossing TRCA ID No. 1 and a SWM facility on the north side at Sta. 11+600 and pedestrian facilities at both sides (1.5 m concrete sidewalk on north side and 3.0 m asphalt multi-use trail on the south side). The potential for a multi-use trail on the north side will also be investigated during the detailed design phase which is recommended in the Region's 2012 Active Transportation Plan.

External roadside drainage at crossing No. 1 is captured and conveyed within a closed storm sewer system connecting to the south side and outlet directly to the watercourse on the east side Maisonneuve Boulevard.

The preliminary design for this section of Mayfield Road is represented on drawings No. P1A through P2B and a typical cross section is provided as Figure CS1-1.

**Ultimate Intersection Configuration:**

**Airport Road:**

Eastbound – three through lanes

Westbound – three through lanes

Westbound Left Turn Lane - 125 m storage/parallel lane

Westbound Right Turn Lane - 60 m storage/parallel lane

**Maisonneuve Boulevard:**

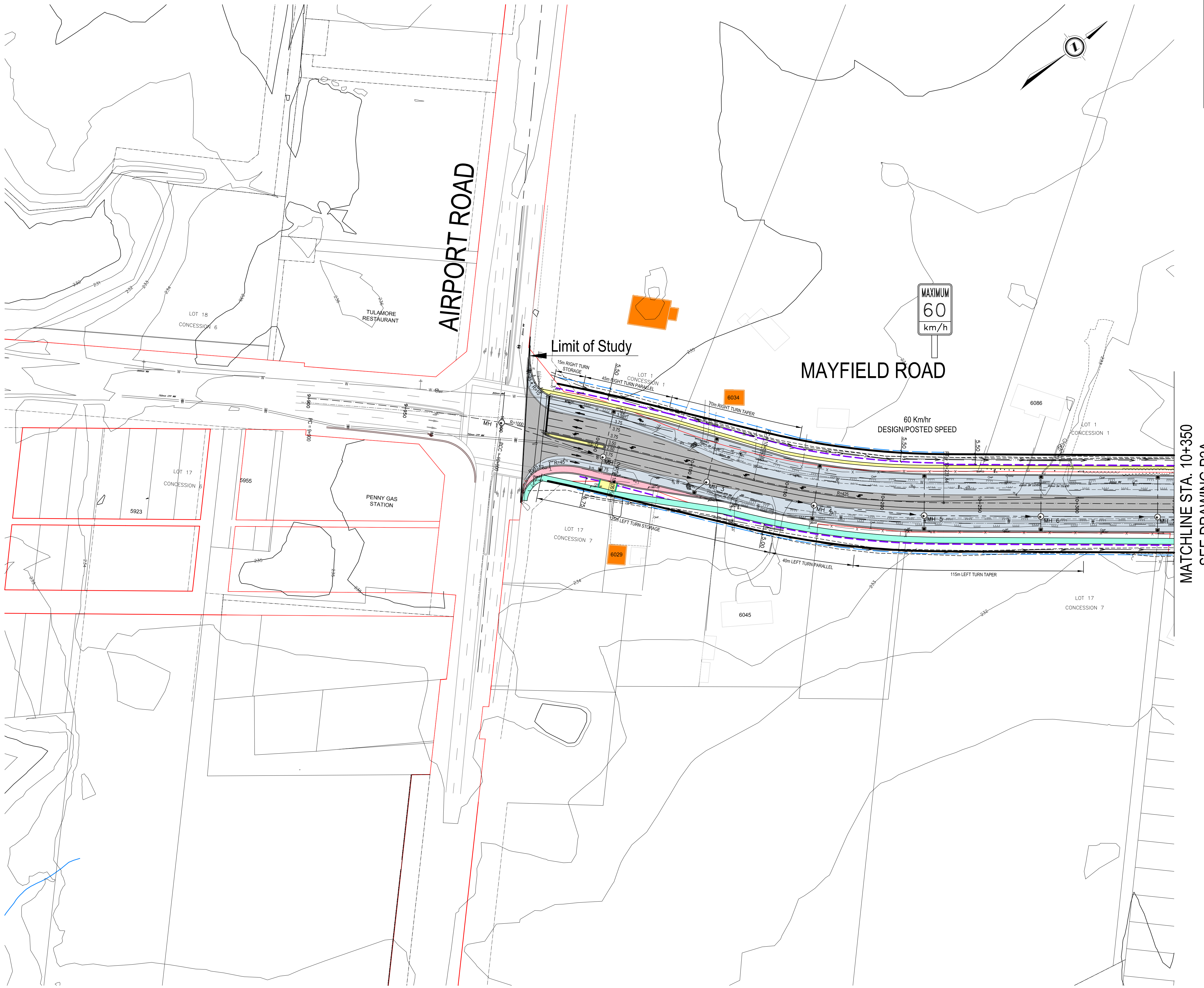
Eastbound – three through lanes

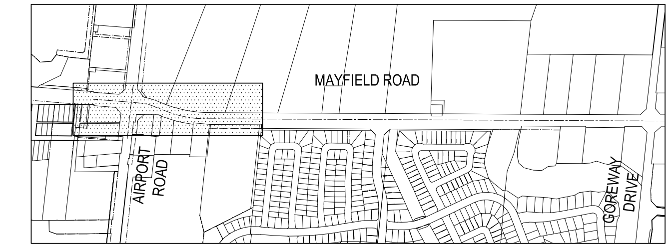
Westbound – three through lanes

Westbound Left Turn Lane – 50/40 m storage/parallel lane

Eastbound Right Turn Lane - 30/45 m storage/parallel lane

Initial construction of the four lane section will be skewed to the south with a full urban cross section on the south side and a semi-rural section retained on the north side. Deferral of the north side sidewalk may be considered subject to confirmation with the Town of Caledon.




KEYPLAN

LEGEND

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- APPROXIMATE GRADING LIMIT
- CALCULATED CLEAR ZONE INDICATING MINIMUM DISTANCE FROM EDGE OF PAVEMENT FOR HYDRO POLE LOCATION.
- MINIMUM OFFSET FOR GUYING EASEMENT BASED ON POLES LOCATED A MINIMUM CLEAR ZONE OFFSET FROM EDGE OF PAVEMENT. (5.0m "HYDRO ONE BRAMPTON" - SOUTHSIDE, 5.5m "HYDRO ONE NETWORKS" - NORTH SIDE.)
- 3 TRCA WATERCOURSE DESIGNATION
- OVERLAND FLOW DIRECTION
- POTENTIAL PROPERTY LINE 3.5m FROM CLEAR ZONE REQUIREMENTS
- EXISTING PAVEMENT
- PROPOSED PAVEMENT
- PROPOSED CONCRETE MEDIANS, SIDEWALKS & BUS PADS
- PROPOSED 3.0m MULTI-USE PATHWAY
- PROPOSED CONC. BUS BAY
- PROPOSED PROPERTY ACQUISITION OUTSIDE OF RIGHT OF WAY
- BUILT HERITAGE FEATURE
- FUTURE SIGNALIZED INTERSECTION

Scale

20m 0 20 40 60m HORIZONTAL SCALE

2m 0 2 4 6m VERTICAL SCALE

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Client

Region of Peel
Working for you

Drawing Title

MAYFIELD ROAD
AIRPORT ROAD TO COLERAINE DRIVE
CLASS EA STUDY REPORT
RECOMMENDED DESIGN ALTERNATIVE
PLAN
STA. 10+000 TO STA. 10+350

| Drawn By | Checked By | Drawing Number |
|---|---|---|
| W.R.W. | J.C.B. | P1A |
| Date | Project No. | |
| 2012-10-17 | 160210480 | |

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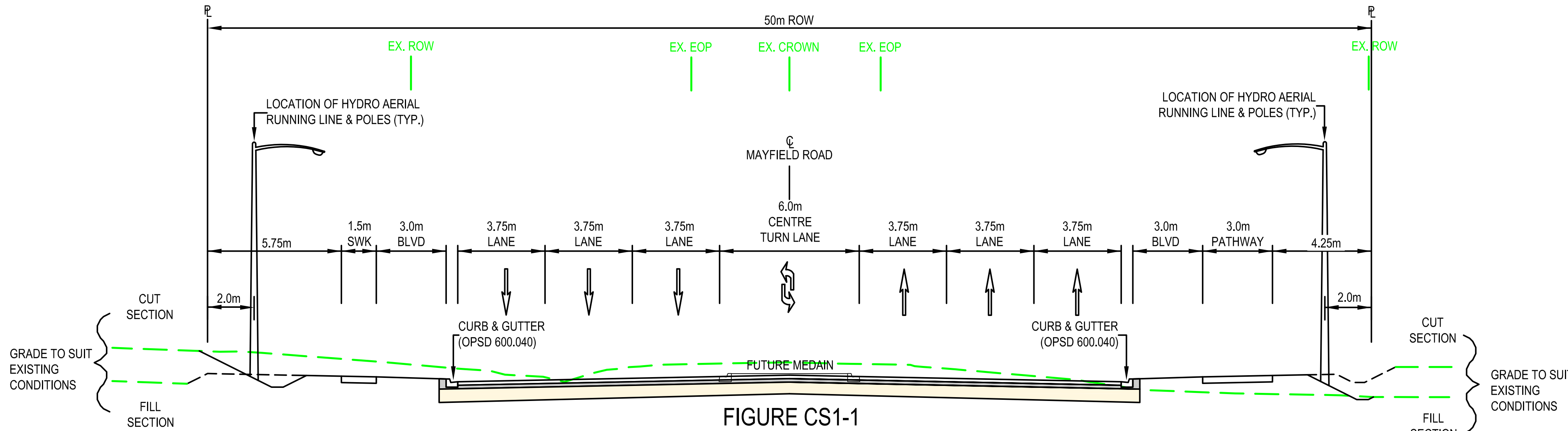


FIGURE CS1-1
AIRPORT ROAD TO EAST OF
GOREWAY DRIVE/INNIS LAKE ROAD

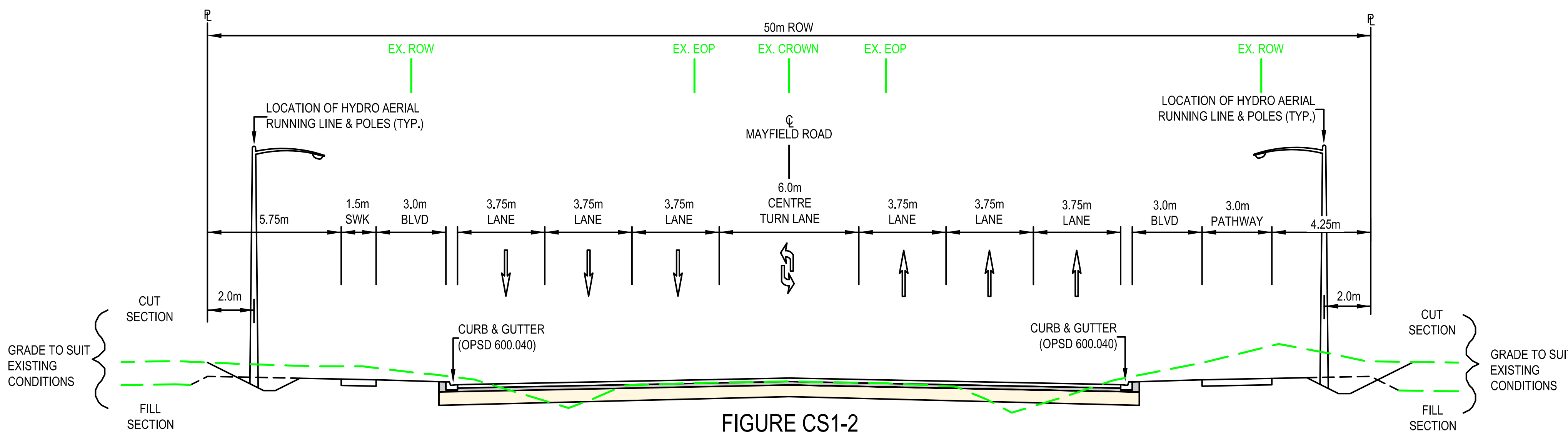


FIGURE CS1-2
EAST OF GOREWAY DRIVE/INNIS LAKE
ROAD TO EAST OF THE GORE ROAD

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Drawing Title
MAYFIELD ROAD
AIRPORT ROAD TO COLERAINE DRIVE
CLASS EA STUDY REPORT
RECOMMENDED DESIGN ALTERNATIVE
"DESIGN CONCEPT 4 MODIFIED"
EQUAL WIDENING CONCEPT
TO MINIMIZE PROPERTY IMPACTS

| Drawn By | Checked By | Drawing Number |
|---|---|---|
| W.R.W. | J.C.B. | CS1 |
| Date | Project No. | |
| 2012-10-17 | 160210480 | |

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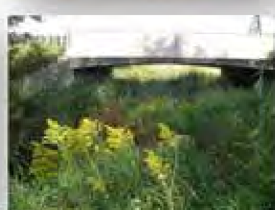
2012/10/17 10:52 AM by:white, bill (kitchener)

# Environmental Study Report

## Airport Road

from 1.0 km north of Mayfield Rd to 0.6 km north of King St

*Schedule C Class Environmental Assessment Study*



Region of Peel
Working for you

# 5.0 DESCRIPTION OF RECOMMENDED DESIGN

The proposed design criteria for the widening of Airport Road are based on a design speed of 90 km/hour in rural sections and 70 km/hour within Sandhill as presented in **Table 1** below.

| DESIGN PARAMETERS | PRESENT CONDITIONS | DESIGN STANDARDS / MINIMUMS | | PROPOSED STANDARDS |
|---|---|---|---|---|
| | | TAC | MTO | |
| Row Width | 36m | 20 - 45 | N/A | 45 m (1) |
| Posted Speed | 80 & 60km/hr. (2) | 80 km/hr. | 80 km/hr. | 80 & 60km/hr. (2) |
| Design Speed (D.S.) | 90 & 70km/hr (3) | 90 km/hr. | 90 km/hr. | 90 & 70km/hr. (3) |
| Minimum Stopping Sight Distance | 95 m | 130-170 m | 160 m | 160 m |
| Equivalent Minimum 'K' Factor for 90km/hr. D.S. | n/a | 30 – 40 Sag<br>32 – 53 Crest | 40 Sag<br>50 Crest | 30 Sag<br>32 Crest |
| Equivalent Minimum 'K' Factor for 70km/hr. D.S. | n/a | 20 – 25 Sag<br>16 – 23 Crest | 25 Sag<br>25 Crest | 25 Sag<br>25 Crest |
| Minimum Radius for 70km/hr. D.S. | | 190 m | 190 m | 190 m |
| Minimum Radius for 90km/hr D.S | | 340 m | 340 m | 340 m |
| Number of Lanes | 2 Lanes Rural | 4 | 4 | 5 Lane Rural (4) |
| Lane Width for 90km/hr. D.S. | 2 x 3.6 m | 3.5 – 3.7 m | 3.5 m | 3.75m Curb Lanes<br>3.65m Inside Lanes<br>3.5m Turn lanes<br>5.5m Median |
| Lane Width for 70km/hr. D.S. | 2 x 3.6 m | 3.5 – 3.7 m | 3.5 m | 3.75m Curb Lanes<br>3.5m Inside Lanes<br>3.35 -3.5m Turn lanes<br>5.5m Median |
| Boulevard Width | N/A | 3.0 m | 3.0m | 5.5m Min. |

**Table 1 – Design Criteria for Airport Rd from 1.0 km north of Mayfield Rd to 0.6 km north of King St**

### 5.1.4 Cross Sections

Airport Road will be widened to provide a 4-lane cross section and a centre left turn lane within the designated 45.0m right-of-way. The project comprises both rural and urban sections of roadway. The urbanized section is planned within Sandhill. A 5.5m two-way centre left turn lane is provided throughout the corridor to enable safe turning into existing property accesses. A 3.75m curb lane (outer lane) is also provided to assist goods movement as identified in the Peel Strategic Goods Movement Network Study. Details of the typical sections are illustrated in **Exhibit 6** and **Exhibit 7** (pages 37 and 38):

It should be noted that Norris Bridge, Deans Culvert, and Salt Creek Culvert crossing are designed with 1.8m wide shoulder and 2.0m wide sidewalk at the culvert crossing.

### 5.1.5 Cross Slope and Superelevation

A standard 2.0% cross fall is proposed along the corridor.

At roundabout approaches the following will be provided:

- adequate signage to alert drivers about the speed reduction prior to entering the roundabout
- a reverse crown (-2.0%) to reduce lateral force

There are no areas of superelevation within the corridor.

## 5.2 ROUNDABOUT DESIGN

The existing intersections of Old School Road-Healey Road and King Street at Airport Road are proposed as two lane urban roundabouts with a 55.0m Inscribed Circle Diameter (ICD) and 5.0m wide circulatory roadway. The entry and exit width of approaches varies based on the number of entering and receiving lanes. However a minimum width of ± 4.2m per lane is provided for an entry and exit lane.

Both roundabouts will be wide enough to accommodate tractor trailers or any large vehicle turning pattern in all directions. The roundabout approaches are designed with large enough entry and exit radii so that tractor trailers will be able to make a right turn without encroaching onto another lane or travelling over roadside curbs.

**Rural and Urban Sections**

**Rural section** refers to those portions of road that utilize ditches for storm water drainage and infiltration and typically have a paved shoulder that may be used for safe stopping or for bicyclists.

**Urban section** refers to those portions of road (within Sandhill) that utilize curbs and gutters to direct storm water from the road surface and typically have sidewalks and/or multi-use trails for pedestrians.

**Cross Slope and Superelevation**: On straight sections of normal two-lane roads, the pavement cross section is usually highest in the center and drains to both sides. Cross slope is used to provide drainage so that the water will run off the surface to a gutter or ditch.

On horizontal curves, the cross slope is banked (**superelevated**) to reduce steering effort and lateral force required to go around the curve.

## *Roundabout Terms*

**Inscribed Circle Diameter** is the basic limit used to define the size of a roundabout. It is measured between the outer edges of the circulatory roadway.

The **Centre Island** is the raised area in the centre of a roundabout around which traffic circulates.

The **Apron** is the crossable area (with mountable curb) at the edge of the centre island which may be used by long vehicles as extra space for turning as they move through the roundabout.

Raised Splitter Islands are designed at all approaches to provide smooth transitioning of traffic into the roundabout. It also serves as a refuge area for pedestrians and cyclists crossing the road. Consideration to existing and proposed accesses to abutting properties was given while designing the lengths of these islands, which varies between 50m to 165m. No turn restrictions are intended for existing properties or future developments unless the access is located close to the intersection. In this case access would be restricted to right-in/right-out only.

3.0m wide crosswalks are provided for pedestrians at a distance of 15m from the roundabout entries and exits. It is required that all crosswalk ramps be complaint with the Accessibility for Ontarians with Disabilities Act (AODA) and may include accessible curb ramps and tactile surfaces. The proposed roundabout design will provide surface indicators at crosswalk ramps to accommodate users who have accessibility needs.

A 5.0m truck apron with mountable curb is designed with the central island to provide adequate space for larger vehicles making a left turn. The inner island will be landscaped.

The Federal Highway Administration (FHWA) recommends successive curves at roundabout approaches to slow traffic down before entering the roundabout. The suggested treatment is to create a broad radius as vehicles start to slow down, followed by a moderate radius in the middle of the approach, and finally a sharp radius prior to entering the roundabout. Flatter exiting curves are provided at each approach for acceleration and to avoid unnecessary traffic delay within the roundabouts.

The paved shoulders (in the rural section) and bike lanes (in the urban section) will be ramped into a curbed and raised multi-use path for cyclists to cross the roundabout without entering main travel lanes. This is primarily done for safety reason to provide cyclists with an off-street path for road crossing. Cyclists may also choose to enter the roundabout in the same manner as other vehicles, however not recommended. Details of the proposed roundabout geometrics are as follows:

### 5.2.1 Healey Road / Old School Road Intersection

- Horizontal alignments of Airport Road at the side streets is skewed at 85°
- Northbound and Southbound Approach: Two lane approaches along Airport Road in each direction.
- East approach: Two entry (westbound) and a single receiving lane (eastbound)
- West approach: Single out (eastbound) and two receiving lanes (westbound) tapered off to a single lane to match existing configuration

### 5.2.2 King Street Intersection

- An 8 degree deflection is provided between the existing and proposed horizontal alignment at the King Street roundabout. The deflection amount was determined by adjusting the impact to property without compromising safety and design standards.

- Northbound and Southbound Approach: Two lane approaches along Airport Road in each direction.
- West and East Approach: Flared from an existing single lane to two entry lanes at both approaches. The two receiving lanes will merge into a single lane to match existing configuration.

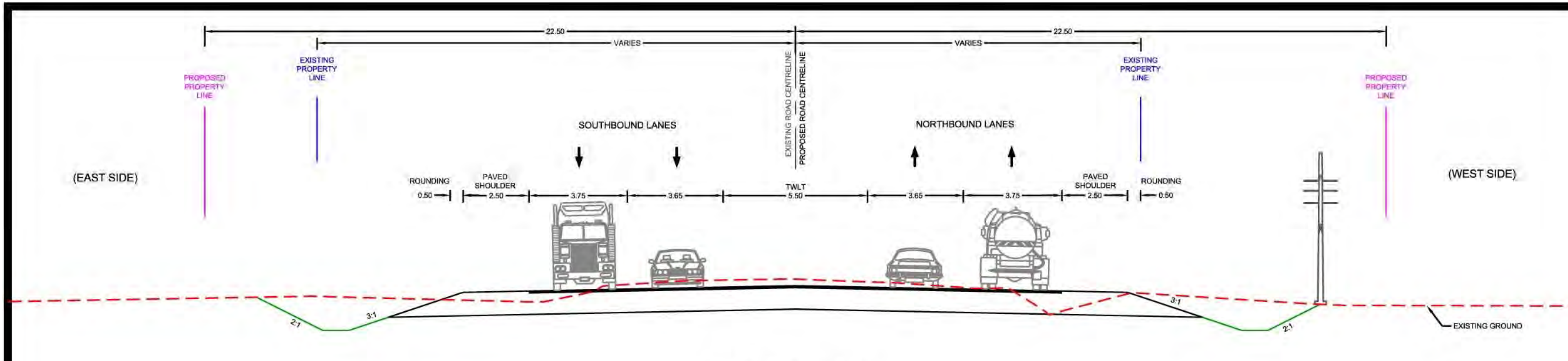
## 5.3 TYPICAL CROSS SECTIONS and RECOMMENDED DESIGN

The following exhibits illustrate the proposed rural and urban cross sections and the recommended design alternative as discussed

**Exhibit 6 - Rural Section – Airport Road 1.0 km north of Mayfield Road to 610m south of King Street (south of Sandhill)**

***The rural mid-block cross section at the above locations features 2 north bound and 2 southbound through lanes and a centre turning lane.***

- Begins at Station 0+640 and Ends at Station 4+900
- 3.65m Through Lane (inner lane)
- 3.75m Curb Lane (outer lane)
- 2.5m Paved Shoulder
- 0.5m Rounding to ditch
- 1m Flat Bottom Ditch with typical 3:1 foreslope, 2:1 backslope



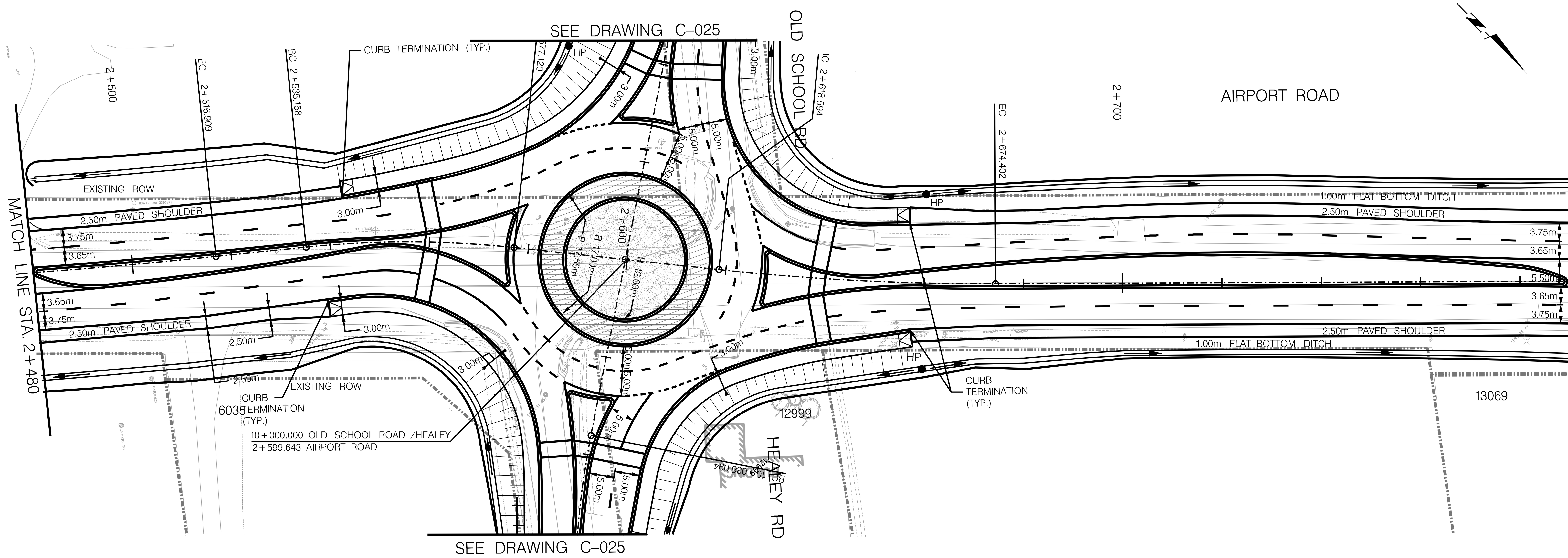

**AIRPORT ROAD**
TYPICAL MID-BLOCK CROSS SECTION 'A - A'
(1.0km NORTH OF MAYFIELD ROAD TO 610m SOUTH OF KING STREET)

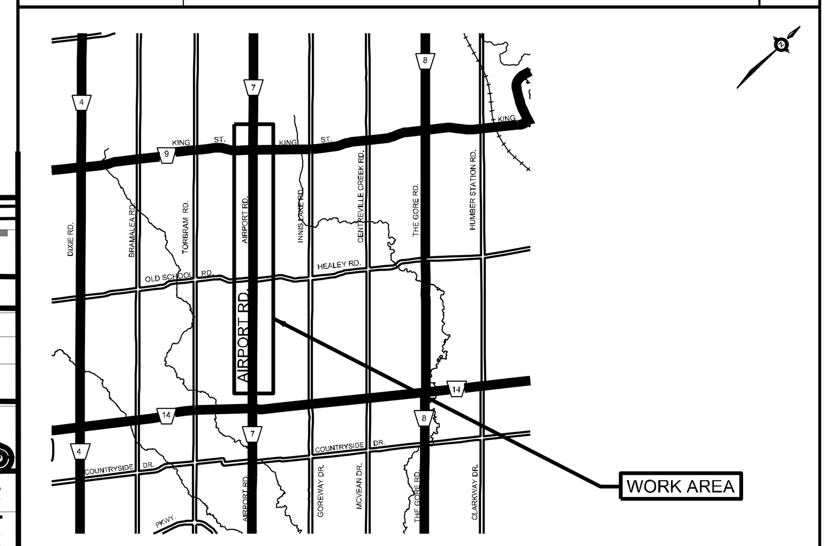
## SERVICE DATA

| SERVICE | DATE | INIT. | SERVICE | DATE | INIT. |
|---|---|---|---|---|---|
| SAN SEWERS | MAY 00, 2014 | X.X. | GAS MAINS | MAY 00, 2014 | X.X. |
| STORM SEWERS | MAY 00, 2014 | X.X. | BELL U/G CABLE | MAY 00, 2014 | X.X. |
| WATERMAINS | MAY 00, 2014 | X.X. | HYDRO U/G CABLE | MAY 00, 2014 | X.X. |
| TRANSIT | MAY 00, 2014 | X.X. | HYDRO ONE | MAY 00, 2014 | X.X. |
| PARKS & REC. | MAY 00, 2014 | X.X. | CTV | MAY 00, 2014 | X.X. |
| ONT. CLEAN WATER | MAY 00, 2014 | X.X. | COMMUNIC. CABLES | MAY 00, 2014 | X.X. |

## REVISIONS

| DATE | DETAILS | INIT. |
|---|---|---|
| JULY 2018 | ISSUED FOR 30% DESIGN REVIEW | T.P. |
| JAN 2019 | ISSUED FOR 60% DESIGN REVIEW | T.P. |




KEY PLAN (N.T.S.)

LEGEND:

LEFT DITCH

RIGHT DITCH

### General Notes

All Driveways Are ASPHALT Unless Otherwise Noted

All Water And Sanitary Service Locations Are Approximate And Must Be Located Accurately In The Field

All Horizontal And Vertical Bends Are In Degrees

All Pipes Size In mm

**20C** Existing Water Service, Size In mm

**WS20** Proposed Water Service, Size In mm

B.M. No. Elev.
Description
Location

The Contractor Is Responsible For Locating And Protecting All Existing Utilities Prior To And During Construction. Location Of Existing Utilities Approximate Only, To Be Verified In Field By Contractor.

Designed by

Chkd.

Approved by

### NOTICE TO CONTRACTOR

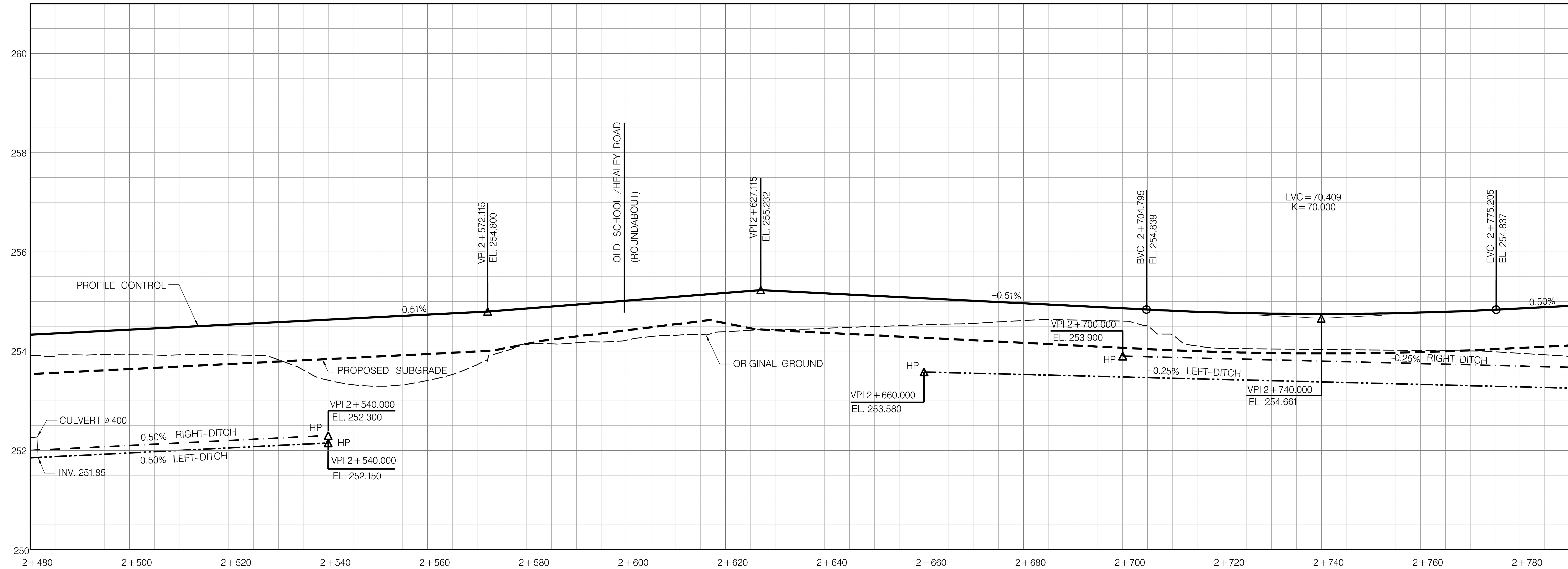
48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

THE REGIONAL MUNICIPALITY OF PEEL
CITY OF MISSISSAUGA WORKS DEPT.
CITY OF BRAMPTON WORKS DEPT.
TOWN OF CALEDON WORKS DEPT.
BELL CANADA
ENBRIDGE INCORPORATED-GAS DISTRIBUTION
ONTARIO MINISTRY OF TRANSPORTATION
ONTARIO CLEAN WATER AGENCY
HYDRO ONE NETWORKS
ENERSOURCE, HYDRO MISSISSAUGA
HYDRO ONE BRAMPTON

CABLE TELEVISION/FIBREOPTIC PROVIDERS:
BELL CANADA
ENERSOURCE TELECOM
HYDRO ONE TELECOM
ROGERS CABLE
ALLSTREAM
PSN (PUBLIC SECTOR NETWORK)
FUTUREWAY (FCI BROADBAND)

HORIZONTAL SCALE 10m 0 10 20 30m

VERTICAL SCALE 1m 0 1 2 3m



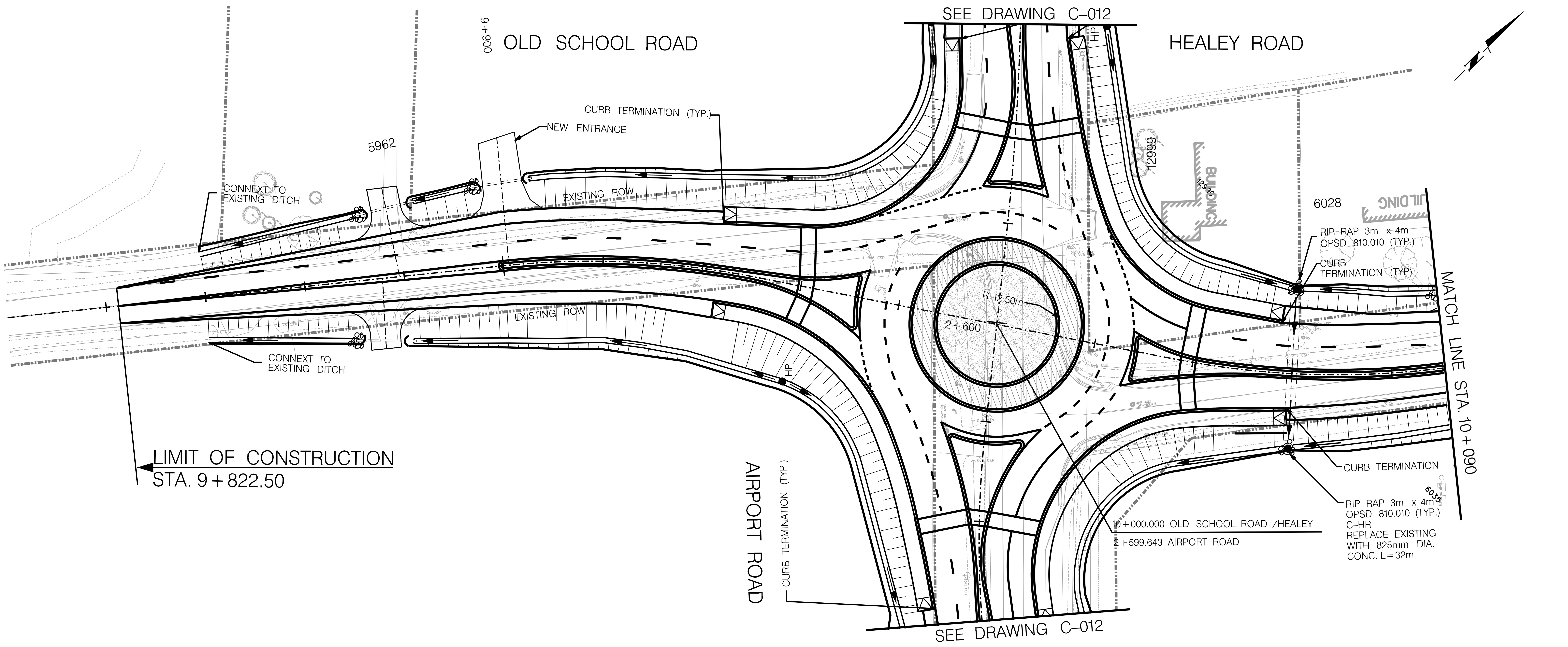

| | 2+480 | 2+500 | 2+520 | 2+540 | 2+560 | 2+580 | 2+600 | 2+620 | 2+640 | 2+660 | 2+680 | 2+700 | 2+720 | 2+740 | 2+760 | 2+780 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PROPOSED | 254.334 | 254.435 | 254.536 | 254.638 | 254.739 | 254.862 | 255.019 | 255.176 | 255.167 | 255.066 | 254.964 | 254.863 | 254.779 | 254.750 | 254.777 | 254.861 |
| EXISTING | 253.907 | 253.927 | 253.925 | 253.414 | 253.412 | 254.150 | 254.222 | 254.393 | 254.460 | 254.534 | 254.617 | 254.607 | 254.055 | 254.033 | 254.013 | 253.955 |

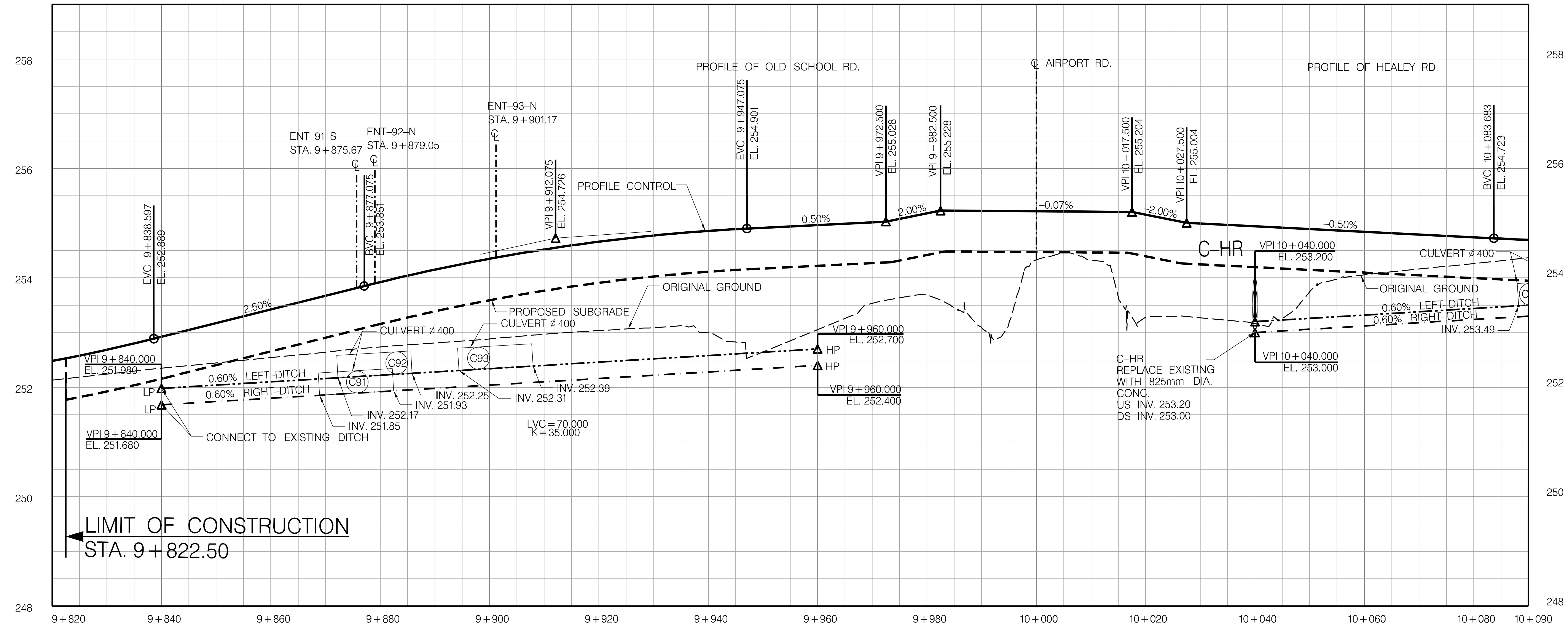
Region of Peel
*Working for you*

# AIRPORT ROAD
## PLAN AND PROFILE

(FROM STA. 2+480 TO STA. 2+790)

| | | | | | |
|---|---|---|---|---|---|
| CAD Area | X-XX | Area | X-XX | Project No. | 14-4030 |
| Checked by | | Drawn by | G.P. | | |
| Date | JULY 2018 | Sheet | X of X | Plan No. | NC-009 |



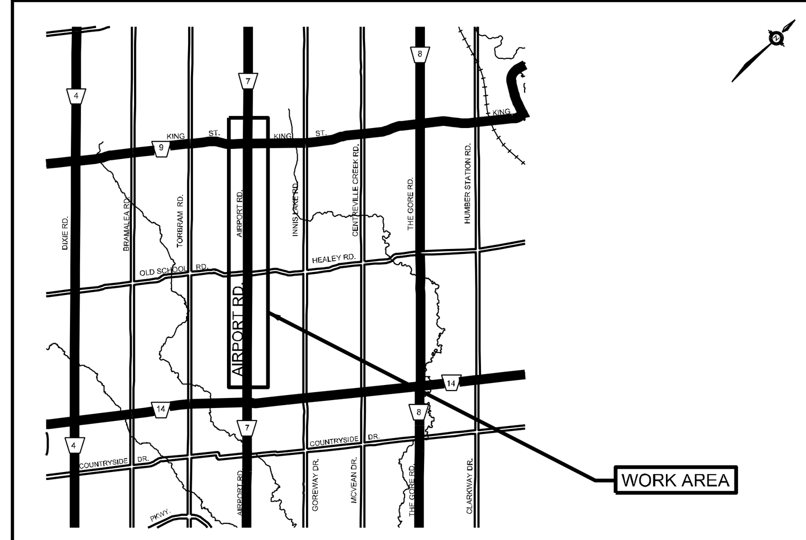

| | 9+820 | 9+840 | 9+860 | 9+880 | 9+900 | 9+920 | 9+940 | 9+960 | 9+980 | 10+000 | 10+020 | 10+040 | 10+060 | 10+080 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PROPOSED | 252.482 | 252.924 | 253.424 | 253.923 | 254.349 | 254.661 | 254.858 | 254.966 | 255.178 | 255.216 | 255.154 | 254.942 | 254.842 | 254.742 |
| EXISTING | 252.129 | 252.351 | 252.545 | 252.737 | 252.883 | 253.035 | 253.009 | 253.055 | 253.691 | 254.332 | 253.277 | 253.163 | 254.055 | 254.262 |

## SERVICE DATA

| SERVICE | DATE | INIT. | SERVICE | DATE | INIT. |
|---|---|---|---|---|---|
| SAN SEWERS | MAY 00, 2014 | X.X. | GAS MAINS | MAY 00, 2014 | X.X. |
| STORM SEWERS | MAY 00, 2014 | X.X. | BELL U/G CABLE | MAY 00, 2014 | X.X. |
| WATERMAINS | MAY 00, 2014 | X.X. | HYDRO U/G CABLE | MAY 00, 2014 | X.X. |
| TRANSIT | MAY 00, 2014 | X.X. | HYDRO ONE | MAY 00, 2014 | X.X. |
| PARKS & REC. | MAY 00, 2014 | X.X. | CTV | MAY 00, 2014 | X.X. |
| ONT. CLEAN WATER | MAY 00, 2014 | X.X. | COMMUNIC. CABLES | MAY 00, 2014 | X.X. |

## REVISIONS

| DATE | DETAILS | INIT. |
|---|---|---|
| JULY 2018 | ISSUED FOR 30% DESIGN REVIEW | T.P. |
| | | |
| | | |
| | | |



KEY PLAN (N.T.S.)

LEGEND:

LEFT DITCH

RIGHT DITCH

### General Notes

All Driveways Are ASPHALT Unless Otherwise Noted

All Water And Sanitary Service Locations Are Approximate And Must Be Located Accurately In The Field

All Horizontal And Vertical Bends Are In Degrees

All Pipes Size In mm

**20C** Existing Water Service, Size In mm

**WS20** Proposed Water Service, Size In mm

B.M. No. Elev.
Description
Location

The Contractor Is Responsible For Locating And Protecting All Existing Utilities Prior To And During Construction. Location Of Existing Utilities Approximate Only, To Be Verified In Field By Contractor.

Designed by ______ ______ ______ ______ Chkd. ______

Approved by ______ ______ ______ ______ ______

### NOTICE TO CONTRACTOR

48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

THE REGIONAL MUNICIPALITY OF PEEL
CITY OF MISSISSAUGA WORKS DEPT.
CITY OF BRAMPTON WORKS DEPT.
TOWN OF CALEDON WORKS DEPT.
BELL CANADA
ENBRIDGE INCORPORATED-GAS DISTRIBUTION
ONTARIO MINISTRY OF TRANSPORTATION
ONTARIO CLEAN WATER AGENCY
HYDRO ONE NETWORKS
ENERSOURCE, HYDRO MISSISSAUGA
HYDRO ONE BRAMPTON

CABLE TELEVISION/FIBREOPTIC PROVIDERS:
BELL CANADA
ENERSOURCE TELECOM
HYDRO ONE TELECOM
ROGERS CABLE
ALLSTREAM
PSN (PUBLIC SECTOR NETWORK)
FUTUREWAY (FCI BROADBAND)

10m 0 10 20 30m HORIZONTAL SCALE

1m 0 1 2 3m VERTICAL SCALE

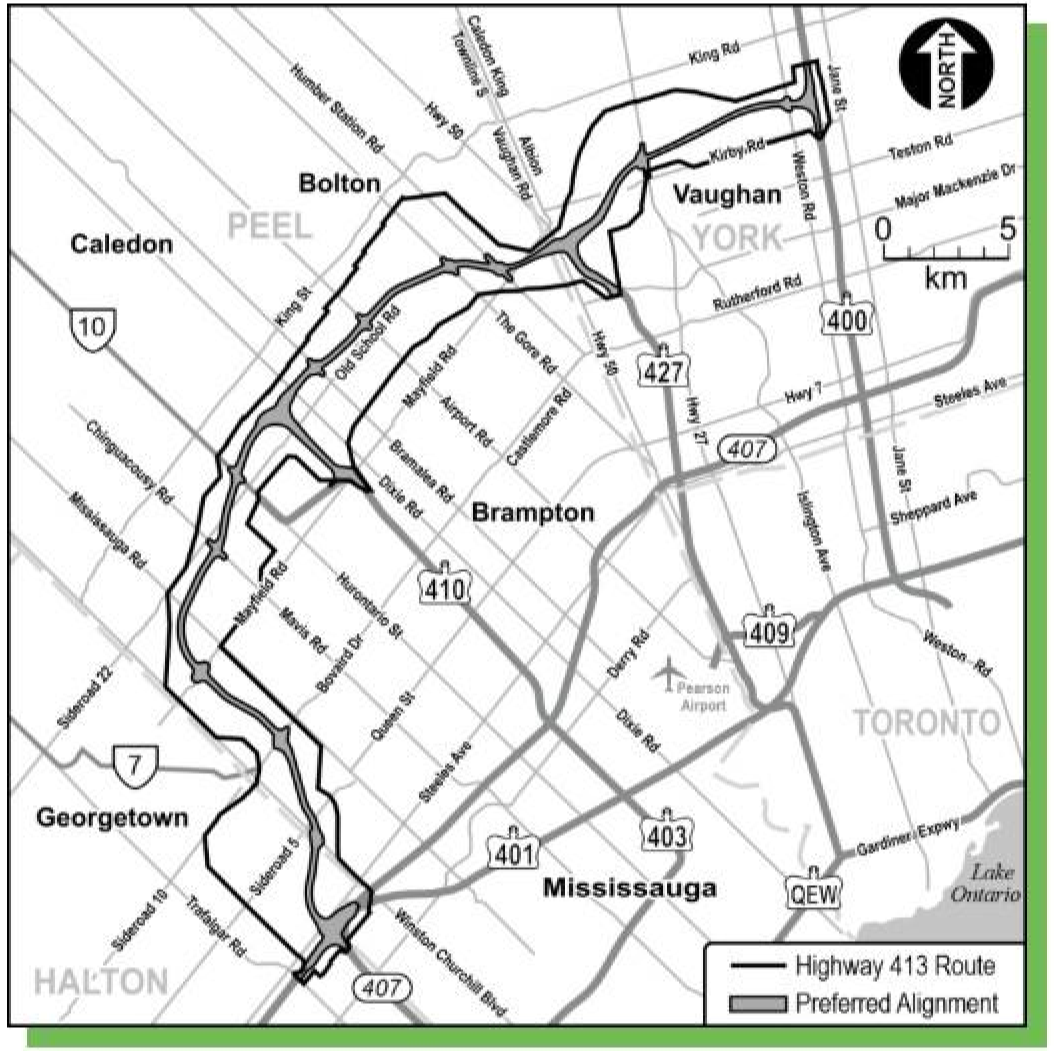
Region of Peel
*Working for you*

# AIRPORT ROAD

**PLAN AND PROFILE**
**OLD SCHOOL ROAD/HEALEY ROAD**
(FROM STA. 9+820 TO STA. 10+090)

| | | | | | |
|---|---|---|---|---|---|
| CAD Area | X-XX | Area | X-XX | Project No. | 14-4030 |
| Checked by | | Drawn by | G.P. | | |
| Date | JULY 2018 | Sheet | X of X | Plan No. | NC-022 |

# Highway 413 is a proposed highway and transit corridor running through York, Peel and Halton Regions.




The Project includes the 52-kilometre (km) Highway 413 corridor, a 4 km extension to Highway 410, and a 3 km extension to Highway 427 (both facilitating connection to the Highway 413 corridor), for a total of 59 km of new infrastructure.

The highway will have 11 interchanges at municipal roads. Features such as service centres, carpool lots, truck inspection stations, and the potential for electric vehicle charging stations, have been explored as part of Preliminary Design.

The transitway will be a separate corridor running alongside the highway, dedicated for public transit, which will be subject to a separate Environmental Assessment (EA).

## The Preferred Alignment

Highway 413 would extend from Highway 400, between King Road and Kirby Road, to the 401/407 ETR interchange near Mississauga, Milton and Halton Hills.

# APPENDIX I:

## Background Development Excerpts

# TRANSPORTATION IMPACT STUDY

## TULLAMORE INDUSTRIAL GP LIMITED
## TULLAMORE LANDS,
## 0 & 12245 TORBRAM ROAD

## TOWN OF CALEDON
## REGION OF PEEL

**PREPARED FOR:**

**TULLAMORE INDUSTRIAL GP LIMITED**

**PREPARED BY:**

**C.F. CROZIER & ASSOCIATES INC.**
**211 YONGE STREET, SUITE 600**
**TORONTO, ON M5B 1M4**

**ORIGINAL: JUNE 2021**
**UPDATE 1: DECEMBER 2021**
**UPDATE 2: APRIL 2023**
**UPDATE 3: OCTOBER 2023**

**CFCA FILE NO. 2022-5842**



CROZIER
CONSULTING ENGINEERS

# 1.0 Introduction

## 1.1 Background

C.F. Crozier & Associates Inc. (Crozier) was retained by Tullamore Industrial GP Limited to undertake a Transportation Impact Study (TIS) in support of the planning applications for the industrial development located in the Tullamore Lands, 0 & 12245 Torbram Road in the Town of Caledon.

A Transportation Impact Study (TIS) was previously prepared and submitted in June 2021 based on an older Site Plan, the TIS was updated an issued for resubmission in December 2021 and April 2023. This TIS Update has been prepared address the Town and Region's comments dated September 29, 2023, regarding the Official Plan Amendment (OPA) and Draft Plan of Subdivision (DPS) submissions associated with the Tullamore Lands.

The Town and Region's comments with associated responses, and the established Terms of References are included in **Appendix A**.

## 1.2 Development Proposal

The development proposes an industrial park consisting of a total of approximately 4,935,000 sq. ft. **Table 1** summarizes the proposed development statistics. The most recent Draft Plan prepared by Weston Consulting dated October 24, 2023, has been provided as **Figure 1.** The Site Plan prepared by Turner Fleisher Architects Inc. dated October 26, 2023, showing the building statistics has been provided in **Appendix B**.

**Table 1: Development Proposal**

| Block | Building | Land Use | GFA ($ft^2$) | Parking Supply | | |
|---|---|---|---|---|---|---|
| | | | | Loading Bays | Car Parking | Trailer Parking |
| **1** | Building A | Industrial Warehouse | 1,083,946 | 157 | 540 | 505 |
| **3** | Building C[1] | | 784,700 | 81 | 320[1] | 220 |
| **4** | Building D | | 1,009,216 | 183 | 506 | 148 |
| **7** | Building E | | 1,008,900 | 100 | 445 | 277 |
| **8** | Building F | | 797,500 | 170 | 425 | 149 |
| **5** | Building H | | 975,874 | 100 | 450 | 68 |
| **2** | Building I | | 360,760 | 74 | 335 | 56 |
| **2** | Building J | | 99,000 | 26 | 140 | 12 |
| **Total** | | | **6,119,896** | **891** | **3,161** | **1,435** |

Note 1: 25 cab parking spaces are proposed for Building C in addition to the car and trailer parking spaces.

**Table 2** outlines the proposed development's gross floor area (GFA) in comparison that outlined in the previously submitted TIS Update (Crozier, April 2023). The table also illustrates that the current proposal has slightly larger GFA when compared with the previous proposal; however, it should be noted that from a trip generation perspective, a minor increase in trips would result. **Section 4.0** reviews the trip generation of the current proposal in greater detail.

**Table 2: Development Proposal (Comparison)**

| Block | Building | GFA (sq. ft) | |
|---|---|---|---|
| | | Previous Submission April 2023 | Current Proposal October 2023 |
| **1** | Building A | 1,083,946 | 1,083,946 |
| **3** | Building C[1] | 811,849 | 784,700 (-27,149) |
| **4** | Building D | 1,009,216 | 1,009,216 |
| **7** | Building E | 1,015,740 | 1,008,900 (-6,840) |
| **8** | Building F | 797,500 | 797,500 |
| **5** | Building H | 722,768 | 975,874 (+253,106) |
| **2** | Building I | 360,760 | 360,760 |
| **2** | Building J | 99,000 | 99,000 |
| **6** | Building K | 152,640 | - (-152,640) |
| **Total** | | **6,053,419** | **6,119,896 (+66,477)** |

### 3.7.1 Torbram Road Widening

We understand that the Town has additional considerations for the ultimate buildout of Torbram Road as a two-lane or four-lane urban cross section. However, the details of the ultimate ROW considerations, and scheduling of this roadway will be subject to the completion of the ongoing Multimodal Transportation Master Plan currently being undertaken by the Town. In addition, completion of a Class Environmental Assessment may also be required. It is noted that operational analysis was conducted for all horizon years with the current two-lane cross section and no operational issues were noted.

# 4.0 Site Generated Traffic

The proposed development will result in additional vehicles on the surrounding network that previously did not exist, and the following section outlines the methodology used to estimate the generation and distribution of trips expected to be generated by the proposed development.

## 4.1 Division of Sites

It is noted the most recent Site Plan (attached in **Appendix B**), eight buildings are proposed for the subject development. For the purpose of transportation analysis within this report, different zones have been assigned to the proposed development for trip distribution purposes, as summarized in **Table 15** below and are illustrated in

**Figure 11.**

**Table 15: Transportation Zones**

| Zone | Building(s) |
|---|---|
| **1** | Building A |
| **2** | Building D |
| | Building H |
| **3** | Building C |
| **4** | Building I |
| | Building J |
| | Building K |
| **5** | Building E |
| | Building F |

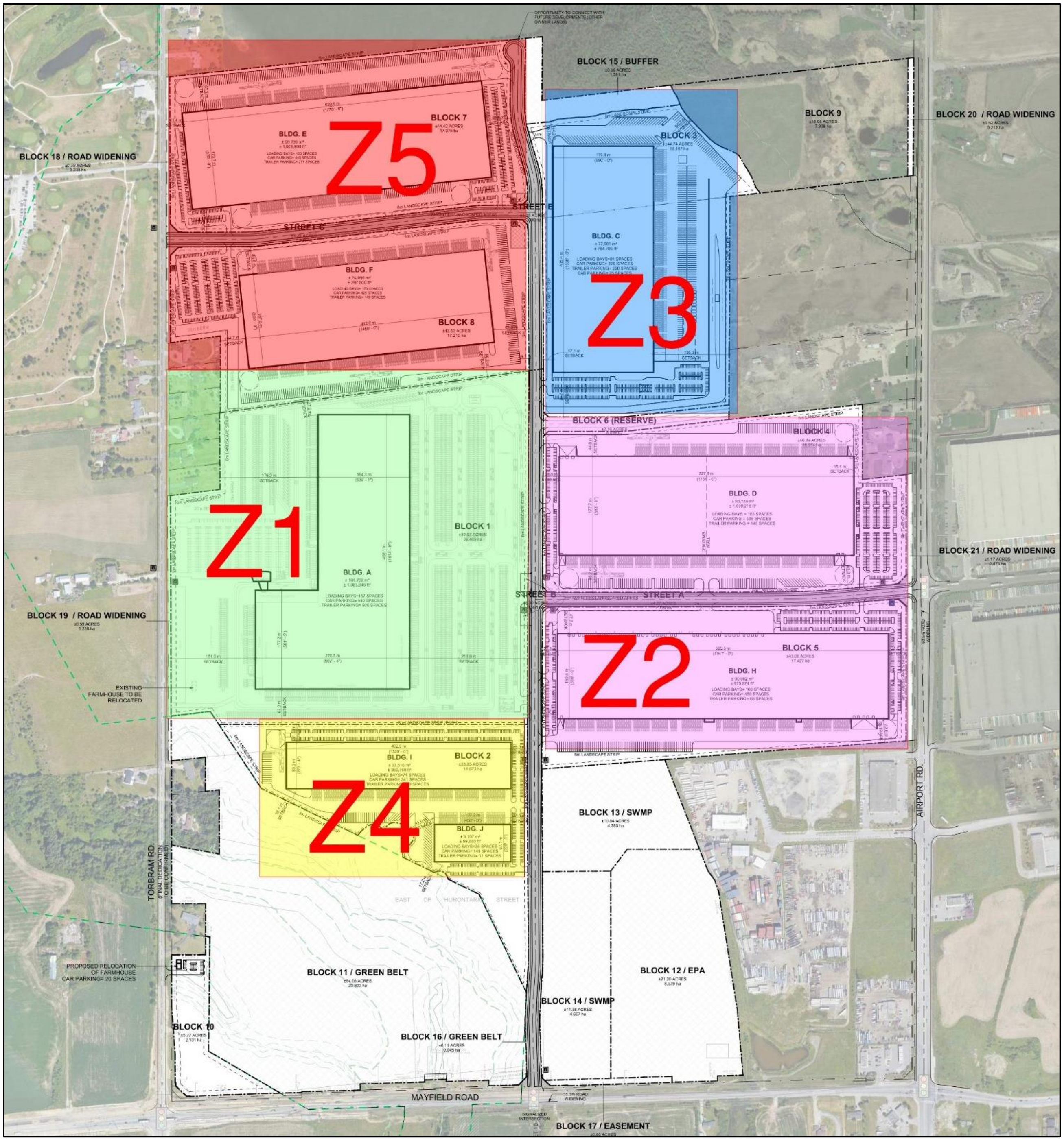



**Figure 11: Site Generated Traffic Zones**

## 4.2 Trip Generation

The trip generation at the proposed development was forecasted using the rates provided in the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition. Land Use Code (LUC) 150 "Warehousing" was used to generate the estimated site trips generated by the proposed industrial development. A fitted curve equation is provided for LUC 150 "Warehousing", and the number of data plots exceeds 20 points. As such, the fitted curve equation was used to forecast trip generation for the proposed development during the a.m. and p.m. peak periods.

2016 Transportation Tomorrow Survey (TTS) data was used to determine the existing modal split. Based on the available data for the zone of the development (2006 GTA Zone 3014) and a nearby industrial development zone (2006 GTA Zone 3015), a modal split of 0% was determined. As such, there was no modal split adjustment for trips generated at the proposed site. However, we understand that future transit considerations may contribute to peak hour automobile mode split reductions.

Per the ITE Trip Generation Handbook 3rd Edition Table I.1, approximately 20% of site generated traffic with LUC 150 "Warehousing" during weekdays consists of heavy truck traffic. Site traffic generated by similar land use LUC 130 "Industrial Park" consists of between 1-31% of heavy truck traffic during the weekday peak hours with an average of 13%, and site traffic generated by similar land use LUC 152 "High-Cube Warehouse/Distribution Centre" consists of between 9-29% of heavy truck traffic during the weekday peak hours. Therefore, an estimate of 20% for heavy truck traffic is considered reasonable.

The trip generation characteristics for each zone has been broken down in terms of the total vehicle trip generation, passenger car trip generation and heavy truck traffic trip generation in **Table 16, Table 17,** and **Table 18** respectively. **Figure 12, Figure 13,** and **Figure 14** illustrate the trip assignment for cars, trucks, and the overall total for the proposed development, respectively.

**Table 16: Total Vehicle Trip Generation**

| Zone | Building(s) | Size (SF GFA) | A.M. Peak Trip Generation | | | P.M. Peak Trip Generation | | |
|---|---|---|---|---|---|---|---|---|
| | | | T = 0.12 X + 23.62 | | | T = 0.12 X + 26.48 | | |
| | | | In | Out | Total | In | Out | Total |
| **1** | Building A | 1,083,946 | 118 | 35 | 154 | 44 | 113 | 157 |
| **Zone 1 Total** | | | **118** | **35** | **154** | **44** | **113** | **157** |
| **2** | Building D | 1,009,216 | 111 | 33 | 145 | 41 | 106 | 148 |
| | Building H | 975,874 | 73 | 68 | 141 | 40 | 103 | 144 |
| **Zone 2 Total** | | | **185** | **101** | **285** | **82** | **210** | **291** |
| **3** | Building C | 784,700 | 91 | 27 | 118 | 34 | 87 | 121 |
| **Zone 3 Total** | | | **91** | **27** | **118** | **34** | **87** | **121** |
| **4** | Building I | 360,760 | 52 | 15 | 67 | 20 | 50 | 70 |
| | Building J | 99,000 | 27 | 8 | 35 | 11 | 28 | 39 |
| **Zone 4 Total** | | | **79** | **23** | **102** | **31** | **78** | **109** |
| **5** | Building E | 1,008,900 | 111 | 33 | 145 | 41 | 106 | 148 |
| | Building F | 797,500 | 62 | 57 | 119 | 34 | 88 | 122 |
| **Zone 5 Total** | | | **173** | **91** | **264** | **76** | **194** | **270** |
| **Total** | | **6,119,896** | **646** | **277** | **923** | **266** | **681** | **947** |

**Table 17: Passenger Car Trip Generation**

| Zone | Building(s) | Size (SF GFA) | A.M. Peak Trip Generation | | | P.M. Peak Trip Generation | | |
|---|---|---|---|---|---|---|---|---|
| | | | 80% Total Vehicle Traffic | | | | | |
| | | | In | Out | Total | In | Out | Total |
| 1 | Building A | 1,083,946 | 95 | 28 | 123 | 35 | 90 | 125 |
| **Zone 1 Total** | | | **95** | **28** | **123** | **35** | **90** | **125** |
| 2 | Building D | 1,009,216 | 89 | 27 | 116 | 33 | 85 | 118 |
| | Building H | 975,874 | 59 | 54 | 113 | 32 | 83 | 115 |
| **Zone 2 Total** | | | **148** | **81** | **228** | **65** | **168** | **233** |
| 3 | Building C | 784,700 | 73 | 22 | 94 | 27 | 69 | 97 |
| **Zone 3 Total** | | | **73** | **22** | **94** | **27** | **69** | **97** |
| 4 | Building I | 360,760 | 42 | 12 | 54 | 16 | 40 | 56 |
| | Building J | 99,000 | 22 | 6 | 28 | 9 | 22 | 31 |
| **Zone 4 Total** | | | **63** | **18** | **82** | **25** | **62** | **87** |
| 5 | Building E | 1,008,900 | 89 | 27 | 116 | 33 | 85 | 118 |
| | Building F | 797,500 | 50 | 46 | 95 | 27 | 70 | 98 |
| **Zone 5 Total** | | | **139** | **72** | **211** | **60** | **155** | **216** |
| **Total** | | **6,119,896** | **518** | **221** | **738** | **212** | **544** | **758** |

**Table 18: Truck Trip Generation**

| Zone | Building(s) | Size (SF GFA) | A.M. Peak Trip Generation | | | P.M. Peak Trip Generation | | |
|---|---|---|---|---|---|---|---|---|
| | | | 20% Total Vehicle Traffic | | | | | |
| | | | In | Out | Total | In | Out | Total |
| **1** | Building A | 1,083,946 | 23 | 7 | 31 | 9 | 23 | 32 |
| **Zone 1 Total** | | | **23** | **7** | **31** | **9** | **23** | **32** |
| **2** | Building D | 1,009,216 | 22 | 6 | 29 | 8 | 21 | 30 |
| | Building H | 975,874 | 14 | 14 | 28 | 8 | 20 | 29 |
| **Zone 2 Total** | | | **37** | **20** | **57** | **17** | **42** | **58** |
| **3** | Building C | 784,700 | 18 | 5 | 24 | 7 | 18 | 24 |
| **Zone 3 Total** | | | **18** | **5** | **24** | **7** | **18** | **24** |
| **4** | Building I | 360,760 | 10 | 3 | 13 | 4 | 10 | 14 |
| | Building J | 99,000 | 5 | 2 | 7 | 2 | 6 | 8 |
| **Zone 4 Total** | | | **16** | **5** | **20** | **6** | **16** | **22** |
| **5** | Building E | 1,008,900 | 22 | 6 | 29 | 8 | 21 | 30 |
| | Building F | 797,500 | 12 | 11 | 24 | 7 | 18 | 24 |
| **Zone 5 Total** | | | **34** | **19** | **53** | **16** | **39** | **54** |
| **Total** | | **6,119,896** | **128** | **56** | **185** | **55** | **138** | **190** |

The proposed industrial warehouse development is expected to generate approximately 923 and 947 two-way trips, inclusive of passenger cars and trucks. A total of 738 and 758 two-way passenger car trips are expected during the weekday a.m. and p.m. peak hours, respectively; and approximately 185 and 190 total two-way truck trips are expected during the weekday a.m. and p.m. peak hours, respectively.

The Site Plan statistics shown are from the latest Site Plan (dated, October 26, 2023), provided in **Appendix B**.

### 4.3 Trip Distribution and Assignment

#### 4.3.1 Passenger Cars

The passenger car trips generated at the proposed industrial development were distributed to the surrounding road network based on 2016 Transportation Tomorrow Survey (TTS) data. The TTS is a comprehensive survey consisting of transportation patterns for households in the Greater Toronto and Hamilton Area (GTHA) and surrounding area.

The subject property is located in 2006 GTA Zone 3014, with primarily agricultural and some existing industrial buildings. The adjacent zone, (GTA Zone 3015) also consists of industrial facilities and was included in the trip distribution analysis to determine more accurate results as representative proxy sites. As such, the TTS results were filtered to reflect auto trips within the two zones during the weekday a.m. and p.m. periods. From this query, trip origins were determined, and the percentage of trips assigned from each origin was accounted for.

**Appendix L** includes the TTS data. The resulting trip distribution is summarized in **Table 19.**

**Table 19: Trip Distribution**

| Arriving From / Departing To | A.M. | | P.M. | |
|---|---|---|---|---|
| | Inbound | Outbound | Inbound | Outbound |
| North | 20% | 10% | 15% | 30% |
| South | 35% | 45% | 44% | 20% |
| East | 10% | 20% | 12% | 10% |
| West | 35% | 25% | 29% | 40% |

The distribution of trips outlined in **Table 19** were further divided based on the most convenient travel route expected for each gateway to each zone, as further elaborated upon in the following sections.

### 4.3.2 Passenger Trips

The passenger trip distributions for each zone, summarized in **Table 20** were derived based on the most convenient travel route expected from each gateway based on the proximity of passenger vehicle entrance/exits expected to be used for buildings situated in each zone. Zone-based site-generated trips were then distributed to the study road network based on the distributions outlined below.

For instance, the majority of northbound/southbound traffic destined for Zone 2 (Buildings C, D, or H) are expected to use the Airport Road access to the site via Airport Road. As such, the distribution of northbound/southbound-destined inbound and outbound traffic for Zone 2 would be expected to wholly use Airport Road, as demonstrated in **Table 20** below.

**Table 20: Passenger Trip Zone Directional Distributions**

| Direction | North | | East | | South | | West | |
|---|---|---|---|---|---|---|---|---|
| Zone/via | Torbram | Airport | Mayfield | Healey | Torbram | Airport | Mayfield | Old School |
| 1 | 100% | 0% | 90% | 10% | 100% | 0% | 90% | 10% |
| 2 | 0% | 100% | 80% | 20% | 0% | 100% | 90% | 10% |
| 3 | 0% | 100% | 100% | 0% | 30% | 70% | 100% | 0% |
| 4 | 0% | 100% | 100% | 0% | 30% | 70% | 100% | 0% |
| 5 | 0% | 100% | 100% | 0% | 30% | 70% | 100% | 0% |

The total distribution of the passenger trips is represented in **Table 21** below.

**Table 21: Passenger Trip Inbound and Outbound Total Distributions**

| Direction | North | | East | | South | | West | | Total |
|---|---|---|---|---|---|---|---|---|---|
| Zone/via | Torbram | Airport | Mayfield | Healey | Torbram | Airport | Mayfield | Old School | |
| **A.M.** | | | | | | | | | |
| Inbound | 4% | 16% | 9% | 1% | 12% | 23% | 33% | 2% | 100% |
| Outbound | 1% | 9% | 18% | 2% | 13% | 32% | 24% | 1% | 100% |
| **P.M.** | | | | | | | | | |
| Inbound | 3% | 12% | 11% | 1% | 15% | 29% | 28% | 1% | 100% |
| Outbound | 5% | 25% | 9% | 1% | 7% | 13% | 38% | 2% | 100% |

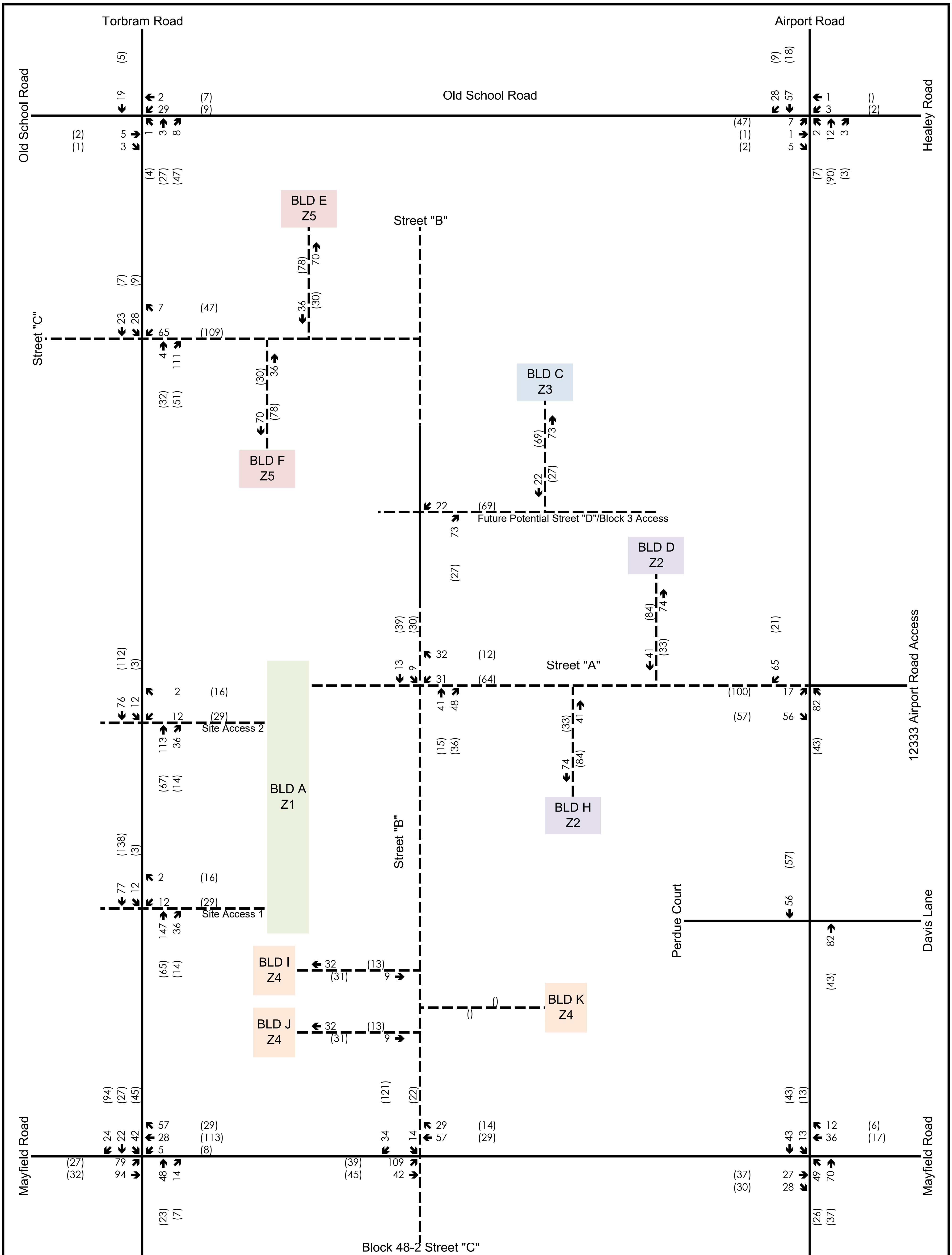
We understand that it is the intent of the Town to either reconstruct Torbram to a two-lane urban cross section, or a four-lane urban cross section. However, details on Torbram Road plans will result from the Town's ongoing Multimodal Transportation Master Plan (MMTMP) and additional commentary will be provided at such time.

Additionally, a sensitivity analysis was conducted to analyze operations under the assumption that all Zone 5 traffic only uses the internal road network via Mayfield Road and Airport Road. The results are shown in **Section 5.0** and conclude that the traffic operations can function adequately under this assumption.

### 4.3.3 Heavy Trucks

The heavy vehicle trips generated by the proposed development were distributed to the boundary road network for each zone based on expected travel routes for heavy truck traffic, and roadways which permit heavy truck traffic. Truck trip volumes on the existing road network and the Region's Goods Movement Strategy were also reviewed. It was determined that the distribution of trucks would primarily rely on Airport Road for north-south connectivity, and Mayfield Road for east-west connectivity, as Torbram Road, Old School Road and Healey Road are not expected to provide sufficient capacity for heavy vehicle traffic. As such, all heavy vehicle trips were distributed to Airport Road for north-south trips, and Mayfield Road for east-west trips. The site trips were assigned similarly to the passenger vehicle distributions, using the most logical routes expected for each gateway to the nearest site access(es).

**Appendix M** contains detailed trip distribution worksheets. The total passenger, truck and overall trip assignments have been provided in **Figure 12, Figure 13,** and **Figure 14**.




**Legend**

xx A.M. Peak Hour Traffic Volumes

(xx) P.M. Peak Hour Traffic Volumes

**Tullamore Industrial**

**Trip Assignment (Car)**

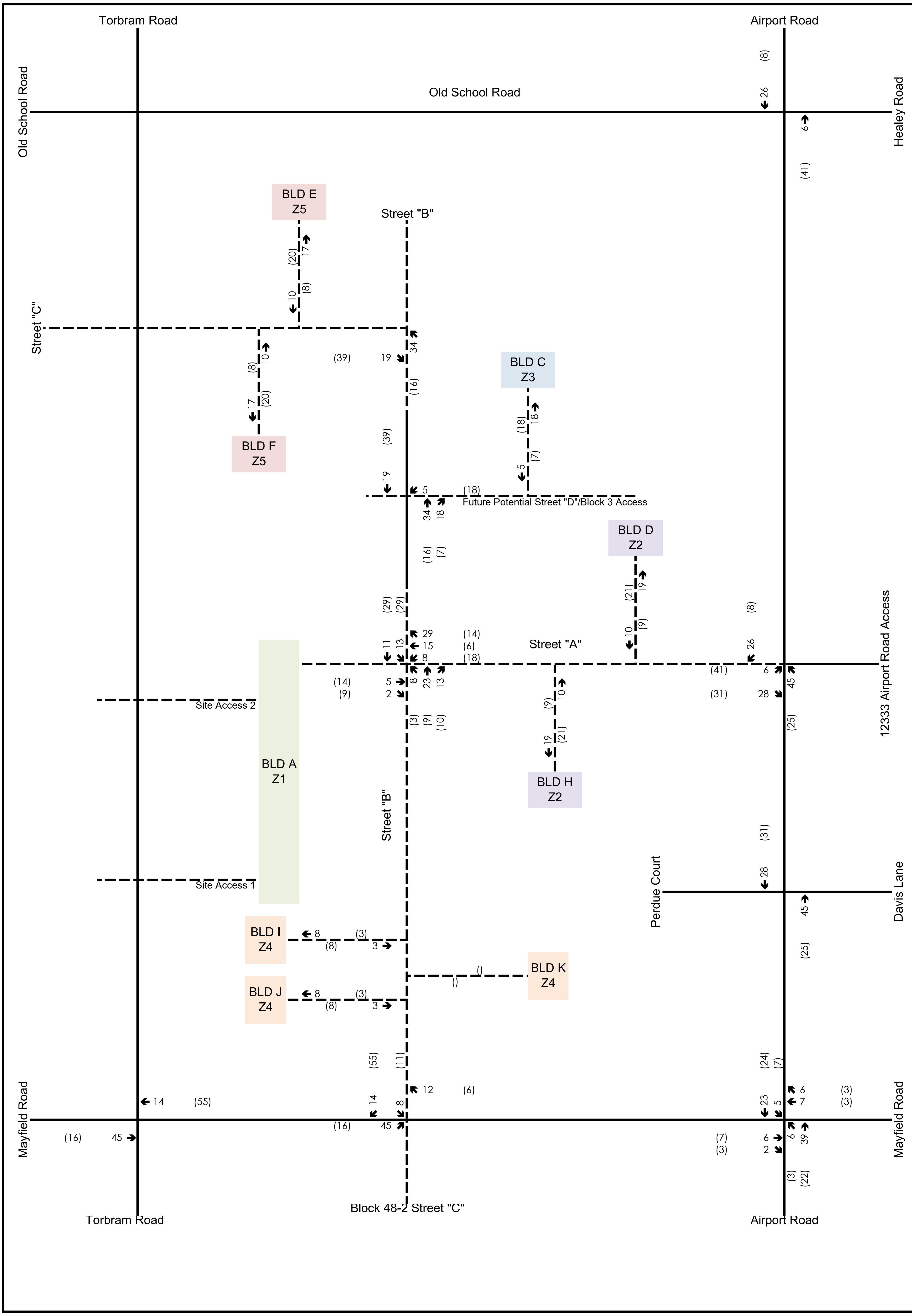
CROZIER CONSULTING ENGINEERS

**Figure 12**

Project No. 2022-5842

Date. 2023.10.20

Analyst. TDS




**Legend**

xx A.M. Peak Hour Traffic Volumes

(xx) P.M. Peak Hour Traffic Volumes

**Tullamore Industrial**

**Trip Assignment (Trucks)**

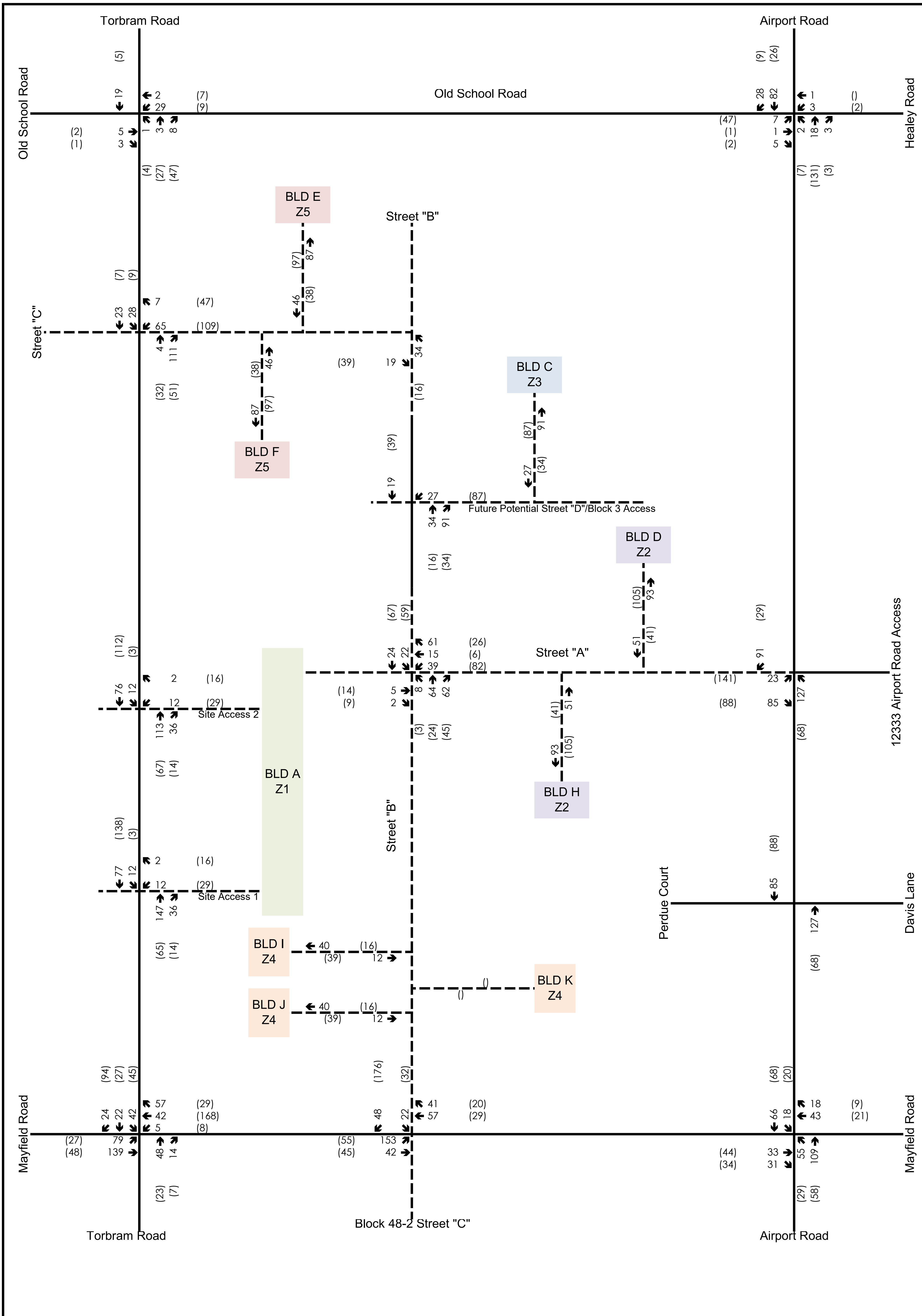
CROZIER CONSULTING ENGINEERS

**Figure 13**

Project No. 2022-5842

Date. 2023.10.20

Analyst. TDS




**Legend**
xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes

**Tullamore Industrial**

**Trip Assignment (Total)**

CROZIER CONSULTING ENGINEERS

**Figure 14**
Project No. 2022-5842
Date. 2023.10.20
Analyst. TDS

### 5.3 Summary of Recommended Improvements to Accommodate Site-Generated Traffic

In addition to the background improvements proposed in the road network as summarized in **Section 3.4** and **Table 6**, as well as the improvements to accommodate background growth summarized in **Section 3.7**, the following improvements are recommended for consideration at the noted intersections to accommodate the site generated traffic.

- **Mayfield Road at Torbram Road (Signalized Intersection)**
  - In order to accommodate the 95th percentile eastbound left turn queues, 190 m storage (90 m increase from Future Background) would be required. However, a review of the simulation indicates that the increase in queuing is primarily due to eastbound through traffic queues extending past the taper such that vehicles intending to access the auxiliary turn lane would be required to wait until the through queues cleared sufficiently to access the turn lane. Moreover, the increase from 37 to 116 vehicles per hour as a result of the development traffic in the critical a.m. peak hour would not by itself trigger 90 m of additional storage under normal circumstances.
  - Similarly, in order to accommodate 95th percentile eastbound right turn lane queues, an auxiliary lane with 270 m storage (190 m increase from Future Background) would be required. However, based on a review of the simulation the increase in queuing was similarly found to be due to through traffic queues extending past the beginning of the eastbound right-turn lane. Moreover, the proposed development contributes no traffic volumes to this movement.
  - On this basis, it is recommended that traffic along the Mayfield corridor be monitored as surrounding growth advances to avoid overbuilding infrastructure, since a relatively high growth rate of 5% until 2031 was adopted as requested by the Region.
- **Mayfield Road at Street "B" (Signalized Access)**
  - Construct an eastbound left turn lane with at least 100 m of storage.
  - Construct an eastbound right turn lane with at least 70 m of storage.
  - Construct a northbound left turn lane with at least 60 m of storage.
  - Construct a westbound right turn lane with at least 45 m of storage (to accommodate potential LCVs).
- **Airport Road at Street "A" (Signalized Access)**
  - Construct a northbound left turn lane with at least 55m of storage.
  - Construct an eastbound left turn lane with at least 55m of storage (TWLTL available)
  - Construct a westbound left turn lane with at least 50m of storage (pavement width currently available and can be implemented via pavement markings)
  - Construct a southbound right turn lane with at least 25m of storage. (min. required for Wb-20 trucks).
- **Mayfield Road at Airport Road (Signalized Intersection)**

  - Eastbound right turn lane with 80m storage (0m increase from Future Background).

  - Westbound left turn lane with 295 m storage (can be accommodated as part of 2026-2031 road widening).

  - Westbound right turn lane with 170 m storage (can be accommodated as part of 2026-2031 road widening).

  - Northbound left turn lane with 195 m storage (10 m increase from Future Background).

  - Southbound left turn lane with 105 m storage (can be accommodated as part of 2026-2031 road widening)

  - Implement a protected WBL turn phase in both peak hours and optimize the signal timing. This includes reducing the pedestrian walk times to 3 seconds, the pedestrian "do not walk" times remain unchanged from existing. It is recommended that traffic along the Mayfield corridor be monitored over time to confirm traffic growth and signal timing coordination.

- **Airport Road at Davis Lane/ Perdue Crescent (Minor Stop-Controlled Intersection)**

  - Consider signalization of the intersection to reduce minor street delays as recommended for future background conditions. It is noted that the long delays are generally associated with background traffic volumes and not as a result of the site traffic.

  - Increase Westbound left turn lane to 45 m storage (5 m increase from Future Background). Note the existing pavement width can accommodate this via pavement markings.

- **Internal Road Network**

  - The internal road network should be constructed with one lane in each direction as well as a two-way-left-turn lane to facilitate left turn movements for an overall three lane cross section. Further details on the proposed cross-section are discussed in **Section 8.2**.

  - All way stop-controlled intersections are proposed for the three internal intersections to facilitate safe pedestrian and bicycle crossing.

  - 3.0 metre Multiuse Paths are recommended on both sides of all internal roadways.

- **Mayfield Road Corridor**

  - Implement coordination of the Mayfield Road corridor from Torbram Road to Airport Road including cycle length increases throughout the corridor to 120 seconds and 135 seconds in the a.m. and p.m. peak hours, respectively to match the Airport Road and Mayfield Road intersection (also recommended for Future Background conditions). As previously noted, it is recommended that traffic along the Mayfield corridor be monitored as the area is built out to confirm traffic growth and signal timing coordination.

- We also note that the speed limit along Mayfield Road within the study area for westbound traffic is 60km/h from Airport Road to approximately 440m west of Airport Road, after which the speed limit transitions to 80km/h speed limit. For eastbound traffic along Mayfield Road, the speed limit is 80km/h between Torbram Road to approximately 450m west of Airport Road. As the subject lands in addition to the Block 48-2 residential community develop, the mobility environment along Mayfield Road is expected to change due to increased pedestrian and cycling activity, as well as new transit stops proposed along Mayfield Road. Accordingly, we recommend the Region consider reductions in posted speed limit to provide a consistent 60 km/h across the site's frontage in the future as the environment is transformed.

- **Torbram Road Corridor**

  - It is understood that the Town has additional considerations for the ultimate buildout of Torbram Road as either a two-lane or four-lane urban cross section. The Town's Official Plan indicates Torbram will be a Town Arterial Road with a 30 m ROW, as such, this study has assumed a two-lane urban cross section to ensure a conservative assessment until additional details are available. The details of the ultimate ROW considerations, and scheduling of this roadway will be subject to the completion of the ongoing Multimodal Transportation Master Plan currently being undertaken by the Town. Relevant excerpts from the Town's Official Plan can be found in **Appendix N.**

## 6.0 Sight Distance Review

The available sightlines at the future intersections of Airport Road at 12333 Airport Road/Street "A" and Mayfield Road at Street "B" were measured and compared to the standards set out in the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR), June 2017.

Per Case D of the TAC GDGCR, at signalized intersections the first vehicle stopped on one approach should be visible to drivers of the first vehicle stopped at the other approaches. These conditions are satisfied and therefore sight distance is not expected to be an issue. In addition, as these proposed connections represent the fourth leg of an existing or planned intersection, final design of these intersections will be required to ensure adequate sight distance exists and that proposed lane configurations can accommodate the swept paths of the design vehicles (WB-20 trucks).

Per Town and Region's comments, the intersection angles are required to be within 85-95 degrees. The proposed connections to Mayfield Road, Torbram Road, and Airport Road also satisfy these requirements.

As the internal public roadways are relatively straight with little horizontal curvature, no issues with sight distance are expected for the proposed accesses to the north-south collector and east-west collectors. Moreover, individual Site Plans are expected to be further refined and final designs will ensure that site accesses provide adequate sight distance and facilitate safe internal circulation.

## 7.0 Parking & Loading Review

Per the Town of Caledon's Zoning By-Law minimum parking requirements, the proposed development can be categorized as "Warehouse". The requirements per the Town's Zoning By-law are noted below:

**Intersection Spacing**

Within the study area per the Region's Road Characterization Study, Airport Road is classified as a Suburban Connector which requires a spacing of 300m between full moves intersections. Similarly, Mayfield Road is classified as an Industrial Connector which required a 450m spacing between full moves intersections.

Per discussion with Town staff, the desired spacing for collector road intersections is 400m. The proposed internal collector intersections have a spacing of 400m or greater to the nearest intersection with the exception of Future Potential Street D and Street A which has a spacing of at least 300m along Street B.

We note that the Town requested the extension of Street "C" from Street B to Airport Road; however, multiple environmental constraints (discussed in **Section 8.3**) prohibited the feasibility of an east-west collector in this area. In lieu of this request, a reserve block (Block 6) has been proposed in the Draft Plan to accommodate a Future Street "D", consistent with a 26m ROW for the internal collector road network. The Future Street D would to connect Street B to Airport Road and potentially continue eastward to Innis Lake Road. The continuation of the Future Street "D" beyond the subject lands will also depend on future redevelopment associated with the properties fronting Airport Road, with the ability to satisfy the Region's minimum 300m spacing between full moves accesses along Airport Road. The future Street "D" is also at least 300 m north of Street "A", along Street "B". The remaining proposed intersection locations therefore do not preclude future signalization opportunities, if warranted.

Per **Section 5.1.1**, the intersection of Mayfield Road at Steet "B" is warranted for signalization and has been proposed as such, consistent with the future requirements of the Block 48-2 road network. The intersection Airport Road at Street "A" proposed to be signalized as the existing intersection is already signalized, and Street "A" will form the fourth (western) leg of this existing T-intersection. The intersection of Torbram Road at Street "C" is proposed to be stop controlled but has the required access spacing to be signalized in the future, should it be warranted. It should be noted that a signal is not warranted at the intersection within our study horizon; however, in the future as development to the west occurs and Street "C" extends west of Torbram Road, signalization may be explored to provide safe pedestrian crossing opportunities in the future. Signal Warrant analysis excerpts are included in **Appendix H**.

## 8.2 Cross Section Requirements

Per correspondence with the Town of Caledon, an urban cross section consistent with the section used for George Bolton Parkway in the Town is preferred for the Subject Development's internal collector roadways. The Subject Development will adopt this cross section for all three internal collector roadways, Street "A", Street "B", Street "C", and the Future Street "D". This cross section proposes two 3.5m curb lanes, a 5.0m two-way left turn lane, and 3.0m multiuse pathways (MUPs) on both sides of the roadway. The MUPs will also be separated from the roadway by 3.0m boulevards. This cross section supports all modes of transportation, and provides added separation between active transportation and vehicular traffic, which is of increased importance to a development such as the subject proposal that anticipates frequent heavy truck traffic Details for the cross section can be found in **Figure 18.**

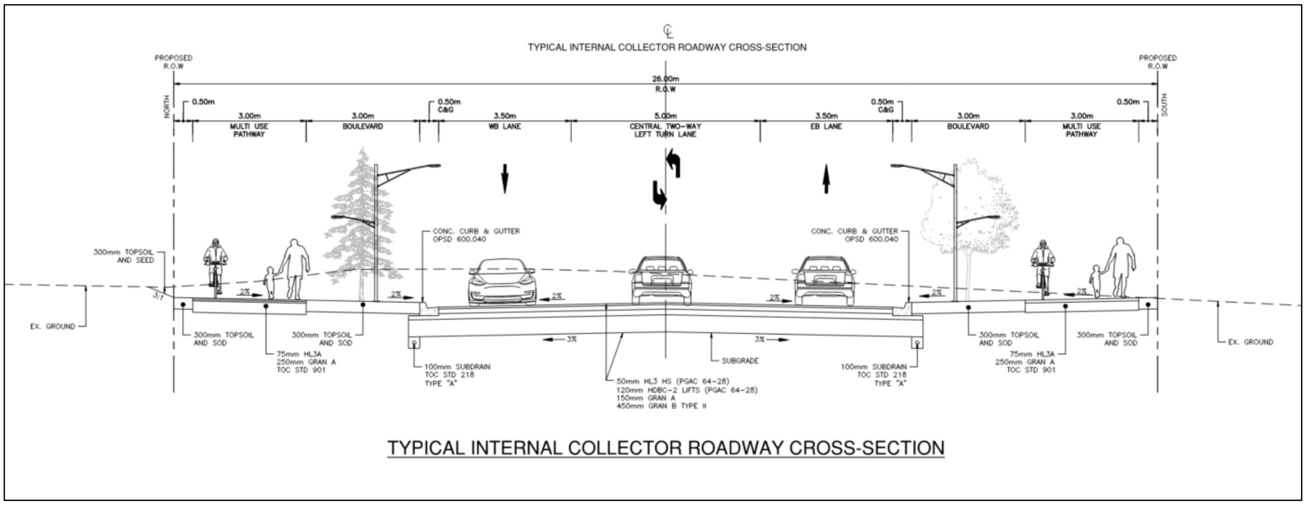



**Figure 18: Proposed 26m Cross-Section**

The Town of Caledon official drawings for the cross section can be found in **Appendix P**.

## 8.3 Mobility from a Wider Context

### 8.3.1 Considerations for Continuous Collector Roadways

At the Town's request, this section reviews the potential for a collector road network from a wider context, for lands beyond the proposed industrial development. It should be noted that a potential road network beyond the subject lands represents a potential collector network only and is not being proposed as part of this development application. The potential collector network illustrated should serve as a concept that could potentially be implemented, which builds upon the mobility network proposed in the Subject development application. Prior to proposing a detailed collector road network, further review and study from the Town or relevant landowners will be required. The illustrations of potential road network concepts beyond these lands do not represent proposed locations, or crossings. The illustrations, however, represent one of many potential concepts that could be implemented with the future buildout of the surrounding area. Moreover, the illustrated network does not preclude the addition of further collector and local roadways that would otherwise contribute to the creation of a modified grid system.

Per discussion with the Town of Caledon, continuous east-west connectivity is desired as the Town looks to establish a wider mobility network beyond the Subject Lands. However, in the southern part of Caledon within the study area it should be noted that there are several Natural Heritage System constraints that may impact the feasibility of ultimately implementing continuous network, without conducting further review. Such constraints are also compounded by intersection spacing requirements discussed in **Section 8.1**, property constraints, as well as practical grading considerations of how existing roadways currently cross these constraints.

Further to the above, the Town's Draft Official Plan (2022) describes collector roads as follows:

- Roadways under the Town's jurisdiction.
- Serve low to moderate volumes of short distance traffic between local and arterial roads.
- Provide individual property access with some limitations.
- Will have a 20 to 26 metre road allowance with 2 to 4 lane capability.

### 9.1.1 Active Transportation Future Considerations

Several initiatives can be implemented at the site to promote active transportation within the proposed development area.

Specifically, for pedestrians, weather protection may also be provided at high-pedestrian volume areas such as main intersections, building entrances, transit stops and other major locations within the site. Street furniture such as benches and facilities may also be provided for refuge and creating distinct pedestrian zones, though the positioning of these facilities should not impede accessibility. The materials, colors, and styles of these fixtures should ideally be complementary to the architectural style of the proposed development and overall community.

For cyclists, secure bicycle parking facilities may be considered for employees. Additionally, the addition of showering, changing and clothing storage facilities on-site would ease the use of cycle commuting for employees.

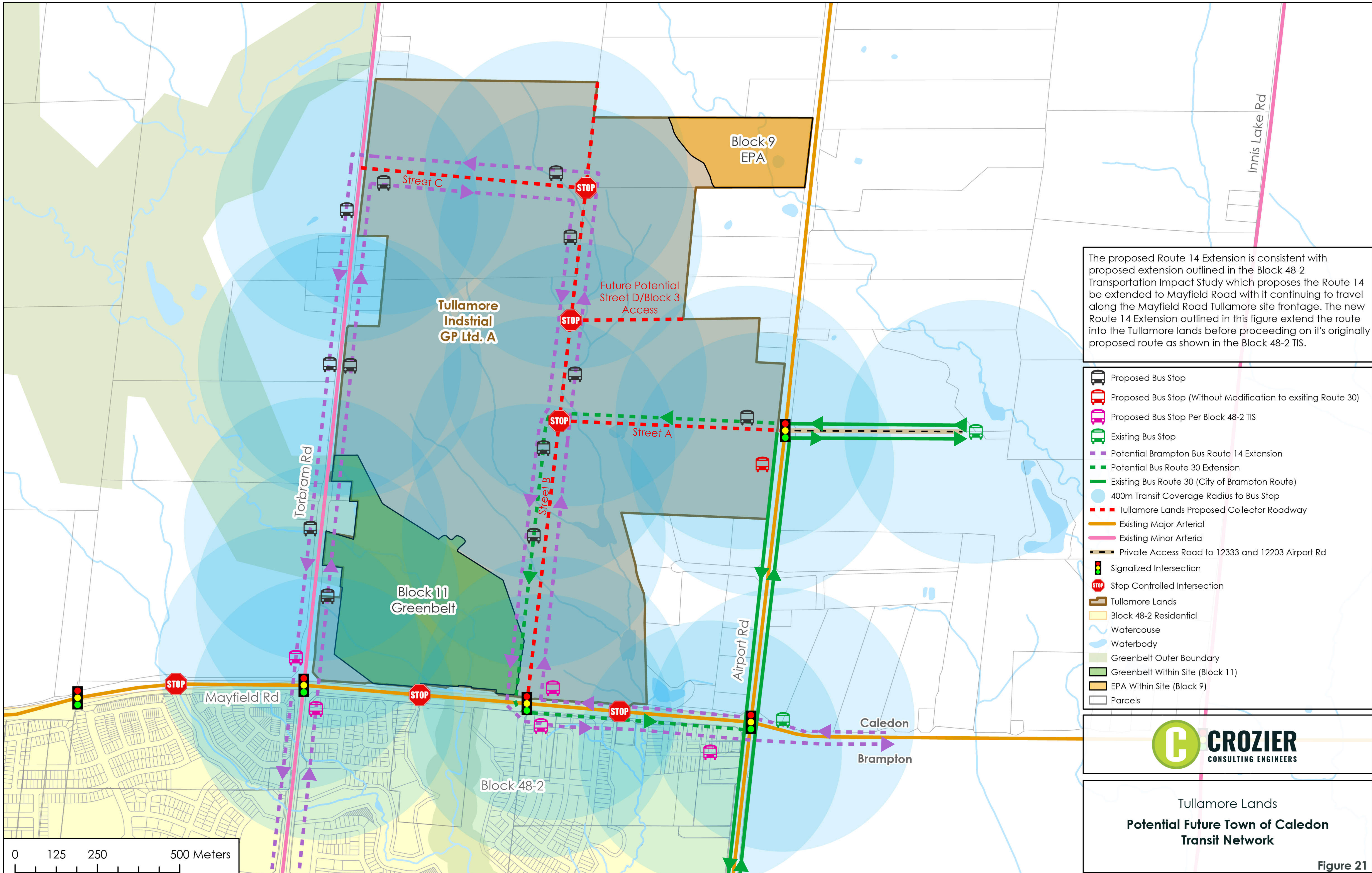
The Town of Caledon currently does not have minimum bicycle paring requirements. However, the minimum bike parking facilities for industrial use per the Peel Region Health Study Framework is 0.06 units per 100 sq. m. for occupants, and 0.1 for 100 sq. m. for visitors. This therefore would require 338 employee and 563 visitor bike spaces at the proposed development from this perspective. We also understand that the Town is currently preparing an Active Transportation Master Plan, and per the PIC#3 bike parking rate of 1 bike parking space per net 200 $m^2$ of net floor area of office space is being contemplated.

It is recommended that bicycle parking be provided for the subject site to support cycling as primary mode share, particularly for future employees that reside within a reasonable cycling distance from the development (e.g., within Block 48-1 and Block 48-2). However, final cycling supply requirements should be discussed with the Town as individual building Site Plans advance in lieu of Zoning By-law requirements from the Town.

## 9.2 Future Transit Considerations

The implementation of transit TDM measures are to promote public transit as an accessible and desirable mode of transit to the proposed site. While limited transit is available to the subject site along Mayfield Road and Airport Road, the development is expected to accommodate a number of employees in the future that would benefit from increased transit service availability.

The internal north-south and east-west collector roadways propose a 26.0m ROW as discussed in **Section 8.2**. This cross section can accommodate future transit vehicles along the internal roadways, and the ROW is adequate to accommodate future transit stops/bus pads internal to the site once transit routes are further established. The site's orientation offers opportunities for a bus loop route internal to the site for existing transit routes (e.g., Brampton Transit Route 30 and Brampton Transit Route 14), as is similarly existing with the industrial development east of Airport Road (12333 Airport Road). It is recommended that the existing Route 30 and the future extended Route 14 be extended into the subject lands to facilitate the development. **Figure 21** illustrates a potential transit route to service the site, this route would serve as extension to the existing Brampton Transit Route 30. It is noted that the Town of Caledon prefers bus stops located within 300-400m walking distance of the principal entrances to each building. Given the proposed 26m ROW and cross section discussed in **Section 8.2**, ample opportunities to ensure bus stops are located close to the intersections and building entrances are available. As Street "B" is the main north-south spinal road servicing the developments, it should be adequately equipped to provide bus stops spaced less than 400m away with mid-block bus stops provided as necessary. **Figure 21** illustrates the Site's transit coverage within 400m of each bus stop location.


Block 9
EPA
Innis Lake Rd
Street C
STOP
Future Potential
Street D/Block 3
Access
Tullamore
Indstrial
GP Ltd. A
Street A
Street B
Torbram Rd
Block 11
Greenbelt
Airport Rd
Mayfield Rd
Caledon
Brampton
Block 48-2
0 125 250 500 Meters
The proposed Route 14 Extension is consistent with proposed extension outlined in the Block 48-2 Transportation Impact Study which proposes the Route 14 be extended to Mayfield Road with it continuing to travel along the Mayfield Road Tullamore site frontage. The new Route 14 Extension outlined in this figure extend the route into the Tullamore lands before proceeding on it's originally proposed route as shown in the Block 48-2 TIS.
Proposed Bus Stop
Proposed Bus Stop (Without Modification to exsiting Route 30)
Proposed Bus Stop Per Block 48-2 TIS
Existing Bus Stop
Potential Brampton Bus Route 14 Extension
Potential Bus Route 30 Extension
Existing Bus Route 30 (City of Brampton Route)
400m Transit Coverage Radius to Bus Stop
Tullamore Lands Proposed Collector Roadway
Existing Major Arterial
Existing Minor Arterial
Private Access Road to 12333 and 12203 Airport Rd
Signalized Intersection
Stop Controlled Intersection
Tullamore Lands
Block 48-2 Residential
Watercouse
Waterbody
Greenbelt Outer Boundary
Greenbelt Within Site (Block 11)
EPA Within Site (Block 9)
Parcels
CROZIER
CONSULTING ENGINEERS
Tullamore Lands
Potential Future Town of Caledon
Transit Network
Figure 21

Based on discussions with Brampton Transit and the Town of Caledon there are multiple opportunities to service the Subject Lands. It should be noted that further discussions with the transit agencies are recommended to identify and plan for future transit routes within the site. Two potential routes servicing the Subject Lands via a modification of Brampton Transit Route 30 were discussed. Moreover, another potential route to service the west and north portions of the subject lands are via a modification of Brampton Transit Route 14, which was proposed to be extended once Block 48-2 was implemented. Both routes would utilise Steet "B" as the main north-south transit spine of the Subject Lands:

Route 30 Extension

- Option 1: In the interim condition a bus stop should be provided at the southwest corner of the intersection of Airport Road at Street "B". The current Brampton Transit route would be maintained as it services the properties at 12333 Airport Road and can service the Subject Lands as it turns left onto Airport Road before continuing south. Since, Buildings D and H are planned to be built out first among the buildings proposed for the Subject Lands, the bus stop in the southwest corner would be an immediate and implementable transit solution as it would not require any modification to the existing Route 30 and would be within 400m of entrances to Buildings D and H as required by the Town of Caledon. This bus stop is depicted in **Figure 21** outlined with a red circle, and is also detailed in functional design per **Appendix S**.

- Option 2: As shown in **Figure 21**, a route extension/modification to Route 30 which forms a loop in the southern half has been discussed as a preferred route to service the lands as they are built out further. It is noted that the Buildings C, F, and E in the northern portion of the subject lands are planned as the last phase of the buildings within the subject development and this route would not adequately service those buildings. The Route is illustrated in the figure so that it continues the regular route before turning left onto Street A, turning left onto Street B, and turning left onto Mayfield Road before turning right onto Airport Road and continuing south. It is noted that this loop can be flipped so that the bus would turn left onto Mayfield Road with proceeding right turns through the Subject Lands before returning to Airport Road to continue south. This would reduce delays as right-turns are generally preferred to left-turns, but the orientation of the route is subject to review by operational planning team at Brampton Transit.

Route 14 Extension

- As shown in **Figure 21**, there is further potential for Brampton Transit's Route 14 to be extended on Torbram Road past Mayfield Road to the Subject Development's Street C. It is noted that this Route 14 Extension to Mayfield Road is already proposed in the Block 48-2 with it continuing to travel along the Mayfield Road, and subject site's frontage. The new potential Route 14 Extension outlined in this **Figure 21** extends the route into the Tullamore Lands via Torbram Road before looping back to Mayfield Road via Street B on its originally proposed route as shown in the Block 48-2 TIS. The route proposed in the Block 48-2 TIS is included in **Appendix I**.

Implementation of transit service is expected to contribute to reduced automobile mode share, which was not accounted for in the preceding analysis as implementation of transit within the site has not been confirmed at this time.

Additionally, further consultation can be undertaken with Brampton Transit to provide additional facilities at the transit stops servicing the site, including weather-protected shelters and benches. We recommend further discussions with the Town and Brampton Transit to collaborate on route design,

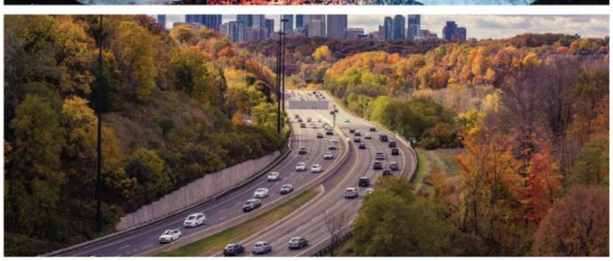
AIRFIELD DEVELOPMENTS INC. & AIRFIELD II DEVELOPMENTS INC.

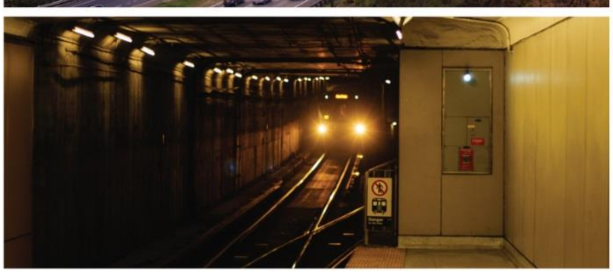
# 6034 MAYFIELD ROAD

## TRANSPORTATION IMPACT STUDY AND DEMAND MANAGEMENT PLAN

JULY 29, 2021






# 6034 MAYFIELD ROAD

## TRANSPORTATION IMPACT STUDY AND DEMAND MANAGEMENT PLAN

AIRFIELD DEVELOPMENTS INC. & AIRFIELD II DEVELOPMENTS INC.

PROJECT NO.: XXX
DATE: JULY 2021

WSP
100 COMMERCE VALLEY DRIVE WEST
THORNHILL, ON, CANADA L3T 0A1

WSP.COM

## *APPENDICES*

# 1 INTRODUCTION

WSP was retained by Airfield Developments Inc. and Airfield II Developments Inc. to undertake a Transportation Impact Study (TIS) for the proposed development located at the northeast quadrant of the intersection of Airport Road & Mayfield Road in the Town of Caledon. **Figure 1.1** illustrates the site location and context.

The development proposal will consist of two industrial buildings with a combined gross floor area (GFA) of 44,535 $m^2$.

The development will have three vehicular driveways onto Airport Road and Mayfield Road, one of which will be a full-moves access.

**Figure 1.2** illustrates the proposed site plan.


wsp

Figure 1.1

Site Location
and Context

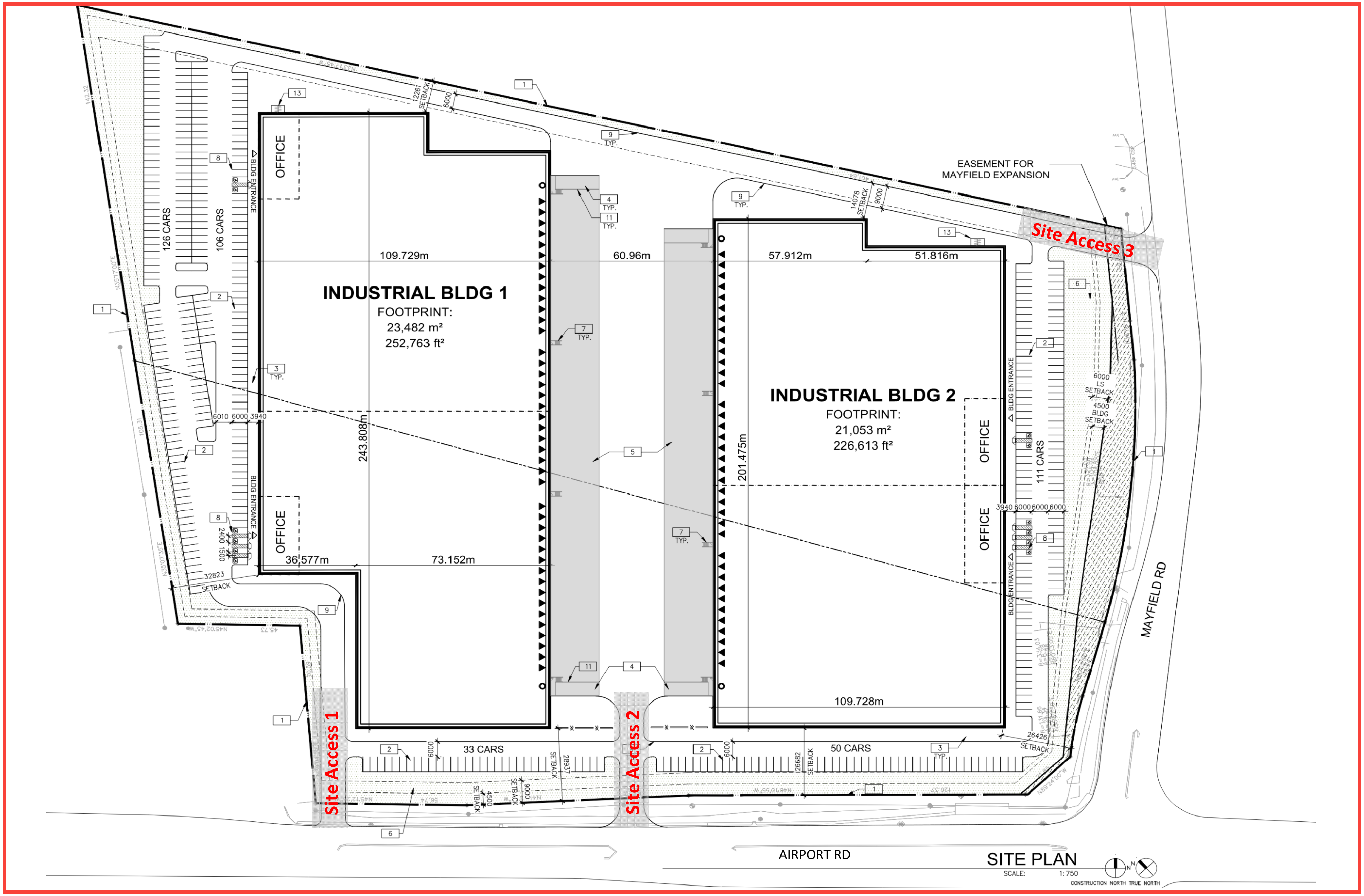



Figure 1.2

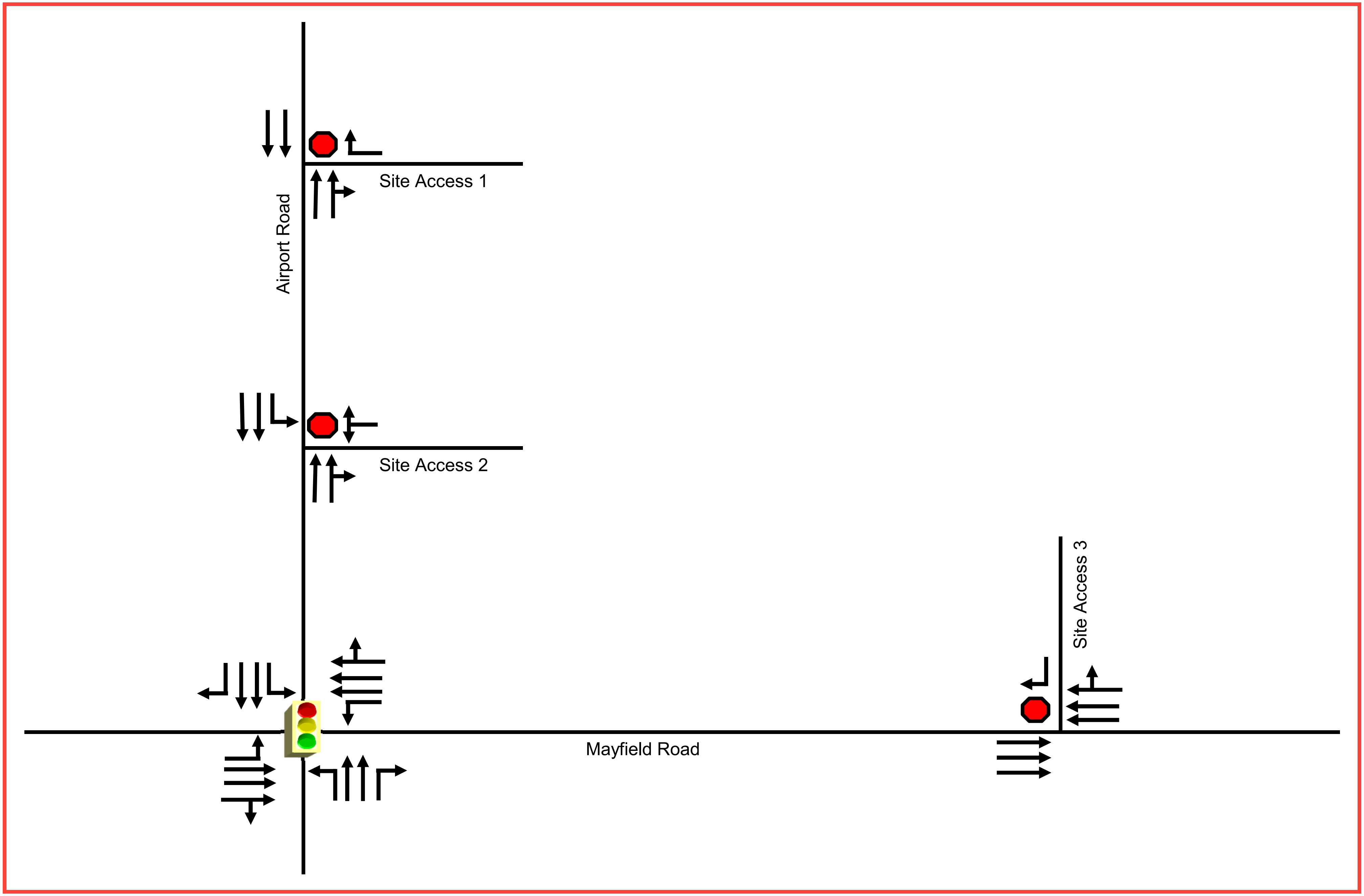
Proposed Site Plan

# 4 SITE-GENERATED TRAFFIC

## 4.1 SITE ACCESSES

At full buildout, the proposed development will feature three vehicular driveways connecting to Airport Road and Mayfield Road as illustrated in the site plan (Figure 1.2). Site accesses 1 and 3 will operate as right-in/right-out access while site access 2 will operate with full-moves. For site access 2, WSP is proposing a southbound left-turn auxiliary lane with, in accordance with Transportation Association of Canada guidelines, a storage length of 77 metres and a taper of 60 metres. All three site accesses are proposed to be stop-controlled.

The lane configurations under future total conditions are illustrated in **Figure 4.1**.




Legend

Turning Movement

Signalized Intersection

Stop-Controlled Approach

Figure 4.1

Future Total Lane Configurations

## 4.2 TRIP GENERATION

The trips generated by the proposed development during the weekday a.m. and p.m. peak hours were estimated using the trip generation equations outlined in the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10th Edition*. As both warehouse and general industrial uses are currently being contemplated for the development, trip generation estimates using the ITE Land Use Codes 150 (Warehousing) and 110 (General Light Industrial) are compared in **Table 4.1**. Since, as shown in the table, general industrial uses are expected to generate a greater number of peak hour trips, the trip generation estimate for this use was conservatively adopted for this study.

It should be noted that these equations include both vehicle and truck trips to the development; truck trips were assumed to account for 13% of total peak hour trips based on truck trip generation information available from the ITE.

Based on Transportation Tomorrow Survey (TTS) 2016 data for employment trips to/from zones 3014, 3015, 3441, and 3442, it was determined that there was very minimal use of non-auto modes of travel. As such, no mode share adjustments were applied to the ITE-derived trips.

**Table 4.1: Site Generated Trips**

| ITE Land Use (Code) | | Weekday A.M. Peak Hour | | | Weekday P.M. Peak Hour | | |
|---|---|---|---|---|---|---|---|
| | | In | Out | Total | In | Out | Total |
| Warehousing (150) | Equation (X=1000 ft²) | T = 0.12 X + 25.32 | | | T = 0.12 X + 27.82 | | |
| | Directional Splits | 77% | 23% | 100% | 27% | 73% | 100% |
| | Trips (479,375 ft²) | **64** | **19** | **83** | **23** | **62** | **85** |
| General Light Industrial (110) | Equation (X=1000 ft²) | Ln(T) = 0.74 Ln(X) + 0.39 | | | Ln(T) = 0.69 Ln(X) + 0.43 | | |
| | Directional Splits | 88% | 12% | 100% | 13% | 87% | 100% |
| | Trips (479,375 ft²) | **125** | **17** | **142** | **14** | **95** | **109** |
| | Vehicle Trips (87%) | 109 | 15 | 124 | 12 | 83 | 95 |
| | Truck Trips (13%) | 16 | 2 | 18 | 2 | 12 | 14 |

As presented above, the proposed development is forecasted to generate **142 and 109 total trips** during the a.m. and p.m. peak hours, respectively.

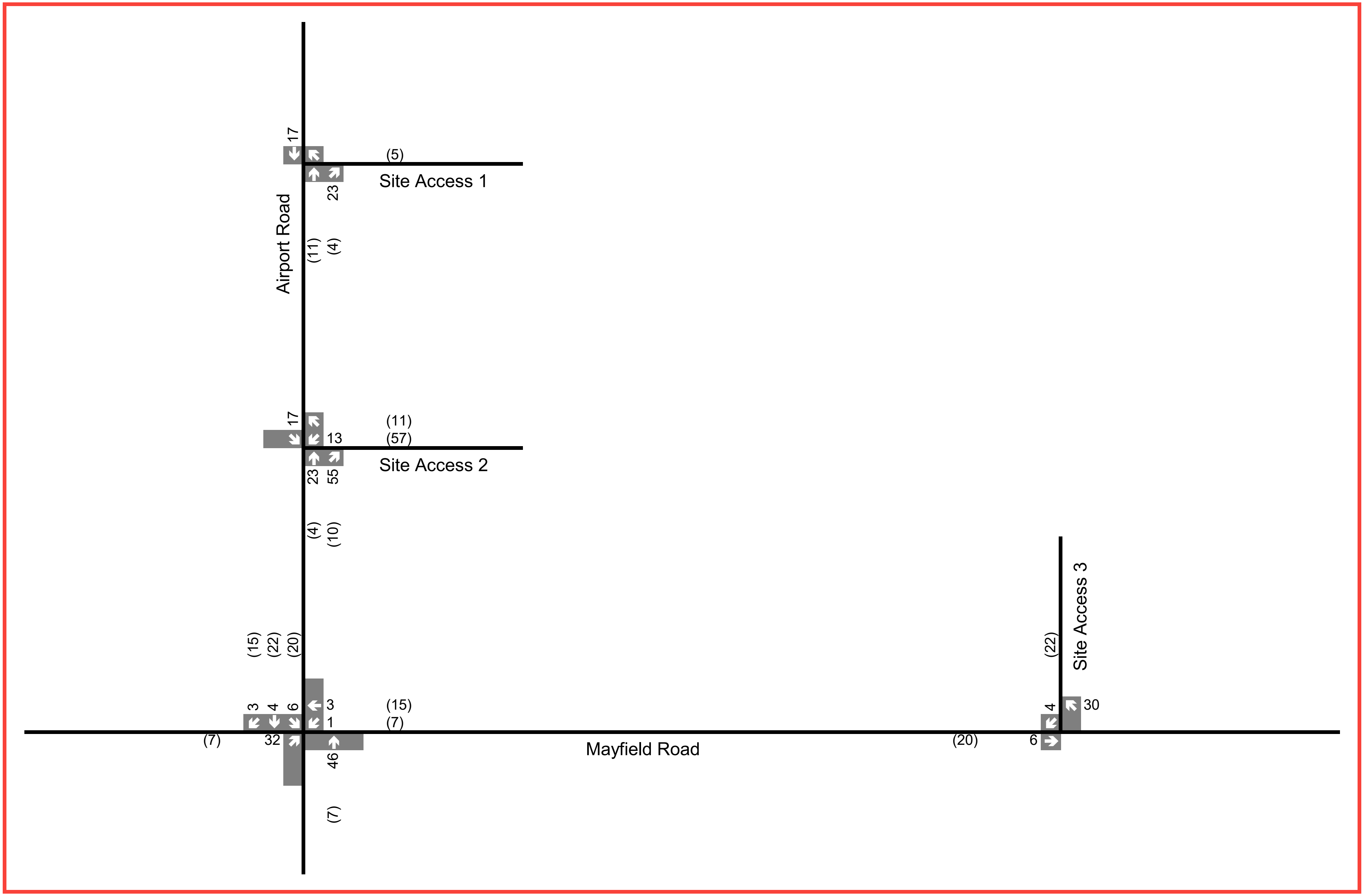
## 4.3 TRIP DISTRIBUTION AND ASSIGNMENT

Trip distribution and assignment of the site-generated trips was derived from the TTS data and assigned to the gateways based on local road network and land use considerations. The overall trip distribution is shown in **Table 4.2.**

**Table 4.2: Trip Distribution**

| Gateway Direction | AM Inbound | AM Outbound | PM Inbound | PM Outbound |
|---|---|---|---|---|
| North | 14% | 0% | 0% | 17% |
| West | 26% | 34% | 50% | 31% |
| South | 37% | 34% | 50% | 31% |
| East | 24% | 32% | 0% | 20% |

**Figure 4.2** illustrates the resulting site traffic volumes for future horizon years.




Legend

xx A.M. Peak Hour Traffic Volumes

(xx) P.M. Peak Hour Traffic Volumes

Figure 4.2

Site Generated Traffic Volumes

# BRAMPTON AREA LANDOWERS GROUP INC.

**REVISED TRAFFIC IMPACT STUDY**

## Block 48-2 Proposed Mixed-Use Development, City of Brampton

Project No.: T11-646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MAY 2017

**Table 3.1 Site Statistics**

| Type | Components | Completion Date |
|---|---|---|
| Single Detached Residential | 1,723 Units | 2021 |
| Semi-detached Residential | 240 Units | 2021 |
| Townhouse | 1,208 Units | 2021 |
| Apartment | 220 Units | 2021 |
| District Retail | 9.34 ha | 2021 |
| Mixed Use | 4.09 ha | 2021 |
| Conv. Commercial | 1.00 ha | 2021 |
| Institutional | 3 Elementary Schools, 2 Secondary Schools and 2 Places of Worship (22.59 ha) | 2021 |

Note: The full build-out horizon was provided by the Brampton Area 48 Landowners Group.

## 3.2 Secondary Plan Road Network

Block 48-2 is part of the larger Countryside Villages Secondary Plan Area 48 (Secondary Plan), which is bounded by Heart Lake Road, Mayfield Road, Airport Road, and Countryside Drive. According to the Secondary Plan (*Schedule SP 48(a) Countryside Villages Secondary Plan Area 48 Chapter 48 (b))*, there are two (2) planned collector roads, as shown in **Figure 3-2**, following the report: a main east-west collector road and a north-south collector road. According to the Secondary Plan:

- The main east-west collector road (Inspire Boulevard) will extend from Dixie Road (between Mayfield Road and Countryside Drive) to Bramalea Road (south of Mayfield Road) to Torbram Road, and then south to Countryside Drive (between Torbram Road and Airport Road) at Mountainash Road; and,
- The north-south collector road (Moldovan Drive Extension) will connect Mayfield Road (between Bramalea Road and Torbram Road) to Countryside Drive at Moldovan Drive.

## 3.3 Block Plan Road Network

Block 48-2 will have access to Bramalea Road, Mayfield Road, Countryside Drive and Torbram Road through a network of collector roads and internal roads, as shown in **Figure 3-3** following the Report and outlined in **Table 3.2** on the following page.

- Multi-use trails or similar walking / cycling paths to / from the four (4) elementary schools and one (1) secondary school from every adjacent residential neighbourhood.

**Figure 3-7** illustrates the pathway and trails proposed by the City Transportation Master Plan – Technical Report 5 (Active Transportation report). It also illustrates the additional inter-block pathways and trails recommended in this Study.

## 3.5 Transit Network

As confirmed by Brampton Transit, the ultimate transit service strategy for Block 48-2 has been determined and illustrated in **Figure 3-8**, following the Report. In this transit service strategy, the primary corridor routes will be extended aligned to the arterial roads to extend the “base grid” philosophy of the transit network to this area. The proposed transit routes will provide transit availability to the future proposed residential areas and the proposed school locations. The proposed ultimate transit routes are as follows:

- Route 15 Bramalea extension;
- Route 14 Tobram extension;
- Route 30 Airport Road extension;
- Future Mountainash / Inspire Boulevard Local Route;
- Future Route 12 Grenoble extension; and,
- Future Countryside Drive route.

**Figure 3-8** also illustrates the proposed bus stop locations. The potential stop locations were determined after consultation with Brampton Transit based on balancing maximizing route coverage and minimizing walk distance to attract people to use public transit. As shown on Figure 3-8, the proposed bus stop locations are within a 400m walking distance of most uses in the community.

Interim transit service will be provided at the discretion of Brampton Transit as the area is gradually developed and occupied. The implementation time of the transit services will depend on the development pace and the provision of necessary infrastructure required to support regular transit operations. The associated transit stop locations will be established through subdivision applications submitted to Brampton Transit.

## 3.6 Trip Generation (Block 48-2 Traffic Volumes)

Block 48-2 will include 3,391 low to medium density residential developments, 22.59 ha of institutional lands including three (3) elementary schools, two (2) secondary schools and two (2) worship places, and 14.43 ha of commercial / retail lands including district retail, mixed use and convienience commercial lands. The district retail and worship uses have been assessed as part of separate traffic impact studies and thus are included in this study as background developments. The trip generation for the remaining area was undertaken using information contained in the *Trip Generation, 9th Edition* published by the Institute of Transportation Engineers (ITE) and is summarized in **Table 3.4** on the following page.

A 6% transit / active transportation mode reduction was applied based on the Countryside Villages Secondary Plan Study and is consistent with the transit / active transportation mode reductions in the Block 48-1 Traffic Impact Study. The 6% transit / active transportation mode reduction accounts for trips that will be taken through active transportation modes such as walking / cycling or through transit use. For further details on active transportation, refer to **Section 3.4**.

To verify the 6% transit / active transportation mode reduction, using information collected in the 2011 Transportation Tomorrow Survey (TTS) for zones of household (3380, 3385, 3386, 3447 and 3442), the existing non-auto mode split has been calculated. Based on the TTS data, a non-auto modal split of 10% is typically experienced under the existing conditions in the zones in the vicinity of the study area. The detailed analysis is provided in Appendix A. It is also understood that according to the Region of Peel Transportation Master Plan, the transit modal share is steadily increasing in the Peel Region therefore, a modal spilt higher than 10% is expected for the future traffic conditions. Therefore, it is concluded that the modal split of 6% used in this TIS is conservative and reflects the worst-case scenario.

Trip generation for the proposed elementary and secondary schools are based on the planned student population estimates prepared for new schools in the Region. Based on the list of new schools planned for Countryside Villages Block 48-1, the planned Ministry Rated Capacity (MRC) for the elementary and secondary schools are 800 and 1,500 students, respectively. Elementary school students generally use school buses more than regular transit. The Elementary School land use (land use code 520) accounts for the trips that are being made with school buses. Therefore, 0% was assumed for the non-auto trip reduction. It is expected that a portion of students would have walking trips to school (24-28% for children less than 11 years old and 30-40% for children with 11-17 age group). However, in order to be conservative and to reflect the worst-case scenario, the non-auto reduction of 0% was applied in this study.

[1] Peel District School Board 2012-2021 New Schools Planning http://www.peelschools.org/facts/documents/NewSchols.pdf

**Table 3.4 Site Trip Generation (New Site Statistics)**

| Land Use | ITE Land Use Code | Parameter | WEEKDAY AM Peak Hour | | | WEEKDAY PM Peak Hour | | |
|---|---|---|---|---|---|---|---|---|
| | | | In | Out | Total | In | Out | Total |
| Low Density Residential 1,723 Units | Single Family Detached Housing (ITE Land Use Code 210) | Gross Rate (Trips / Unit) | 0.19 | 0.56 | 0.75 | 0.63 | 0.37 | 1.00 |
| | | Gross Trips | 323 | 969 | 1292 | 1085 | 638 | 1723 |
| | | Non-auto Reduction (6%) | 19 | 59 | 78 | 65 | 38 | 103 |
| | | New Auto Trips | 304 | 910 | 1214 | 1020 | 600 | 1620 |
| Medium Density Residential 1,668 Units | Residential Condominium/ Townhouse (ITE Land Use Code 230) | Gross Rate (Trips / 1000 $ft^2$)(1) | 0.07 | 0.37 | 0.44 | 0.35 | 0.17 | 0.52 |
| | | Gross Trips | 125 | 609 | 734 | 581 | 286 | 867 |
| | | Transit / Active Transportation Reduction (6%) | 8 | 36 | 44 | 35 | 17 | 52 |
| | | New Auto Trips | 117 | 573 | 690 | 546 | 269 | 815 |
| Elementary Schools 3 @ 800 each 2400 Students | Elementary School (ITE Land Use Code 520) | Gross Rate (Trips / Unit) | 0.25 | 0.20 | 0.45 | 0.07 | 0.08 | 0.15 |
| | | Gross Trips | 594 | 486 | 1080 | 176 | 184 | 360 |
| | | Non-auto Reduction (0%) | - | - | - | - | - | - |
| | | New Trips | 594 | 486 | 1080 | 176 | 184 | 360 |
| Secondary School 2 @ 1500 each 3000 Students | High School (ITE Land Use Code 530) | Gross Rate (Trips / Unit) | 0.29 | 0.14 | 0.43 | 0.06 | 0.07 | 0.13 |
| | | Gross Trips | 877 | 413 | 1290 | 183 | 207 | 390 |
| | | Non-auto Reduction (0%) | - | - | - | - | - | - |
| | | New Trips | 877 | 413 | 1290 | 183 | 207 | 390 |
| Mixed Use and Conv. Commercial (12,715 sqm GFA) | Shopping Center (ITE Land Use Code 820) | Gross Rate (Trips / 1000 $ft^2$) | 0.85 | 0.53 | 1.38 | 2.59 | 2.81 | 5.40 |
| | | Gross Trips | 117 | 72 | 189 | 355 | 384 | 739 |
| | | Non-auto Reduction (6%) | 7 | 4 | 11 | 21 | 23 | 44 |
| | | New Trips | 110 | 68 | 178 | 334 | 361 | 695 |
| **Total New Trips** | | | **2002** | **2450** | **4452** | **2259** | **1621** | **3880** |

Based on the approved Block Plan, the proposed development is expected to generate **4,452** two-way trips (2,002 inbound trips and 2,450 outbound trips) during the weekday morning peak hour and **3,880** two-way trips (2,259 inbound trips and 1,621 outbound trips) during the weekday p.m. peak hour.

Based on the former site statistics, Block 48-2 was to contain 3,593 low to medium density residential developments, four (4) elementary schools, one (1) secondary school, two (2) worship places, and 14.43 ha of commercial / retail lands. The district retail and worship uses were assessed as part of separate traffic impact studies and thus were included in this study as background developments. For the remaining Block 48-2 development trip generation, based on the former site statistics, was undertaken using information contained in the Trip Generation, 8th Edition published by the Institute of Transportation Engineers (ITE). Trip generation based on the former site statistics is summarized in **Table 3.5**.

Based on the land areas for the low density and medium density residential zones as shown in **Figure 1-2**, following the Report, it was assumed that 80% of the residential units will be low density with remaining 20% as medium density.

**Table 3.5 Site Trip Generation (Former Site Statistics)**

| Land Use | ITE Land Use Code | Parameter | WEEKDAY AM Peak Hour | | | WEEKDAY PM Peak Hour | | |
|---|---|---|---|---|---|---|---|---|
| | | | In | Out | Total | In | Out | Total |
| Low Density Residential 2,843 Units | Single Family Detached Housing (ITE Land Use Code 210) | Gross Rate (Trips / Unit) | 0.20 | 0.57 | 0.77 | 0.64 | 0.36 | 1.00 |
| | | Gross Trips | 568 | 1621 | 2189 | 1872 | 1053 | 2925 |
| | | Non-auto Reduction (6%) | 33 | 98 | 131 | 113 | 62 | 175 |
| | | New Auto Trips | 535 | 1523 | 2058 | 1759 | 991 | 2750 |
| Medium Density Residential 750 Units | Residential Condominium/ Townhouse (ITE Land Use Code 230) | Gross Rate (Trips / 1000 ft$^2$) | 0.09 | 0.42 | 0.51 | 0.33 | 0.19 | 0.52 |
| | | Gross Trips | 68 | 291 | 359 | 250 | 140 | 390 |
| | | Transit / Active Transportation Reduction (6%) | 4 | 19 | 23 | 15 | 9 | 24 |
| | | New Auto Trips | 64 | 272 | 336 | 235 | 131 | 366 |
| Elementary Schools 4 @ 800 each 3200 Students | Elementary School (ITE Land Use Code 520) | Gross Rate (Trips / Unit) | 0.25 | 0.20 | 0.45 | 0.07 | 0.08 | 0.15 |
| | | Gross Trips | 792 | 648 | 1440 | 236 | 244 | 480 |
| | | Non-auto Reduction (0%) | 0 | 0 | 0 | 0 | 0 | 0 |
| | | New Trips | 792 | 648 | 1440 | 236 | 244 | 480 |
| Secondary School 1500 Students | High School (ITE Land Use Code 530) | Gross Rate (Trips / 1000 ft$^2$) | 0.26 | 0.16 | 0.42 | 0.06 | 0.07 | 0.13 |
| | | Gross Trips | 391 | 239 | 630 | 92 | 103 | 195 |
| | | Non-auto Reduction (6%) | 0 | 0 | 0 | 0 | 0 | 0 |
| | | New Trips | 391 | 239 | 630 | 92 | 103 | 195 |
| **Total New Trips** | | | **1782** | **2682** | **4464** | **2322** | **1469** | **3791** |

Based on the former site statistics, the proposed development is expected to generate **4,464** two-way trips (1,782 inbound trips and 2,682 outbound trips) during the weekday morning peak hour and **3,791** two-way trips (2,322 inbound trips and 1,469 outbound trips) during the weekday p.m. peak hour. As the generated trips using the former site statistics are very similar to the trips generated using the new site statistics, the analysis that was based on the former site statistics were maintained for this study.

carpooling information including registration, participation guidelines and promotional information regarding ride-matching app or tool.

### 6.2.4 Education and Promotion

As the Block Plan area will include three (3) elementary schools and two (2) secondary schools, it is anticipated that a considerable portion of the students will be local residents within the community. Therefore, this provides a great opportunity to encourage alternative modes of transportation specifically active transportation (cycling and walking) through partnerships with school boards.

Metrolinx started a pilot project, "*Stepping It Up*", in fall 2009. The project used the Canadian School Travel Planning (STP) Model to encourage active transportation modes of school travel for students, families, and staff. A total of 30 elementary schools in the Cities of Hamilton, Brampton, and Mississauga participated in the project. According to the final report "*Stepping It Up*" completed in June 2012, the survey results from five (5) Peel Region schools indicated a 10% increase in pedestrian travel based on family surveys, and a 3% increase based on student surveys. In contrast, the results showed a 9% decrease in car travel based on family surveys and a 7% decrease based on student surveys. This project is now over. However following the success of this pilto project, it has since been incporarated into the Peel School Travel Planning Program which provides programs and resources such as the School Bicycle Parking Program, Bike to School Week, Peel Children's Safety Village, The 10 Step Handbook for High School Bike Projects and the Bike Rodeo Community Kit.

Community-based initiatives, such as Active and Safe Routes to School (ASRTS) can encourage the use of active transportation for the daily trips to school. The Active and Safe Routes to School provides resources, tools, information and links for school and communities to create their own unique Active and Safe Routes to School program. The Active and Safe Routes to School program may include walking to school activities such as Walking School Bus, Walking Wednesdays, Walk-a-Block, Walking Buddies, etc.

# 7 Summary and Conclusions

Build out of Block 48-2 is anticipated to be completed by 2021. The Block Plan will include 3,391 low to medium density residential developments, 22.59 ha of institutional lands including three (3) elementary schools, two (2) secondary schools and two (2) worship places, and 14.43 ha of commercial / retail lands including district retail, mixed use and convienience commercial lands.

Major road improvements have been planned according to the 10-year Roads Capital Program from the City and the 2011-2031 Road Program from the Region. This includes:

- Mayfield Road widening to five-lanes; and,
- Bramalea Road widening to four-lanes.

The improvements will add additional capacity to the road network. Based on the Traffic Impact Study, the transportation network in 2021 and 2031 will accommodate the Block 48-2 development and other background developments that have been anticipated. The overall findings are summarized in this section.

## 7.1 Existing Condition

All intersections within the Study Area are operating with residual capacity and at an acceptable LOS in the existing condition. There are noted capacity constraints at the Mayfield Road / Airport Road intersection. The westbound through movement at this intersection is currently operating at capacity during the p.m. peak hour. Future improvements, including the widening of Mayfield Road through the study area will add additional capacity to the road network.

## 7.2 2021 Condition (Full Build Out Horizon)

Under the 2021 background condition, the road improvements illustreated in **Table 7.1** will be in place:

**Table 7.1 2021 Road Improvements**

| Location | Description |
|---|---|
| Mayfield Road | • Widening to a five-lane cross-section and centre turn lane from Airport Road to Bramalea Road. |
| Bramalea Road | • Widening to four-lane cross section from Mayfield Road to Countryside Road |

In addition, the road improvements illustrated in **Table 7.2** are required as part of the proposed Block 48-2 development:

**Table 7.2 2021 Proposed Road Improvements**

| Location | Description |
|---|---|
| Inspire Boulevard | • The main East-West Road (Inspire Boulevard) will extend from Dixie Road (between Mayfield Road and Countryside Drive) to Bramalea Road (south of Mayfield Road) to Torbram Road, and then south to Countryside Drive (between Torbram Road and Airport Road). The proposed alignment follows the intent of the Secondary Plan.<br>• Inspire Boulevard will function as a three-lane collector road with two (2) travel lanes and one (1) continuous centre left turn lane, consistent to the Block 48-1 plan. Inspire Boulevard will continue from Block 48-1 in the Countryside Villages Secondary Plan running eastwards through to Torbram Road then turning southwards connecting to Mountainash Road at Countryside Drive.<br>• An exclusive eastbound right turn lane will be added at the intersection of Inspire Boulevard and Torbram Road. |
| Moldovan Drive Extension | • The Moldovan Drive Extension will function as a two-lane road, connecting from Mayfield Road (between Bramalea Road and Torbram Road) to Countryside Drive at Moldovan Drive. The alignment will follow the intent of the Secondary Plan. Moldovan Drive Extension is planned to be completed by 2021. |
| Street ‘A’ | • Street ‘A’ will be a two-lane north-south road connecting from Mayfield Road (east of Bramalea Road) to Inspire Boulevard. This street will align with the existing exit-only school driveway forming a four-legged intersection to the north with Mayfield Road and will connect with Inspire Boulevard to the south as a three-legged roundabout. |
| Street ‘B’ | • Street ‘B’ East and Street ‘B’ West will be a two-lane ring road connecting from Mayfield Road (west of Torbram Road), to Torbram Road (south of Mayfield Road) and to Mayfield Road (east of Torbram Road). |
| Street ‘C’ | • Street ‘C’ West and Street ‘C’ East will be a two-lane roads providing access to Mayfield Road for the isolated north eastern residential block. |
| Street ‘D’ | • Street ‘D’ will be a two-lane east-west road that will extend from the Inspire Boulevard, through Torbram Road, Inspire Boulevard and to Countryside Drive. |
| Street ‘E’ | • Street ‘E’ will be a two-lane north-south road that will connect from Inspire Boulevard to Countryside Drive. |

The proposed intersection spacing is illustrated in **Figure 3-3**, following the Report, and the proposed configuration and control are shown in **Table 7.3** below.

**Table 7.3 2021 Proposed Configuration and Control**

| Intersections | | Description |
|---|---|---|
| Mayfield Road | Street 'A' | • Stop-control<br>• Full movement access with the following auxiliary lanes:<br>- Westbound left turn lane with 30 meters storage and taper as per TAC;<br>- Eastbound right turn lane with 30 meters storage and taper as per TAC;<br>- Northbound left turn lane with 30 meters storage and taper as per TAC; and<br>- Northbound right turn lane. |
| Mayfield Road | Moldovan Drive Extension | • Signal-control<br>• Full movement access with the following auxiliary lanes:<br>- Eastbound right turn lane with 30 meters storage and taper as per TAC;<br>- Westbound left turn lane with 35 meters storage and taper as per TAC;<br>- Northbound left turn lane with 30 meters storage and taper as per TAC;<br>- North leg to be designed to accommodate a future potential exclusive northbound right turn lane. |
| Mayfield Road | Street 'B' West | • Stop-control<br>• Restricted Left-in / Right-in / Right-out movements with the following auxiliary lanes :<br>- Westbound left turn lane with 30 meters storage and taper length as per TAC;<br>- Eastbound right turn lane with 30 meters storage and taper as per TAC. |
| Mayfield Road | Street 'B' East | • Stop-control<br>• Restricted Left-in / Right-in / Right-out movements with auxiliary lanes:<br>- Westbound left turn lane with 30 meters storage and taper length as per TAC;<br>- Eastbound right turn lane with 30 meters storage and taper as per TAC. |
| Mayfield Road | Street 'C' West | • Signal-control<br>• Full movement access with the following auxiliary lanes:<br>- Eastbound right turn lane with 30 metres storage and taper as per TAC;<br>- Westbound left turn lane with 30 metres storage and taper length as per TAC;<br>- Northbound left turn lane with 55 metres storage and taper as per TAC; and,<br>- North leg to be designed to accommodate a future potential exclusive northbound right turn lane. |

| | | |
|---|---|---|
| Mayfield Road | Street 'C' East | • Stop-control<br>• Restricted Left-in / Right-in / Right-out movements with the following auxiliary lanes:<br>- Westbound left turn lane with 30 metres storage and taper length as per TAC; and,<br>- Eastbound right turn lane with 30 metres storage and taper length as per TAC. |
| Inspire Boulevard | Bramalea Road | • Signal-control<br>• Full movement access (with auxiliary lanes for left turns) |
| Inspire Boulevard | Torbram Road | • Signal-control<br>• Full movement access (with auxiliary lanes for left turns) |
| Torbram Road | Street 'D' | • Stop-control<br>• Full movement access (with auxiliary lanes for left turns) |
| Countryside Drive | Moldovan Drive Extension | • Stop-control<br>• Full movement access (with auxiliary lanes for left turns) |
| Countryside Drive | Street 'E' | • Stop-control<br>• Full movement access (with auxiliary lanes for left turns) |
| Countryside Drive | Inspire Boulevard | • Signal-control<br>• Full movement access (with auxiliary lanes for left turns) |
| Countryside Drive | Street 'D' | • Stop-control<br>• Full movement access (with auxiliary lanes for left turns) |

In summary:

- Based on the 2021 background traffic analysis, all intersections within the Study Area will generally operate with residual capacity and acceptable LOS. The signalized intersections will operate with an overall volume to capacity ratio of 0.98 or better with critical movements noted at Mayfield Road / Airport Road and Countryside Drive / Torbram Road.
- The Block 48-2 development will have access to Regional and City arterials including Bramalea Road to the west, Mayfield Road to the north, Airport Road to the east, Countryside Drive to the south, and Torbram Road that runs through the site area. The Block will access these arterials through a network of internal local streets, as well as through the proposed Inspire Boulevard, and the Moldovan Drive Extension;
- The Block 48-2 development is expected to generate 2394 two-way residential trips (599 inbound trips and 1,795 outbound trips) and 2070 two-way school trips (1,183 inbound trips and 887 outbound trips) during the weekday morning peak hour. For the afternoon peak hour the proposed development is expected to generate 3116 two-way residential trips (1994 inbound trips and 1122 outbound trips) and 675 two-way school trips (328 inbound trips and 347 outbound trips);
- Based on the 2021 total traffic analysis all major intersections within the Block Plan area will generally operate with residual capacity and an acceptable level of service. However, some individual movements will operate with capacity constraints as follows:

- Mayfield Road / Bramalea Road: Westbound through movement during the morning peak hour;
- Mayfield Road / Airport Road: Eastbound left turn movement during the AM peak hour and eastbound left turn, westbound through and northbound left turn movements during the PM peak hour; and,
- Inspire Boulevard / Tobram Road: Overall intersection operation during the AM peak hour.

- Based on the signal warrant methodology in Book 12 of the *Ontario Traffic Manual – Traffic Signals*, dated 2007 (OTM Book 12), traffic volumes at:
  - The Torbram Road / Inspire Boulevard intersection will meet the traffic signal warrant criteria, and as such signalization is recommended;
  - The Mayfield Road / Moldovan Drive Extension, Mayfield Road / Street 'C' West and Countryside Drive / Inspire Boulevard intersections will not meet the traffic signal warrant criteria due to low minor traffic volumes. However signalization is needed to improve the operations and delays of the intersection allowing site traffic volumes to access Mayfield Road and Countryside Drive. Traffic signals will also improve non-vehicular connectivity and pedestrian crossing opportunities; and,
  - The Countryside Drive / Moldovan Drive Extension, Countryside Drive / Street E, Countryside Drive / Street D, Torbram Road / Street D, Torbram Road/ Street B, and Inspire Boulevard / Moldovan Drive Extension will not meet the traffic signal warrant criteria due to low minor volumes. However, we recommend that future provision should be made for undergrounds to be installed.
  - A signal warrant analysis has also been conducted for the intersection of Mayfield Road and Street 'A'. The analysis results show that a signal is not warranted for this intersection under the future 2031 horizon year.

## 7.3 2031 Condition

From 2021 to 2031, there will be continuing traffic growth, not attributed to the development of Block 48-2. The analysis results indicate that all intersections within the Study Area will operate with residual capacity and acceptable LOS under the 2031 total conditions, with the exception of the following movements:

- Mayfield Road / Bramalea Road: Eastbound left, westbound through and northbound left turn movements during the AM peak hour and westbound through movement during the PM peak period;
- Mayfield Road / Moldovan Drive Extension: Westbound left during the AM peak period and westbound through during the PM peak period;
- Mayfield Road / Tobram Road: Westbound through movement during the PM peak period;
- Countryside Drive / Airport Road: Eastbound left and northbound left during the PM peak period; and,
- Mayfield Road / Airport Road: eastbound left, westbound through, northbound left and southbound through during the AM peak hour, and eastbound left, westbound left, westbound through, northbound left and southbound left during the PM peak period. As a few movements would operate over capacity during the PM peak period, there needs to be an additional eastbound left turn lane and an additional westbound through lane adjacent to the intersection to provide sufficient capacities to the intersection.

Sensitivity analysis was conducted for the evening peak hour analysis with dual eastbound left lanes and an additional westbound through lane adjacent to the intersection and the results indicated that, with the additional geometric improvements, the signalized intersection will operate with an overall volume to capacity ratio of 0.98 or better, and with critical movements noted at:

- Mayfield Road / Airport Road for the westbound left turn (v/c of 0.97) and northbound left turn (v/c of 0.97) during the evening peak hour.

## 7.4 Storage and Queuing Assessment

The proposed intersection spacing is sufficient to incorporate the 95$^{th}$ percentile left turn storage lengths along Mayfield Road and Countryside Drive. A taper length of 80 m was assumed based on a design speed of 80 km/h and 90 km/h.

The City Standard Drawing No 244, stipulates that all exclusive turn movements require a minimum storage length of 80 m on arterial roads. It is recommended that all intersections that intersect with the boundary road arterials provide a minimum storage length of 80 m.

Based on the analysis, the northbound left turn lane at the Inspire Boulevard / Torbram Road intersection will require a 70 m storage length in the 2021 horizon year to meet the 95$^{th}$ percentile queue demand.

Detailed functional design drawings will be prepared as the plan of subdivision drawings are developed. The functional drawings will conform to all applicable Regional design standards to provide safe and efficient operation.

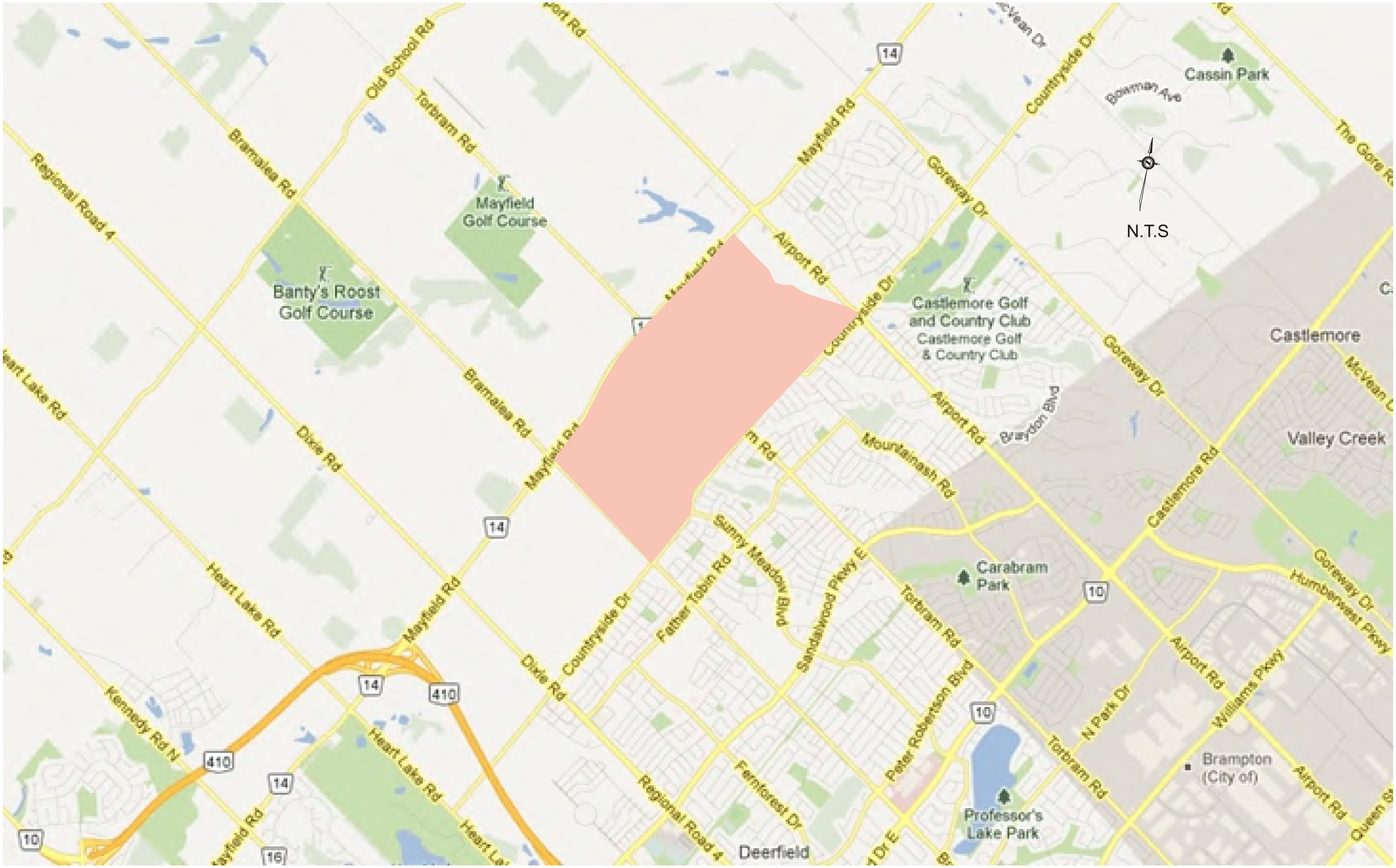
## 7.5 Transportation Demand Management

In order to promote a sustainable transportation system, the following recommendations are proposed:

- A portion of the proposed parking supply (where applicable) be reserved and signed for carpooling vehicles only. These spaces should be 'preferred spaces' located near the front entrance for convenient access in order to encourage carpooling;
- Multi-use pathways and trails should be provided in the Study Area as illustrated in **Figure 3-7**;
- In addition, it is recommended that a multi-use pathway be constructed on the south side of Mayfield Road extending from Bramalea Road to Airport Road;
- Pedestrian sidewalks should be provided on all new roads in the Study Area and be connected to the existing pedestrian facilities in the surrounding neighbourhoods. In addition, bicycle racks should be provided for the proposed schools to promote an active and sustainable mode of school travel;
- Provide bicycle parking facilities for commercial retail areas to encourage biking to these destinations;
- Provided bicycle parking at any intersection containing three (3) or more bus stops as well as provide a bus shelter at the Mayfield Road and Tobram Road intersection;
- Provide and distribute transit discount to residents in first year of occupancy to encourage alternative modes of transportation. This could be done by working with Brampton Transit to encourage the use of public transit, especially for 'first time' users to try using transit services as a primary mode of transportation;
- Provide a welcome package to inform residents with alternative traveling options including information on cycling, walking and transit to assist them in planning their trips utilizing the

existing and growing transit network system. This welcome package may include transit schedules, location maps including nearby facilities and points of interest, cycling maps, and cycling guides including information on cycling benefits and safety guides;

- Provide and distribute a 'Traveling Brochure' to residents, employees and / or business owners. The Traveling Brochure may include information on website addresses to different transit providers as well as contact information, safety tips for pedestrian and cyclists, environmental, economical and improved health benefits of active transportation (walking and cycling), and carpooling information including registration, participation guidelines and promotional information regarding ride-matching app or tool; and,
- Community-based initiatives, such as Active and Safe Routes to School (ASRTS) could also encourage the use of active transportation for the daily trips to school. The Active and Safe Routes to School program may include walking to school activities such as Walking School Bus, Walking Wednesdays, Walk-a-Block, Walking Buddies, etc.




Source: Google Maps

Block 48-2
Study Area

Figure 1-1
Site Location

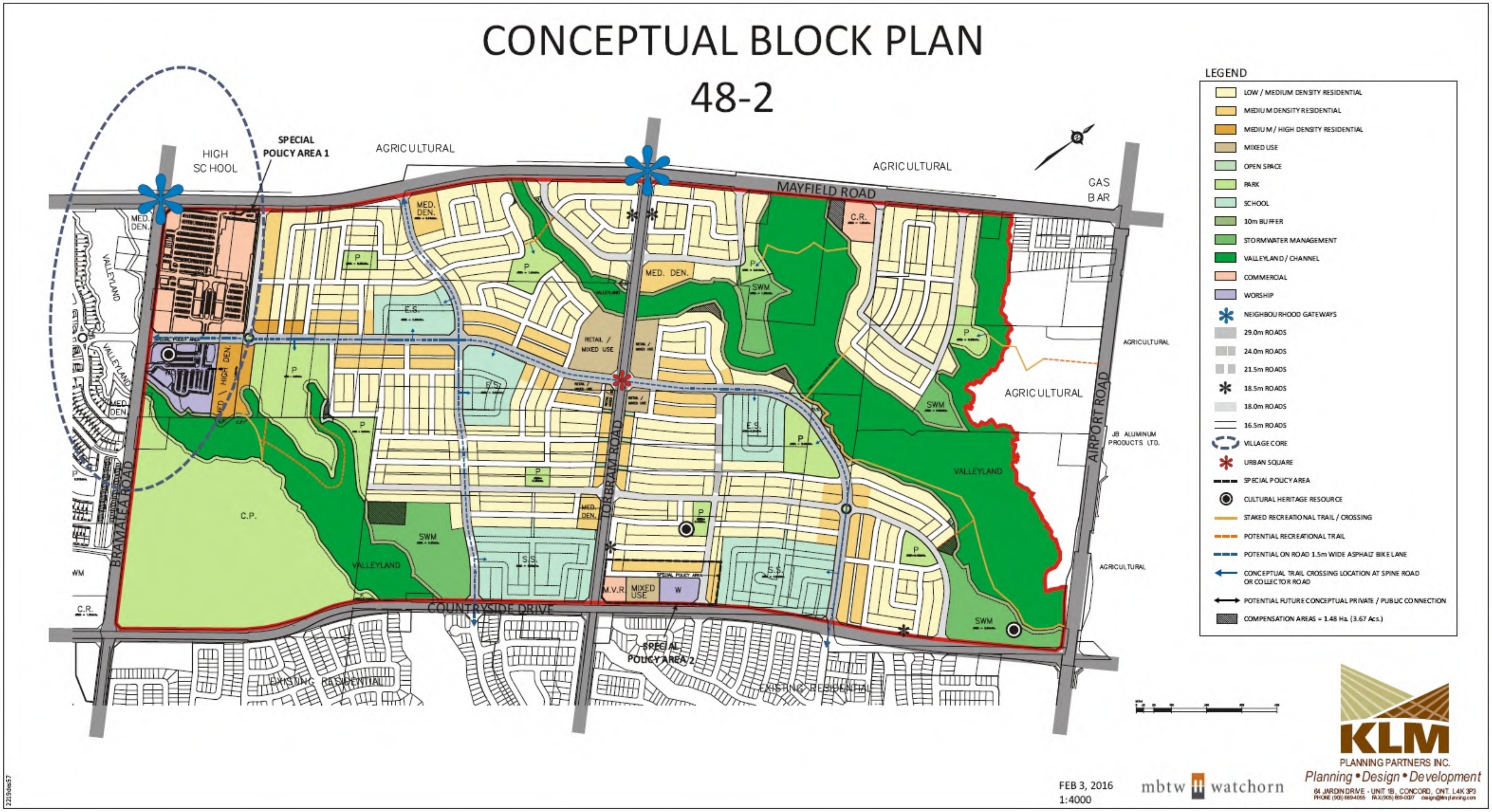



Figure 1-2
Block 48-2 Approved Block Plan

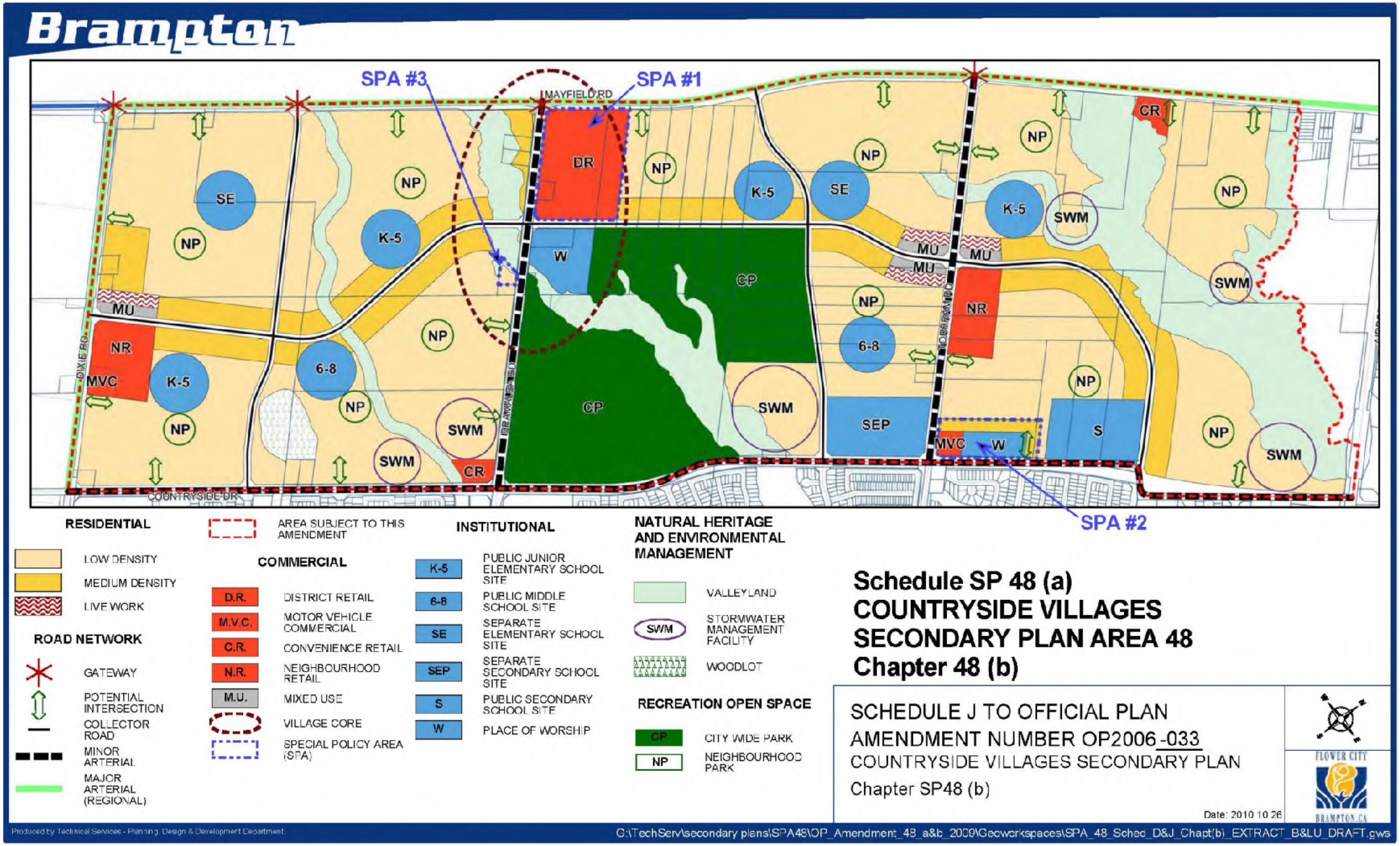
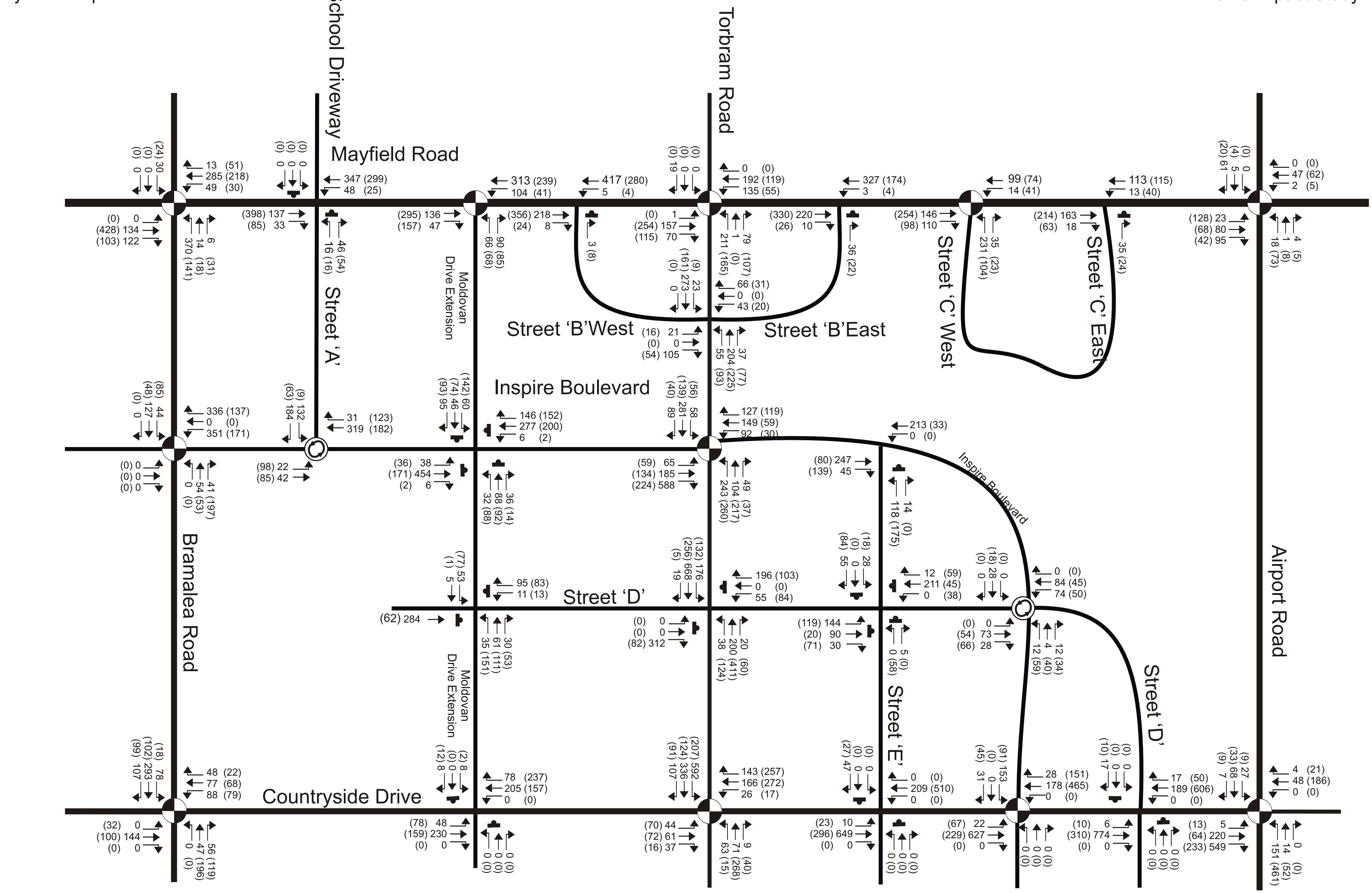



Figure 3-2
Countryside Villages Secondary Plan Area 48


## Figure 3-3
## Block 48-2 Road Network



COLE ENGINEERING






**Legend**

- Right Turn Movement
- Through Movement
- Left Turn Movement

99 (99) Weekday AM (Weekday PM) Peak Hour Traffic Volumes

## Figure 3-10
## Total Site Traffic Volumes

# TRAFFIC IMPACT STUDY

**Proposed Commercial Development**
**13846 & 13940 Airport Road**
**Caledon, ON**

January 2022

**Prepared for**
RG Consulting Inc.



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## 1. INTRODUCTION

Trans-Plan has been retained by RG Consulting Inc. to provide a Traffic Impact Study (TIS) for a proposed commercial development in the community of Sandhill, in the Town of Caledon, Regional Municipality of Peel.

Our Traffic Impact Study will consist of:

- A review of the proposed development
- A review and assessment of the existing road network
- An analysis of existing and future traffic conditions in the study area, based on recent traffic counts at the study area intersections
- Site trip generation estimates for commercial uses, based on development plans
- An assessment of the impact of site-generated traffic on the study area intersections under future background and total traffic conditions at full build-out (2 years), and a 5-year horizon
- Determination of any roadway improvements, if necessary, to accommodate the proposed development

York Region transportation staff were provided a study terms of reference prior to the completion of the study.

### SITE LOCATION

The site, shown in Figure 1, is located at 13846 and 13940 Airport Road, on the southwest quadrant of Airport Road and King Street. Currently the site is vacant, with the surrounding area consisting of mostly residential uses, and includes an Auto Market, a Trucking Company, and a Community Church.

## 2. PROPOSED DEVELOPMENT

The proposed site plan, provided in Figure 2, includes three blocks consisting of 8 buildings designated for commercial uses, and shows the following changes to the lot:

Block 1

- Building ‘A’ – one-storey building with a total GFA of 4,036 ft² (375m²)
- Building ‘B’ – two-storey building with a total GFA of 42,334 ft² (3,933m²)
- Building ‘C’ – two-storey building with a total GFA of 13,024 ft² (1,210m²)
- Building ‘H’ – one-storey building with a total GFA of 695 ft² (64.6m²)

Block 3

- Building ‘D’ – two-storey building with a total GFA of 11,786 ft² (1,097 m²)
- Building ‘E’ – two-storey building with a total GFA of 45,187 ft² (4,198 m²)
- Building ‘F’ and Building ‘G’ – two-storey buildings each with a total GFA of 47,318 ft² (4,396m²), and a combined GFA of 94,636 ft² (8,792m²)

Access to the site is proposed via three (3) driveways along Airport Road: one full moves access approximately 300m south of the Airport Road and King Street intersection and is proposed to be signalized. The other two accesses are configured as right-in/right-out (RIRO) and are located approximately 165m and 300m north and south of the full moves access, respectively.

There will be internal laneway connections between Block 1 and Block 2 stemming from the private road allowance to allow connectivity for motorists to each access point.

The development also proposes the implementation of traffic signals at the full moves access to maintain operational efficiency along the corridor, however the Region of Peel has recently approved road improvements for the segment of Airport Road included in the study area, which will be discussed further in this report.

## 3. EXISTING CONDITIONS

### 3.1 Road Network

The study area roadway characteristics are shown in Figure 3. The boundary roadways located in the study area are described as follows**:**

**Airport Road (Regional Road 7)** is a two-lane arterial road running in a north-south direction, under the jurisdiction of the Region of Peel. Airport Road consists of two travel lanes; one in each direction, with the posted speed limit set at 80 km/h, and a reduction to 60 km/h on the north and south approaches to its intersection with King Street.

**King Street (Regional Road 9)** is a two-lane arterial road running east-west under the jurisdiction of the Region of Peel, located north of the site. King Street consists of two travel lanes; one in each direction, with the posted speed limit set at 70 km/h. King Street and Airport Road form a signalized intersection, which acts as the northern limit of the study area.

**Old School Road** is two-lane local road running in an east-west direction under the jurisdiction of the Region of Peel, with the posted speed limit set at 70 km/h. Old School Road intersects with Airport Road approximately 2.5 kilometers south of the site as the west approach, forming an offset unsignalized intersection with Healey Road.

**Healey Road** is a two-lane local road running in an east-west direction, under the jurisdiction of the Region of Peel, with the posted speed limit set at 70 km/h. Healey Road is located approximately 40m south of the Old School Road and Airport Road intersection, acting as the east approach.

### 3.2 Traffic Counts

Detailed TMC data for intersections within the study area was either obtained from Spectrum or conducted by Trans-Plan, and current signal timing plans for the Airport Road and King Street intersection provided by the Region of Peel. Source data is provided in Appendix A, and a summary of the count hours and peak hours obtained for each intersection provided in Table 1.

- Implementation of two-lane roundabout intersections at:
  - Airport Road & King Street
  - Airport Road and Old School Road / Healey Road
- Road widening from 2 to 4 lanes
- Two-way center left-turn lane

The above-mentioned road improvements are expected to start construction by 2024, with anticipated completion by 2025, and therefor will be included in the analysis of future background and total traffic conditions for the 2028 horizon year. Appendix C provides some design drawings we received, depicting the roundabout designs.

The site plan also proposes traffic signals to be implemented at the main full-movement access due to the anticipated high left-turning volumes and will be analyzed as a signalized intersection in the capacity analysis provided further in this report. The future study area roadway characteristics are illustrated in Figure 5.

It should be noted that for the analysis of background traffic conditions for the horizon year 2028, TMC data used for the offset intersection at Airport Road and Old School Road / Healey Road was adjusted to depict intersection movements more accurately for the new roundabout configuration anticipated in 2025. Based on the review of future background conditions, future background traffic volumes for the 2023 and 2028 horizon years are provided in Figure 6 and Figure 7, respectively.

## 5. SITE TRAFFIC

### 5.1 Trip Generation

Site trips for the proposed development were generated using the Institute of Transportation Engineers (ITE) Trip Generation manuals, 10th Edition. Land uses for each building have not yet been designated, as a result, Land Use Code (LUC) 820 for Shopping Centers was utilized. Although the trip generation results are seemingly aggressive, this was done to represent more of a worst-case scenario, as to ensure not to undercut the potential trips generated by the proposed development.

An adjustment for pass-by trips is also included which arise from existing traffic on the roadway network entering the proposed development as an intermediate stop on the way to another ultimate destination along the same travel route. Typical pass-by trip rates are provided in the ITE Trip Generation Handbook for shopping centers and indicates average pass-by trip rates are 0%, 34% and 26% during the AM, PM and Saturday peak periods, respectively.

A summary of the trip generation of the proposed site is provided in Table 2.

Table 2 – Site Trip Generation Results

| Land Use | Size (Sq.ft. GFA) | | Weekday AM Peak Hour | | | Weekday PM Peak Hour | | | Saturday Peak Hour | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | In | Out | Total | In | Out | Total | In | Out | Total |
| Shopping Center (ITE Code 820) | 212.5 | Distribution | 62% | 38% | 100% | 48% | 52% | 100% | 52% | 48% | 100% |
| | | Equation | T = 0.50(X) + 151.78 | | | Ln(T) = 0.74 Ln(X) + 2.89 | | | Ln(T) = 0.79 Ln(X) + 2.79 | | |
| | | Rate | 0.75 | 0.46 | 1.21 | 2.15 | 2.32 | 4.47 | 7.27 | 6.72 | 13.99 |
| | | Trips | 160 | 98 | 258 | 456 | 493 | 949 | 584 | 539 | 1123 |
| | | Pass-by (0% AM, 34% PM, 26% SAT) | 0 | 0 | 0 | 161 | 161 | 322 | 146 | 146 | 292 |
| **Total New Site Trips** | | | **160** | **98** | **258** | **295** | **332** | **627** | **438** | **393** | **831** |

Based on the trip generation, the subject site is expected to generate approximately 258 new two-way trips during the weekday AM peak hour, 627 trips in the PM peak hour, and 831 during the Saturday peak hour.

### 5.2 Trip Distribution and Assignment

Site trips were distributed and assigned to/from the site and the boundary roadways within the study area according to the existing traffic patterns along Airport Road between King Street and Healey Road, as derived from the traffic counts. The existing traffic volume percent split along Airport Road is an approximate 70/30 split during the weekday, with southbound traffic acting as the predominant flow during the AM peak hour, and northbound being predominant in the PM peak hour. The existing traffic volume split during the Saturday peak hour is an approximate 50/50 split.

The site traffic assignment for the development is provided in Figure 8, and pass-by traffic assignment for the weekday AM and PM, and Saturday peak hours is shown in Figure 9.

## 6. FUTURE TOTAL TRAFFIC CONDITIONS

Site traffic volumes were added to the future background traffic volumes to obtain future total traffic volumes for the peak hours. The future total traffic volumes for the horizon years 2023 and 2028 in the weekday AM and PM, and Saturday peak hours are shown in Figure 10 and Figure 11, respectively.

## 7. CAPACITY ANALYSIS

A capacity analysis was undertaken for the study area intersections and site driveway access points using Synchro analysis software.

As mentioned previously in this report, road improvements along Airport Road have been approved, with construction anticipated to begin by 2024 and completed by 2025. This in mind, traffic modelling for the

## Figure 8: Site Trip Assignment, Weekday AM and PM, and Saturday Peak Hours

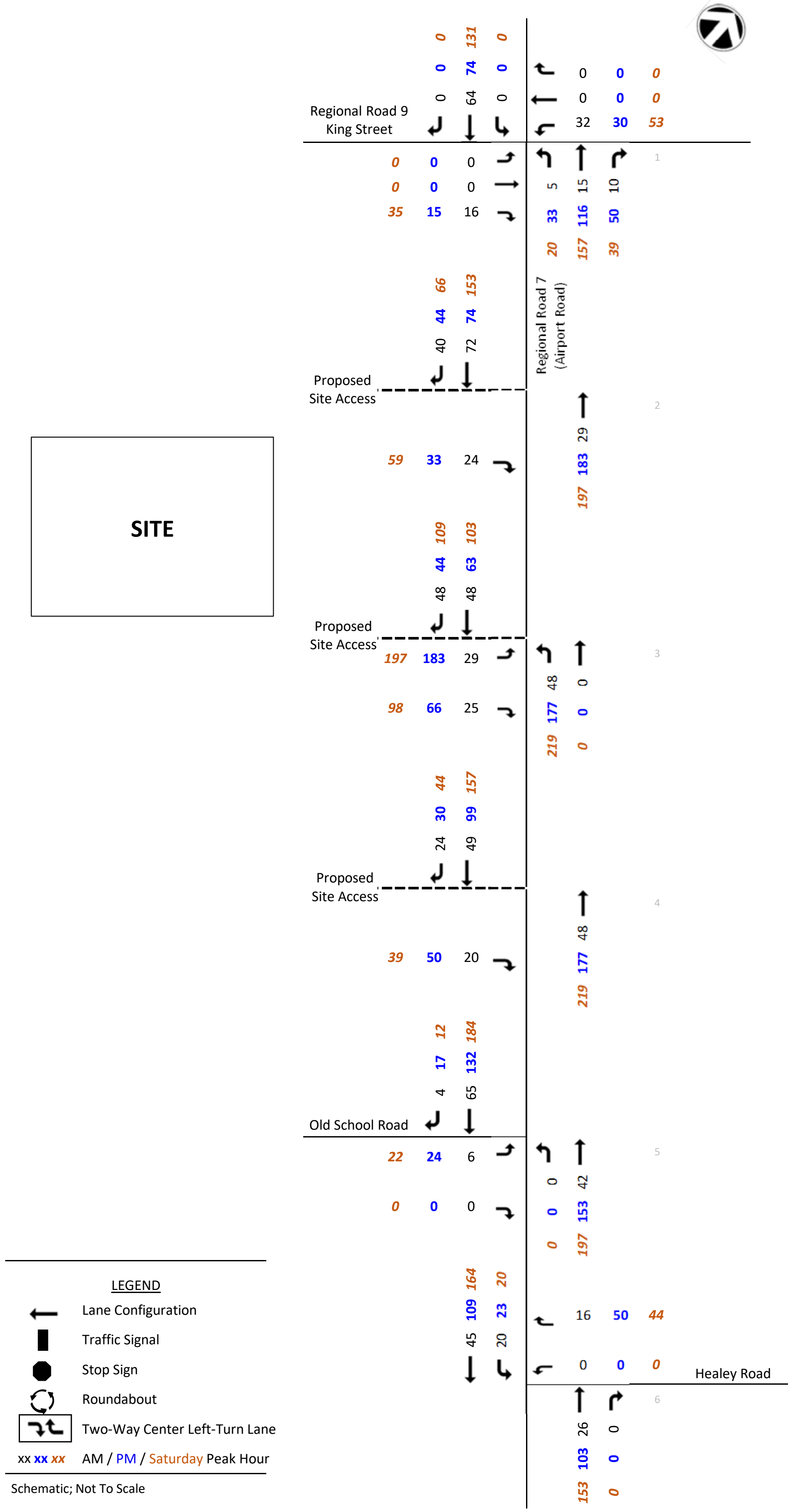
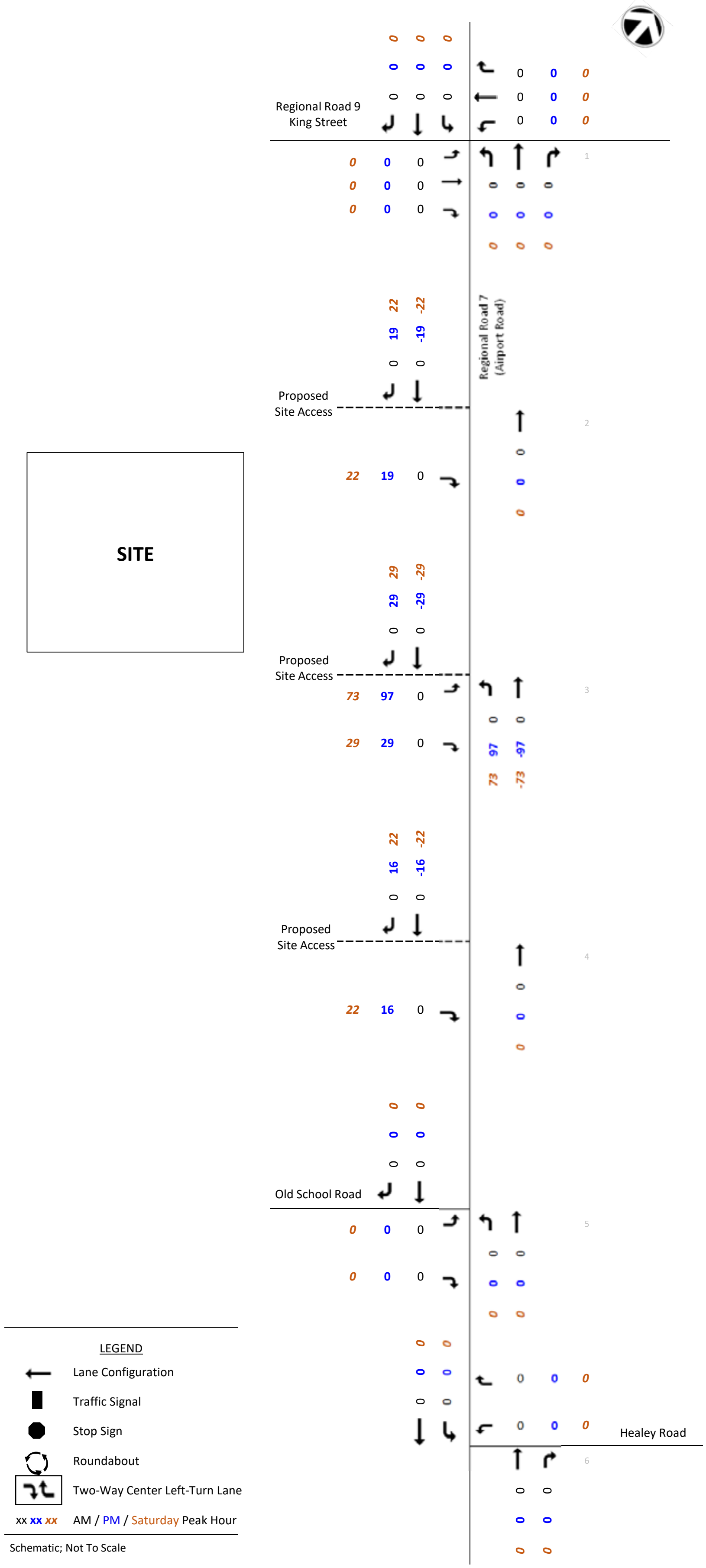


**Figure 9: Pass-by Trip Assignment, Weekday AM and PM, and Saturday Peak Hours**



# MAYFIELD-TULLAMORE COMMUNITY

Transportation Study

Prepared For: Mayfield-Tullamore Landowners Group

August 2024

BA Group

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## 1.6 The Proposal

The community will consist of approximately 7,800 residential units, with a mix of unit types, as well as supporting institutional, recreational and non-residential uses. As a complete community, the supporting land-uses will generally act to internalize trip-making rather than act as external generators of activity.

## 1.7 This Study

A terms of reference related to this study was submitted to Town of Caledon staff in addition to two transportation-focussed pre-submission meeting. The terms of reference is appended as **Appendix A**.

The proposed community will be developed over a long period of time with a series of studies providing additional details as the plan evolves, comments are received, and phasing plans are refined. The purpose of this study is to provide an end-state (full build-out) review of the community to help confirm the basic structure of the community as a prelude to further discussions with stakeholders.

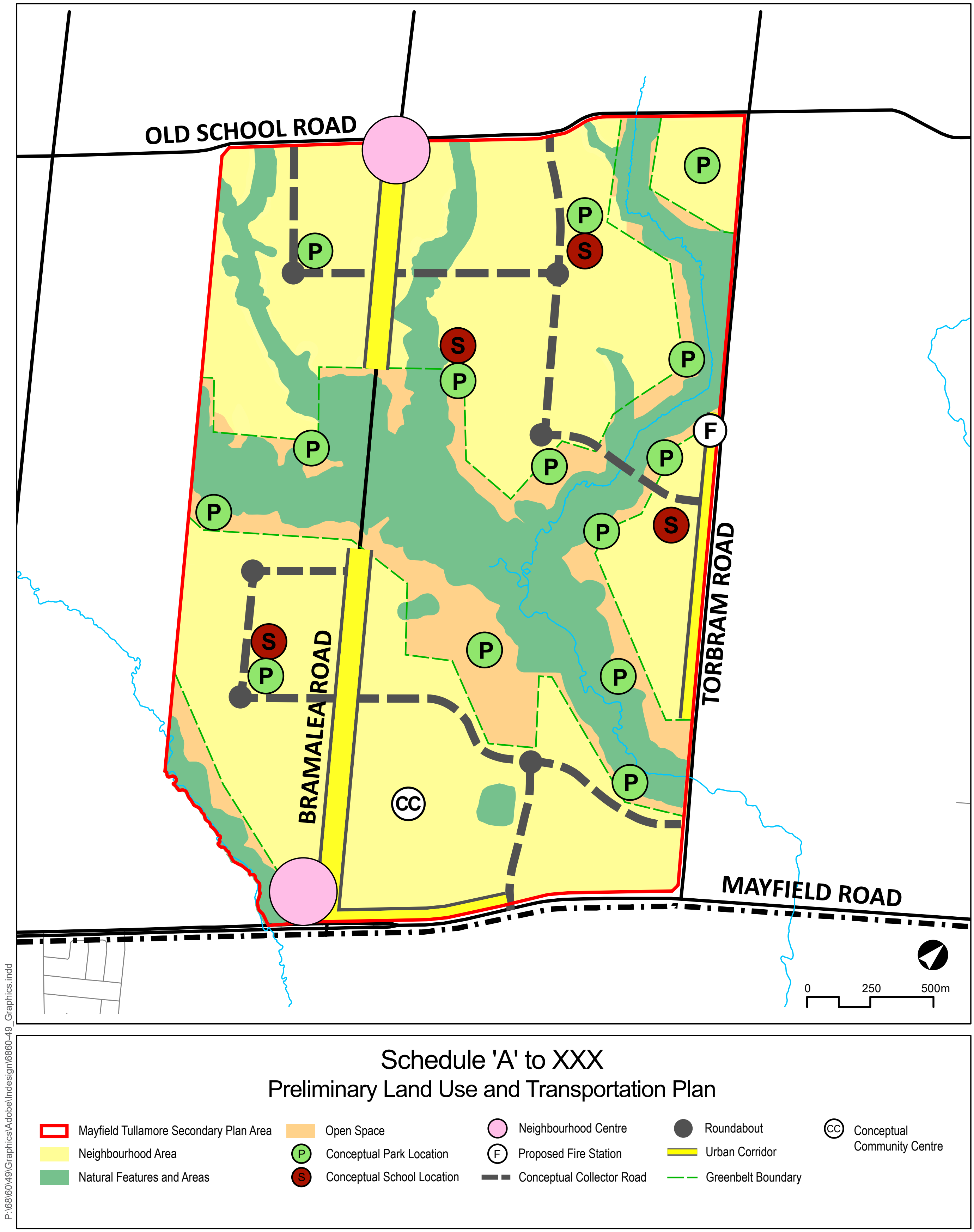



**FIGURE 4 STRUCTURE PLAN**

## 5.2 Site Generated Traffic

### 5.2.1 Residential Trip Generation

To develop an understanding of expected traffic generation and trip distribution across the internal collector road network, the structure plan has been divided into zones that are generally bounded by the proposed collector road network and the Greenbelt. **Exhibit 1** illustrates the assumed zones, lettered A to G.

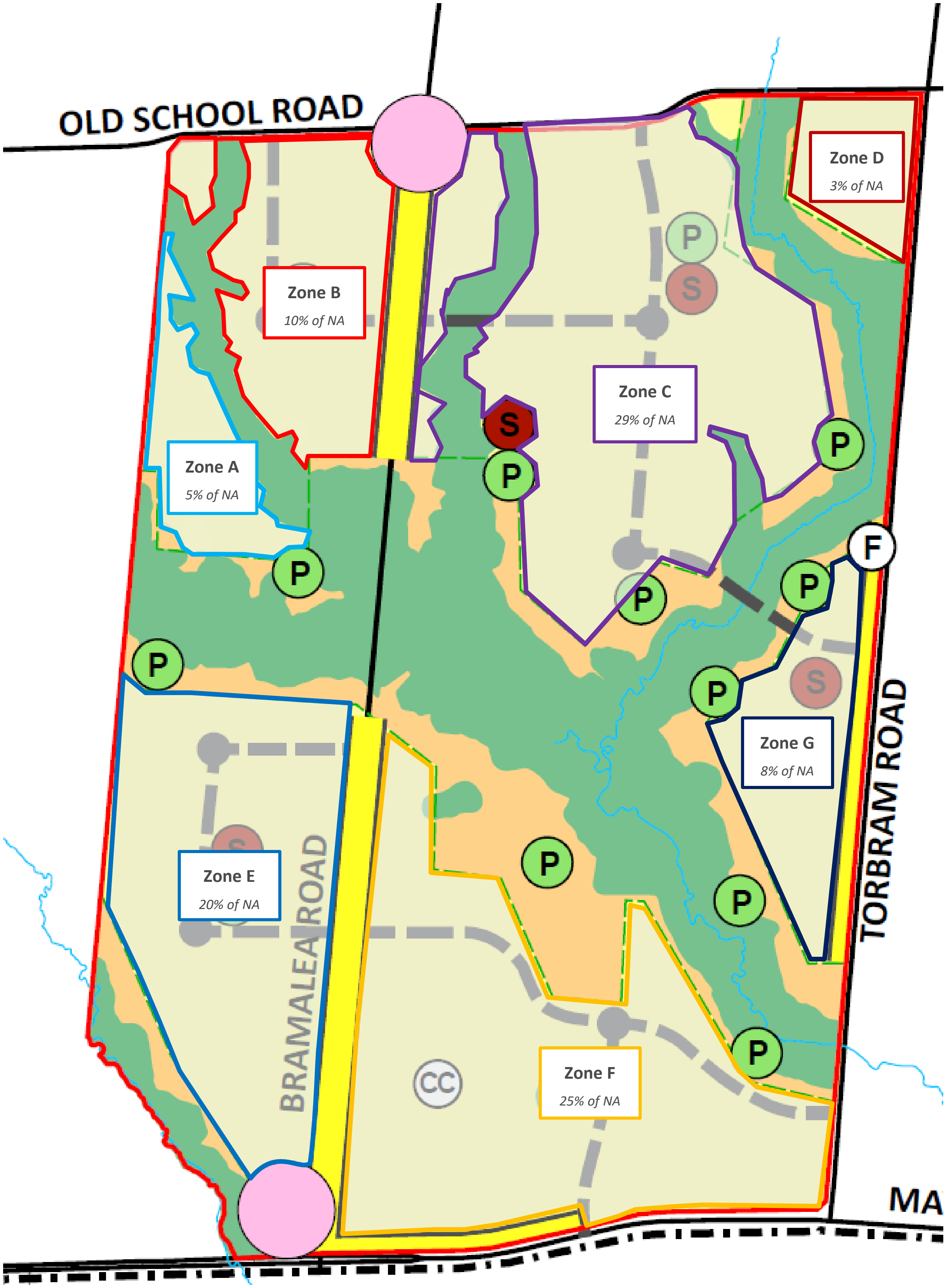



Exhibit 1: Traffic Zones

The land budget prepared for the plan provides the total number of units, by housing type across the neighbourhood area of the plan (land coloured in yellow in **Exhibit 1**). Based on the relative areas of the letter zones, an approximate number of housing units, per type, were assigned to each zone. It was assumed that single-/ semi-detached, street townhouses, and stacked houses were distributed evenly across zones, and that apartment units were concentrated in the neighbourhood centre located in Zone E. **Table 1** provides a summary of the unit distribution across letter zones.

Table 1 Neighbourhood Area - Unit Distribution by Zone

| Letter Zone | Approximate Number of Units per Type | | | | | |
|---|---|---|---|---|---|---|
| | Single / Semi-Detached | Secondary Unit | Street Townhouse | Stacked Townhouse | Apartment | Total |
| A | 208 | 0 | 143 | 59 | 0 | 410 |
| B | 375 | 0 | 257 | 107 | 0 | 740 |
| C | 1103 | 0 | 756 | 315 | 0 | 2174 |
| D | 112 | 0 | 77 | 32 | 0 | 221 |
| E | 749 | 0 | 513 | 214 | 325 | 1801 |
| F | 937 | 0 | 643 | 268 | 0 | 1847 |
| G | 310 | 0 | 213 | 89 | 0 | 612 |
| **Total** | **3795[1]** | **0** | **2602** | **1084** | **325** | **7806** |

Notes:
1. It is assumed that half of the single / semi-detached housing units are single detached housing units and half are semi-detached units.

Based on the above, vehicle trips were generated per zone based on trips rates provided in the 11$^{th}$ Edition of the ITE Trip Generation Manual for each type of housing unit. **Table 2** provides a summary of vehicle trip rates for each housing type.

Table 2 ITE Trip Generation by Housing Type

| Plan Designation | ITE LUC | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|---|
| | | In | Out | 2-Way | In | Out | 2-Way |
| Single-Detached | 210: Detached Single Family Housing | 0.18 | 0.52 | 0.70 | 0.59 | 0.35 | 0.94 |
| Semi-Detached / Townhouses | 215: Attached Single Family Housing | 0.12 | 0.36 | 0.48 | 0.34 | 0.23 | 0.57 |
| Stacked Townhouse | 220: Multi-Family Housing (Low Rise) | 0.10 | 0.30 | 0.40 | 0.32 | 0.19 | 0.51 |
| Apartments | 221: Multi-Family Housing (Mid Rise) | 0.09 | 0.28 | 0.37 | 0.24 | 0.15 | 0.39 |

Based on the above trip rates, **Table 3** summarizes the number of trips expected to be generated by the site, structured by zone, during the morning and afternoon peak hours.

Table 3 Residential Vehicle Trips

| Letter Zone | Unit Type | Units | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|---|---|
| | | | In | Out | 2-Way | In | Out | 2-Way |
| A | Single | 104 | 20 | 55 | 75 | 60 | 35 | 100 |
| | Semis & Townhouse | 247 | 30 | 90 | 120 | 85 | 60 | 140 |
| | Stacked Townhouse | 59 | 5 | 20 | 25 | 20 | 10 | 30 |
| | **Zone A Total** | **410** | **55** | **165** | **220** | **165** | **105** | **270** |
| B | Single | 188 | 35 | 100 | 130 | 110 | 65 | 175 |
| | Townhouse | 445 | 55 | 160 | 215 | 150 | 105 | 255 |
| | Stacked Townhouse | 107 | 10 | 35 | 45 | 35 | 20 | 55 |
| | **Zone B Total** | **740** | **100** | **295** | **390** | **295** | **190** | **485** |
| C | Single | 551 | 95 | 285 | 385 | 325 | 190 | 520 |
| | Townhouse | 1307 | 155 | 470 | 630 | 440 | 305 | 745 |
| | Stacked Townhouse | 315 | 30 | 95 | 125 | 100 | 60 | 160 |
| | **Zone C Total** | **2174** | **280** | **850** | **1140** | **865** | **555** | **1425** |
| D | Single | 56 | 10 | 30 | 40 | 35 | 20 | 55 |
| | Townhouse | 133 | 15 | 50 | 65 | 45 | 30 | 75 |
| | Stacked Townhouse | 32 | 5 | 10 | 15 | 10 | 5 | 15 |
| | **Zone D Total** | **221** | **30** | **90** | **120** | **90** | **55** | **145** |
| E | Single | 374 | 65 | 195 | 260 | 220 | 130 | 350 |
| | Townhouse | 888 | 105 | 320 | 425 | 300 | 205 | 505 |
| | Stacked Townhouse | 214 | 20 | 65 | 85 | 70 | 40 | 110 |
| | Apartment | 325 | 30 | 95 | 120 | 75 | 50 | 125 |
| | **Zone E Total** | **1801** | **220** | **675** | **890** | **665** | **425** | **1090** |
| F | Single | 469 | 80 | 245 | 330 | 275 | 165 | 440 |
| | Townhouse | 1111 | 135 | 400 | 535 | 375 | 260 | 635 |
| | Stacked Townhouse | 268 | 25 | 80 | 105 | 85 | 50 | 135 |
| | **Zone F Total** | **1847** | **240** | **725** | **970** | **735** | **475** | **1210** |
| G | Single | 155 | 25 | 80 | 110 | 90 | 55 | 145 |
| | Townhouse | 368 | 45 | 135 | 175 | 125 | 85 | 210 |
| | Stacked Townhouse | 89 | 10 | 25 | 35 | 30 | 15 | 45 |
| | **Zone G Total** | **612** | **80** | **240** | **320** | **245** | **155** | **400** |
| **Total** | | **7806** | **1005** | **3040** | **4050** | **3060** | **1960** | **5025** |
| **Blended Trip Rate (7806 units)** | | | *0.13* | *0.39* | *0.52* | *0.39* | *0.25* | *0.64* |

The site is expected to generate 4,050 and 5,025 two-way residential vehicle trips during the morning and afternoon peak hours, respectively.

### 5.2.2 Retail Trip Generation

The structure plan currently proposes approximately 40,000 $m^2$ of retail GFA, to be distributed across the Urban Corridor (UC) area proposed for the site, which will be located primarily along Bramalea Road. Considering that the planned population of the community will total over 25,000 people, it is expected that the retail uses on site will primarily be oriented towards fulfilling the needs of the community, and the retail uses on site will not generate a significant amount of external trips.

### 5.2.3 Trip Distribution

Site traffic has been assigned to the area road network based on a review of travel information provided by the 2016 Transportation Tomorrow Survey (TTS) and expected road network traffic patterns and connectivity at the time of the buildout of the site. Site traffic distribution is summarized in **Table 4**. Detailed TTS output data and distribution assumptions are provided in **Appendix E**.

Table 4 Site Traffic Distribution

| Direction | Outbound | Inbound |
|---|---|---|
| To / From the North on Hurontario Street | 5% | 5% |
| To / From the South on Highway 410 | 30% | 30% |
| To / From the East on Highway 413 | 10% | 10% |
| To / From the West on Highway 413 | 15% | 15% |
| To / From the North on Bramalea / Torbram / Dixie Road | 5% | 5% |
| To / From the South on Bramalea / Torbram / Dixie Road | 35% | 35% |
| **Total** | **100%** | **100%** |

Notes:
1. Based on TTS Zones 3010, 3012, 2014 & 3442

## 5.3 Site Traffic Volumes

New site traffic generated by the community has been assigned to the proposed structure plan road network and the existing road network based upon the directional distribution summarized above. New site traffic volumes for the weekday morning and afternoon peak hours are illustrated in **Figure 10**.

## 5.4 Future Total Traffic Volumes

Future total traffic volumes, which reflect the addition of TMP volumes and new site traffic volumes are illustrated in **Figure 11**.

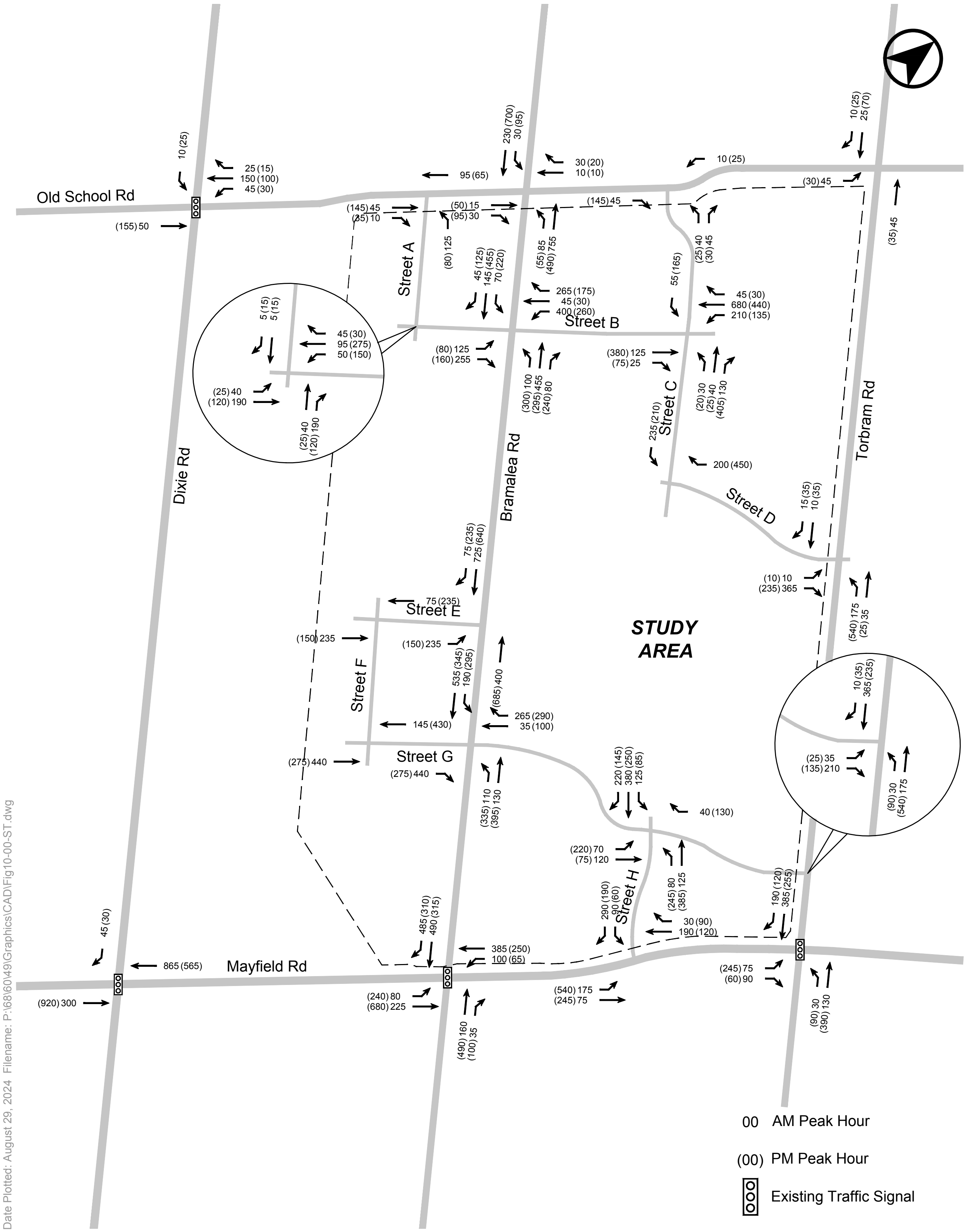



**FIGURE 10 SITE TRAFFIC VOLUMES**

## 6.2 Intersection Operations Analysis

Detailed Synchro output reports are provided in **Appendix F**.

### 6.2.1 Mayfield Road Corridor

The intersections pertaining to the site that intersect with Mayfield Road are as follows:

- Mayfield Road and Dixie Road
- Mayfield Road and Bramalea Road
- Mayfield Road and Street "H"
- Mayfield Road and Torbram Road

To accommodate the large number of vehicles travelling along Mayfield Road, as well as site traffic travelling to and from the west on Mayfield Road, these intersections have been assigned a cycle length of 200 seconds during both the morning and afternoon peak hours. Several intersection improvements are required to accommodate the planned TMP volumes and site traffic volumes, and it is recommended that these improvements are studied and implemented in conjunction with planned road widenings along Bramalea Road and Torbram Road. Capacity results and discussion for the intersections along Mayfield Road are provided in the following sections. The recently completed widening of Mayfield Road to three lanes in each direction has been assumed for these intersections.

#### 6.2.1.1 MAYFIELD ROAD AND DIXIE ROAD

**Table 5** provides a summary of the volume to capacity ratios reported at the intersection of Mayfield Road and Dixie Road.

Table 5 Mayfield Road and Dixie Road – Capacity Analysis Results

| Movement | 2051 Future Total | |
|---|---|---|
| | v/c | LOS |
| EBL | 0.30 (0.27) | D (D) |
| EBT | 0.94 (0.92) | E (D) |
| EBR | 0.23 (0.01) | C (C) |
| WBL | 0.85 (0.93) | F (F) |
| WBTR | 0.77 (0.83) | D (E) |
| NBL | 0.30 (0.93) | D (F) |
| NBTR | 0.93 (0.94) | E (E) |
| SBL | 0.19 (0.18) | D (E) |
| SBTR | 0.92 (0.98) | E (F) |
| **Overall** | **0.87 (0.90)** | **D (E)** |

Notes:
1. XX (XX): AM (PM)

#### 6.2.1.4 MAYFIELD ROAD AND TORBRAM ROAD

**Table 8** provides a summary of the volume to capacity ratios reported at the intersection of Mayfield Road and Torbram Road.

Table 8 Mayfield Road and Torbram Road – Capacity Analysis Results

| Movement | 2051 Future Total | |
|---|---|---|
| | v/c | LOS |
| EBL | 0.33 (0.95) | E (F) |
| EBT | 0.74 (0.49) | F (F) |
| EBR | 0.52 (0.04) | F (F) |
| WBL | 0.75 (0.74) | F (F) |
| WBT | 0.29 (0.97) | C (F) |
| WBR | 0.03 (0.00) | C (A) |
| NBL | 0.50 (1.00) | D (F) |
| NBT | 0.73 (0.55) | D (C) |
| NBR | 0.27 (0.20) | C (C) |
| SBL | 0.00 (0.23) | A (D) |
| SBTR | 0.95 (0.95) | E (E) |
| **Overall** | **0.83 (0.96)** | **E (F)** |

Notes:
1. XX (XX): AM (PM)

The intersection of Mayfield Road and Torbram Road will operate under very busy but acceptable conditions during the morning and afternoon peak hours, with overall volume to capacity ratios of 0.83 and 0.96, respectively. To accommodate the high volume of TMP volumes assigned to the westbound left movement at this intersection, it is recommended to provide dual westbound left lanes. This improvement is not related to the impacts of site traffic at this intersection. It has been assumed that Torbram Road has been widened to two lanes in each direction, with the provision of dedicated turn lanes at this intersection. The improvements described above should be further studied for implementation in conjunction with any studies undertaken for the planned widening of Torbram Road.

### 6.2.2 Old School Road Corridor

The intersections pertaining to the site that intersect with Old School Road are as follows:

- Old School Road and Dixie Road
- Old School Road and Street "A"
- Old School Road and Bramalea Road

- Old School Road and Street “C”
- Old School Road and Torbram Road

These intersections have been assigned a cycle length of 100 seconds during both the morning and afternoon peak hours. Several intersection improvements are required to accommodate the planned TMP volumes and site traffic volumes, and it is recommended that these improvements are studied and implemented in conjunction with planned road widenings along Old School Road, Dixie Road, Bramalea Road and Torbram Road. Capacity results and discussion for the intersections along Old School Road are provided in the following sections. It is assumed that the planned widenings of Old School, Dixie, Bramalea, and Torbram Roads to two lanes in each direction have been completed for this analysis.

#### 6.2.2.1 OLD SCHOOL ROAD AND DIXIE ROAD

**Table 9** provides a summary of the volume to capacity ratios reported at the intersection of Old School Road and Dixie Road.

Table 9 Old School Road and Dixie Road – Capacity Analysis Results

| Movement | 2051 Future Total | |
|---|---|---|
| | v/c | LOS |
| EBL | 0.14 (0.07) | C (C) |
| EBT | 0.70 (0.62) | D (D) |
| EBR | 0.14 (0.03) | C (C) |
| WBL | 0.42 (0.19) | C (C) |
| WBTR | 0.36 (0.64) | C (C) |
| NBL | 0.11 (0.28) | C (C) |
| NBT | 0.09 (0.17) | C (B) |
| NBR | 0.01 (0.04) | B (D) |
| SBL | 0.04 (0.08) | B (A) |
| SBTR | 0.19 (0.09) | B (A) |
| **Overall** | **0.35 (0.41)** | **C (C)** |

Notes:
1. XX (XX): AM (PM)

The intersection of Old School Road and Dixie Road will operate under acceptable conditions during the morning and afternoon peak hours, with overall volume to capacity ratios of 0.35 and 0.41, respectively. All planned widenings have been assumed, and it is recommended that dedicated northbound and southbound left turn lanes be provided at this intersection, pending further study.

#### 6.2.2.5 OLD SCHOOL ROAD AND TOBRAM ROAD

**Table 13** provides a summary of the volume to capacity ratios reported at the intersection of Old School Road and Torbram Road.

Table 13 Old School Road and Torbram Road – Capacity Analysis Results

| Movement | 2051 Future Total | |
|---|---|---|
| | v/c | LOS |
| EBL | 0.10 (0.07) | A (A) |
| EBTR | 0.31 (0.09) | A (A) |
| WBL | 0.38 (0.01) | A (A) |
| WBTR | 0.09 (0.28) | A (A) |
| NBL | 0.04 (0.36) | C (D) |
| NBTR | 0.12 (0.68) | D (D) |
| SBL | 0.02 (0.11) | C (C) |
| SBTR | 0.56 (0.16) | D (C) |
| **Overall** | **0.42 (0.38)** | **B (C)** |

Notes:
1. XX (XX): AM (PM)

The intersection of Old School Road and Bramalea Road will operate under acceptable conditions during the morning and afternoon peak hours, with overall volume to capacity ratios of 0.42 and 0.38, respectively. It is recommended to provide dedicated left turn lanes for each approach at this intersection, and the configuration of this intersection should be studied in conjunction with the undertaking of widening studies along Old School Road and Torbram Road.

### 6.2.3 Bramalea Road Corridor

The intersections pertaining to the site that intersect with Bramalea Road are as follows:

- Bramalea Road and Street "B"
- Bramalea Road and Street "E"
- Bramalea Road and Street "G"

These intersections have been assigned a cycle length of 60 seconds during both the morning and afternoon peak hours. These intersections are located in the centre of the community, along the urban corridor, and should receive urban treatment to help create a walkable urban corridor. Capacity results and discussion for these intersections along Bramalea Road are provided in the following sections. It is assumed that the planned widening of Bramalea Road to two lanes in each direction has been completed for this analysis.

#### 6.2.3.3 BRAMALEA ROAD AND STREET “G”

**Table 16** provides a summary of the volume to capacity ratios reported at the proposed intersection of Bramalea Road and proposed collector street “G”.

Table 16 Bramalea Road and Street “B” – Capacity Analysis Results

| Movement | 2051 Future Total | |
|---|---|---|
| | v/c | LOS |
| EBTLR | 0.78 (0.17) | C (C) |
| WBTLR | 0.21 (0.31) | B (C) |
| NBL | 0.46 (0.63) | B (A) |
| NBTR | 0.39 (0.53) | A (B) |
| SBL | 0.57 (0.52) | C (A) |
| SBTR | 0.50 (0.62) | B (B) |
| **Overall** | **0.64 (0.58)** | **B (B)** |

Notes:
1. XX (XX): AM (PM)

The proposed intersection of Bramalea Road and Street “G” will operate under acceptable conditions during the morning and afternoon peak hours, with overall volume to capacity ratios of 0.64 and 0.58, respectively. Dedicated left turning lanes are recommended at this intersection.

### 6.2.4 Torbram Road Corridor

The intersections pertaining to the site that intersect with Torbram Road are as follows:

- Torbram Road and Street “D”
- Torbram Road and Street “G”

These intersections have been assigned a cycle length of 100 seconds during both the morning and afternoon peak hours.. Capacity results and discussion for the intersections along Torbram Road are provided in the following sections.

#### 6.2.4.1 TORBRAM ROAD AND STREET “D”

**Table 17** provides a summary of the volume to capacity ratios reported at the proposed “T” intersection of Torbram Road and proposed collector street “D”.

Table 17 Torbram Road and Street “D” – Capacity Analysis Results

| Movement | 2051 Future Total | |
|---|---|---|
| | v/c | LOS |
| EBL | 0.03 (0.06) | C (D) |
| EBR | 0.73 (0.15) | D (D) |
| NBL | 0.41 (0.53) | A (A) |
| NBT | 0.04 (0.23) | A (A) |
| SBTR | 0.29 (0.04) | B (A) |
| **Overall** | **0.48 (0.49)** | **B (A)** |

Notes:
1. XX (XX): AM (PM)

The proposed intersection of Bramalea Road and Street “D” will operate under acceptable conditions during the morning and afternoon peak hours, with overall volume to capacity ratios of 0.48 and 0.49, respectively. Dedicated left turning lanes are recommended at this intersection.

# 7.0 SUMMARY AND CONCLUSIONS

BA Group is retained by the Mayfield-Tullamore Landowners Group to provide transportation consulting services in support of the proposed development of a new greenfield community in Caledon, Ontario. The community extends from Mayfield Road in the south to Old School Road in the north. It extends from Torbram road in the east to approximately midway between Bramalea Road and Dixie Road in the west.

**Policy Context**

1. The Town of Caledon adopted its new Official Plan (OP) titled *Future Caledon* on March 6th, 2024. The plan guides land development through two of its principles: (1) create healthy and complete communities, and (2) create high quality transportation options.

2. The Town of Caledon also developed its Multi-Modal Transportation Master Plan (MMTMP) in conjunction with the *Future Caledon* OP and provides direction on transportation improvements within Caledon to 2051. Among other objectives, the MMTMP describes a series of improvements related to road widenings, a public transit strategy, and an active transportation plan.

**Proposed Development**

3. The proposed community will consist of approximately 7,800 residential units, with a mix of unit types, as well as supporting institutional, recreational, and non-residential uses. The supporting land-uses will help to create a complete community and help to internalize resident trips, rather than act as external trip generators.

**The Structure Plan**

4. The proposed road network for the community aims to leverage the existing arterial road network that borders the community, and proposes new collector roads internal to the site that will provide access to the boundary roads, and serve as public transit and active transit spines for the community.

5. The proposed collector road network for the community differs from the collector road network proposed for the community in the MMTMP. The differences are due to three main factors: (1) natural heritage challenges that make road links difficult or too impactful to construct in some locations; (2) a rationalization of access locations onto the existing boundary road network to allow for appropriate traffic signal spacing; and (3) avoiding a direct connection to Dixie Road to the west, as this would create the shortest travel distance from the planned employment lands west of the community, and allow for a condition where the community would be overrun with smaller delivery vehicles cutting through the community to access the highway.

6. The proposed collector road network was developed to meet the following objectives: (1) provide a high degree of permeability and connectivity both within the community and onto the surrounding arterial road network; (2) create the backbone of an extensive and safe cycling network linking the community; (3) provide suitable vehicular access onto the boundary street network; (4) provide suitable vehicular access onto the boundary street network; (5) allow for transit access into the community to supplement routes planned on the boundary roads; and (6) make use of modern roundabouts as key traffic calming and wayfinding elements within the community.

**Proposed Public Transit**

7. The MMTMP proposes Mayfield Road, Torbram Road, and Old School Road as fixed-route transit corridors. Use of these corridors alone will provide a high level of transit connectivity to the community on efficient linear routes, and there are additional opportunities for supplemental routes that operate on the internal collector road network to provide additional transit connectivity to residents.

**Proposed Active Transit Infrastructure**

8. All of the collector roads in the collector road network for the community will include multi-use paths on both sides of the roadway. The MMTMP has proposed several cycling infrastructure improvements within the vicinity of the site, which will help to provide external connectivity to the broader cycling network for community residents.

**Traffic Analysis – Traffic Volumes**

9. The work done for the OP and MMTMP included the projection of traffic volumes onto Caledon's existing arterial roads to the year 2051, assuming that Highway 413 is operational. The 2051 volumes were assigned to all movements on the boundary roads of the structure plan, and are considered to account for all future development traffic volumes in Caledon.

10. The community is expected to generate 4,050 and 5,025 two-way vehicle trips during the morning and afternoon peak hours, respectively. Site traffic has been assigned onto the area road network based on a review of travel information provided by the 2016 Transportation Tomorrow Survey (TTS).

**Traffic Analysis – Analysis**

11. Traffic analysis was undertaken using the methodologies and procedures outlined in the Highway Capacity Manual (HCM) and in the Region of Peel's Guidelines for Using Synchro Version 7.73 Rev 8 (dated December 2010).

12. Cycle lengths have been assigned to each of the site boundary corridors. Mayfield Road intersections have been assigned a cycle length of 200 seconds, Old School Road intersections have been assigned a cycle length of 100 seconds, Bramalea Road intersections have been assigned a cycle length of 60 seconds, and Tobram Road intersections have been assigned a cycle length of 100 seconds.

13. Any recommended intersection improvements should be further studied in conjunction with any studies that are undertaken for the widening of the boundary roads.

14. Under future total conditions, with the addition of 2051 TMP and site traffic volumes, the external site intersections will operate acceptably during both the morning and afternoon peak hours.

# Town of Caledon Secondary Plan Area F2

TOWN OF CALEDON
OFFICIAL PLAN

# Figure F2
## Preliminary Community Structure Plan


- Part IV Designated Heritage Properties
- Proposed Community Park
- Proposed District Park
- Existing Fire Station
- Proposed Fire Station
- Brampton-Caledon Airport
- Caledon GO Station
- Downtown Bolton
- Urban Centre
- Potential Urban Centre
- Neighbourhood Centre
- Active Transportation- Trail System
- Conceptual Collector Road
- Urban Corridor
- Knowledge and Innovation Corridor
- Primary Major Transit Station Area
- Existing Community Park
- Existing District Park
- New Community Area
- New Employment Area
- Greenbelt Plan Boundary
- Natural Features and Areas with 30m Buffer
- Supporting Features and Areas
- Permanent and Intermittent Streams
- Potential Linkage
- Potential Enhancement Area

Other Map Elements

- Preliminary Community Structure Plan Boundary
- Planned Highway 413 Transportation Corridor
- Planned Highway 413 and NWGTA Transmission Corridor Protection Area
- Refer to Part A, Section 1.2

Date of print: 1/28/2025
Sources: Town of Caledon, Regional Municipality of Peel
Contains information licensed under the Open Government Licence – Ontario

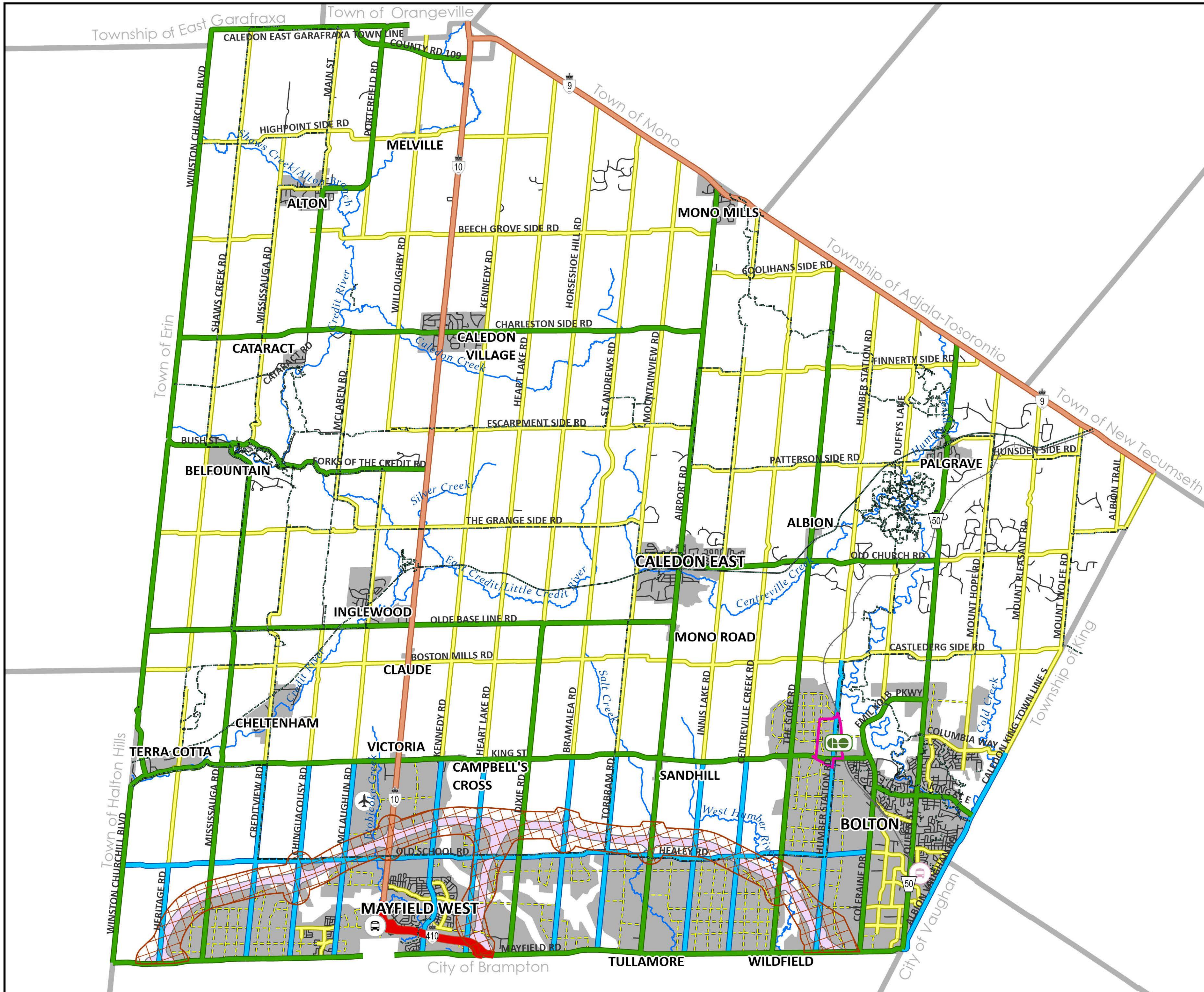
March 2024

This map forms part of the Future Caledon Official Plan of the Town of Caledon and must be read in conjunction with the text, other schedules and secondary plans. The boundaries/alignments of designations on this schedule are approximate and are not intended to be scaled.

Schedule A to BL-2024-014

# FUTURE
# CALEDON OFFICIAL PLAN

**March 2024**




TOWN OF CALEDON

# OFFICIAL PLAN

## Schedule C1

## Town-wide Transportation Network

- Primary Major Transit Station Area
- Planned Major Transit Station Area
- Potential Major Transit Station Area
- Future Caledon GO Station
- Brampton-Caledon Airport
- Provincial Freeway
- Provincial Highway
- Regional Arterial
- Town Arterial
- Collector Road
- Conceptual Collector Road
- Local Road
- Rail
- Active Transportation - Trail System
- Urban Area and Settlement Area
- Planned Highway 413 Transportation Corridor
- Planned Highway 413 and NWGTA Transmission Corridor Protection Area

0 1 2 3 4 5 km

March 2024

Date of print: 3/12/2024

Sources: Town of Caledon, Regional Municipality of Peel

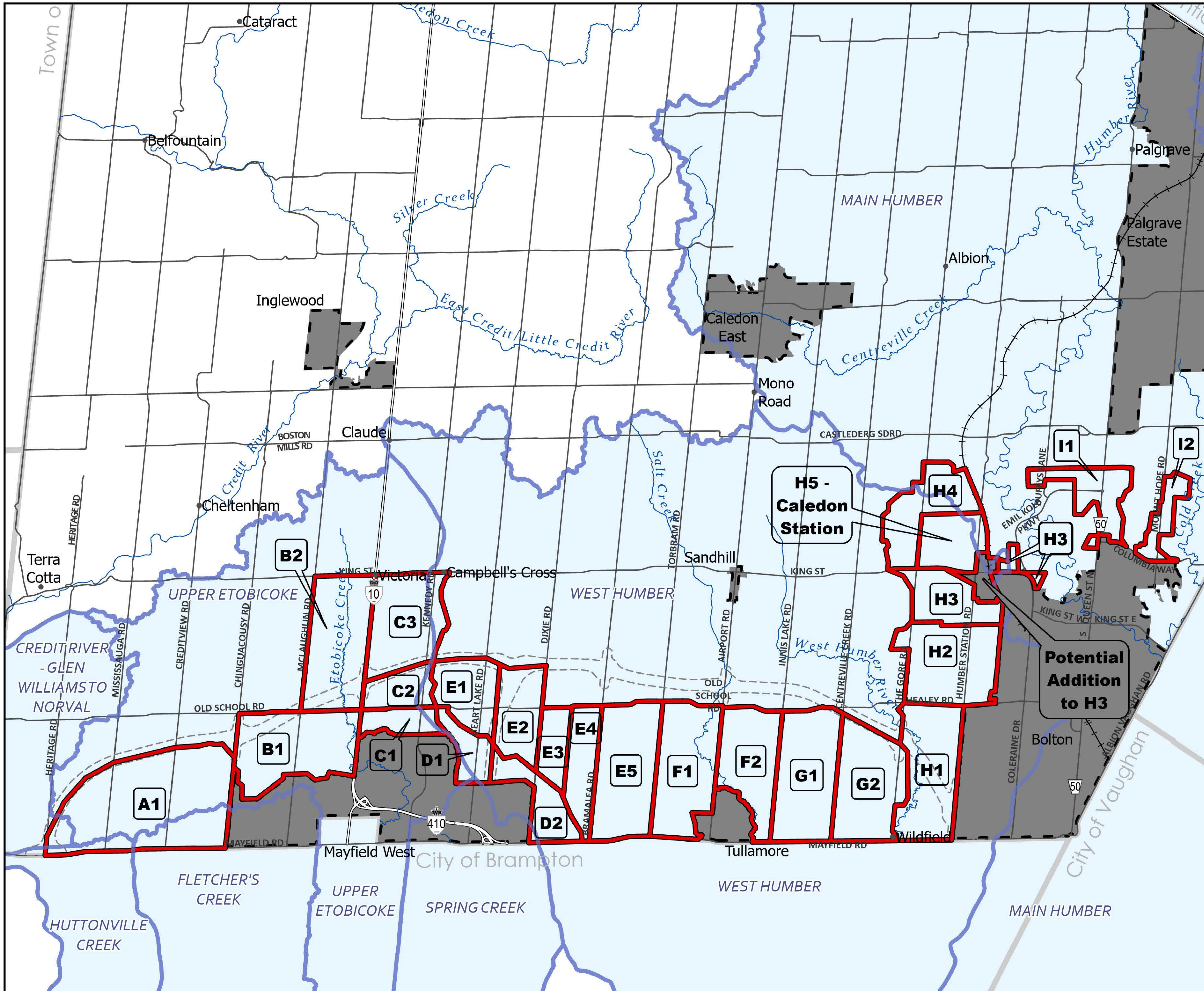
Contains information licensed under the Open Government Licence – Ontario

This map forms part of the Future Caledon Official Plan of the Town of Caledon and must be read in conjunction with the text, other schedules and secondary plans. The boundaries/alignments of designations on this schedule are approximate and are not intended to be scaled.

TOWN OF CALEDON
OFFICIAL PLAN

# Figure F3

## Secondary Planning Areas




Proposed Secondary Plan Boundary[1]
Subwatershed Boundary[2]
Existing Secondary Plan Boundary
Planned Highway 413 Transportation Corridor

Notes:

1. Secondary plan areas identified with the same letter label (e.g., B1 and B2) generally fall within the same surface water drainage catchment area of the applicable subwatershed.
2. The study area for a local subwatershed study to support a proposed secondary plan will be as described in this Plan, and defined in the applicable study terms of reference to the satisfaction of the Town.

0 1 2 3 4 5 km

March 2024

Date of print: 3/8/2024
Sources: Town of Caledon, Regional Municipality of Peel
Contains information licensed under the Open Government Licence – Ontario

This map forms part of the Future Caledon Official Plan of the Town of Caledon and must be read in conjunction with the text, other schedules and secondary plans. The boundaries/alignments of designations on this schedule are approximate and are not intended to be scaled.

# APPENDIX J:

## Warrants Assessment Reports

CROZIER

# TRAFFIC SIGNAL WARRANTS - JUSTIFICATION 7 (PROJECTED VOLUMES)
## PER OTM BOOK 12

**Project and Scenario Summary**

| | | | |
|---|---|---|---|
| **Project** | Tullamore North Employment Area | **Project Number** | 2278-7228 |
| | | **Date** | 2025-04-29 |
| **Horizon** | 2044 FT | **Analyst** | MY |

**Study Intersection Summary**

| | | | |
|---|---|---|---|
| **Major Street** | Airport Road | **Direction** | North/South |
| **Minor Street** | Perdue Court/Davis Lane | **Direction** | East/West |

**Intersection Details for Warrant Parameters**

| | | | |
|---|---|---|---|
| **Flow Conditions** | Free Flow (Rural) | **Number of Lanes** | 2+ |
| **T-Intersection?** | No | **Intersection Type** | Existing |

Notes: Free Flow (Rural) is used when the operating speed is greater than or equal to 70km/h. Restricted Flow (Urban) is used otherwise.
The Number of Lanes greater than 1 only needs to be for one direction along the major road.
An intersection is considered New if at least 1-leg is added to an existing intersection.

**Input Volumes and Average Hourly Volume Determination**

| **Peak Hour** | **Major: Airport Road** | | | | | | **Minor: Perdue Court/Davis Lane** | | | | | | **Pedestrians Crossing Major Street** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NBL | NBT | NBR | SBL | SBT | SBR | EBL | EBT | EBR | WBL | WBT | WBR | |
| AM | 70 | 733 | 32 | 4 | 946 | 3 | 2 | 0 | 28 | 21 | 0 | 3 | 0 |
| PM | 36 | 1114 | 49 | 20 | 876 | 9 | 6 | 0 | 61 | 80 | 0 | 8 | 0 |
| AHV | 27 | 462 | 20 | 6 | 456 | 3 | 2 | 0 | 22 | 25 | 0 | 3 | 0 |

The AHV is determined by the availability of the peak hour estimates. If both Peak 1 and Peak 2 Peak Hour Volume estimates are available then AHV = (Peak1phv + Peak2phv)/4. In only the case that one estimate is available then AHV = Peak1phv/2 **or** Peak2phv/2.

**Justification 7 - OTM Book 12**

| JUSTIFICATION | DESCRIPTION | MINIMUM REQUIREMENT 1 LANE HIGHWAYS | | MINIMUM REQUIREMENT 2 OR MORE LANE HIGHWAYS | | COMPLIANCE | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Sectional | | Entire Percentage |
| | | Free Flow | Restricted Flow | Free Flow | Restricted Flow | Numerical | Percentage | |
| 1. Minimum Vehicular Volume | A. Vehicle Volume, All Approaches (Avg. Hour) | 480 | 720 | 600 | 900 | 1026 | 171.0% | 43.3% |
| | B. Vehicle Volume, Along Minor Streets (Avg. Hour) | 120 | 170 | 120 | 170 | 52 | 43.3% | |
| 2. Delay to Cross Traffic | A. Vehicle Volume, Major Street (Avg. Hour) | 480 | 720 | 600 | 900 | 974 | 162.3% | 54.0% |
| | B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour) | 50 | 75 | 50 | 75 | 27 | 54.0% | |
| Applicable Threshold | | | | X | | | | |

Note: For T-intersections the thresholds for 1B have been increased by 50% per OTM Book 12.
Existing Intersections Require 120% Justification
New/Proposed Intersections Require 150% Justification

Percent Compliance: 54.0%
Percentage Required to be Justified: 120%

**Signal Justification 7 Met:** [ ] **Yes** [X] **No**

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# TRAFFIC SIGNAL WARRANTS - JUSTIFICATION 7 (PROJECTED VOLUMES)
## PER OTM BOOK 12

**Project and Scenario Summary**

| | | | |
|---|---|---|---|
| **Project** | Tullamore North Employment Area | **Project Number** | 2278-7228 |
| | | **Date** | 2025-04-29 |
| **Horizon** | 2044 FT | **Analyst** | MY |

**Study Intersection Summary**

| | | | |
|---|---|---|---|
| **Major Street** | Airport Road | **Direction** | North/South |
| **Minor Street** | Perdue Court/Davis Lane | **Direction** | East/West |

**Intersection Details for Warrant Parameters**

| | | | |
|---|---|---|---|
| **Flow Conditions** | Free Flow (Rural) | **Number of Lanes** | 2+ |
| **T-Intersection?** | No | **Intersection Type** | Existing |

Notes: Free Flow (Rural) is used when the operating speed is greater than or equal to 70km/h. Restricted Flow (Urban) is used otherwise.
The Number of Lanes greater than 1 only needs to be for one direction along the major road.
An intersection is considered New if at least 1-leg is added to an existing intersection.

**Input Volumes and Average Hourly Volume Determination**

| **Peak Hour** | **Major: Airport Road** | | | | | | **Minor: Perdue Court/Davis Lane** | | | | | | **Pedestrians Crossing Major Street** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NBL | NBT | NBR | SBL | SBT | SBR | EBL | EBT | EBR | WBL | WBT | WBR | |
| AM | 70 | 846 | 32 | 4 | 990 | 3 | 2 | 0 | 28 | 21 | 0 | 3 | 0 |
| PM | 36 | 1150 | 49 | 20 | 1037 | 9 | 6 | 0 | 61 | 80 | 0 | 8 | 0 |
| AHV | 27 | 499 | 20 | 6 | 507 | 3 | 2 | 0 | 22 | 25 | 0 | 3 | 0 |

The AHV is determined by the availability of the peak hour estimates. If both Peak 1 and Peak 2 Peak Hour Volume estimates are available then AHV = (Peak1phv + Peak2phv)/4. In only the case that one estimate is available then AHV = Peak1phv/2 **or** Peak2phv/2.

**Justification 7 - OTM Book 12**

| JUSTIFICATION | DESCRIPTION | MINIMUM REQUIREMENT 1 LANE HIGHWAYS | | MINIMUM REQUIREMENT 2 OR MORE LANE HIGHWAYS | | COMPLIANCE | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Sectional | | Entire Percentage |
| | | Free Flow | Restricted Flow | Free Flow | Restricted Flow | Numerical | Percentage | |
| 1. Minimum Vehicular Volume | A. Vehicle Volume, All Approaches (Avg. Hour) | 480 | 720 | 600 | 900 | 1114 | 185.7% | 43.3% |
| | B. Vehicle Volume, Along Minor Streets (Avg. Hour) | 120 | 170 | 120 | 170 | 52 | 43.3% | |
| 2. Delay to Cross Traffic | A. Vehicle Volume, Major Street (Avg. Hour) | 480 | 720 | 600 | 900 | 1062 | 177.0% | 54.0% |
| | B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour) | 50 | 75 | 50 | 75 | 27 | 54.0% | |
| Applicable Threshold | | | | X | | | | |

Note: For T-intersections the thresholds for 1B have been increased by 50% per OTM Book 12.
Existing Intersections Require 120% Justification
New/Proposed Intersections Require 150% Justification

Percent Compliance: 54.0%
Percentage Required to be Justified: 120%

**Signal Justification 7 Met:** [ ] Yes [X] No

# TRAFFIC SIGNAL WARRANTS - JUSTIFICATION 7 (PROJECTED VOLUMES)
## PER OTM BOOK 12

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**Project and Scenario Summary**

| | | | |
|---|---|---|---|
| **Project** | Tullamore North Employment Area | **Project Number** | 2278-7228 |
| | | **Date** | 2025-04-29 |
| **Horizon** | 2044 FT | **Analyst** | MY |

**Study Intersection Summary**

| | | | |
|---|---|---|---|
| **Major Street** | Torbram Road | **Direction** | North/South |
| **Minor Street** | Torbram Road Connection | **Direction** | East/West |

**Intersection Details for Warrant Parameters**

| | | | |
|---|---|---|---|
| **Flow Conditions** | Free Flow (Rural) | **Number of Lanes** | 2+ |
| **T-Intersection?** | Yes | **Intersection Type** | New |

Notes: Free Flow (Rural) is used when the operating speed is greater than or equal to 70km/h. Restricted Flow (Urban) is used otherwise.
The Number of Lanes greater than 1 only needs to be for one direction along the major road.
An intersection is considered New if at least 1-leg is added to an existing intersection.

**Input Volumes and Average Hourly Volume Determination**

| **Peak Hour** | **Major: Torbram Road** | | | | | | **Minor: Torbram Road Connection** | | | | | | **Pedestrians Crossing Major Street** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NBL | NBT | NBR | SBL | SBT | SBR | EBL | EBT | EBR | WBL | WBT | WBR | |
| AM | 0 | 174 | 103 | 117 | 552 | 0 | 0 | 0 | 0 | 25 | 0 | 16 | 0 |
| PM | 0 | 478 | 24 | 28 | 254 | 0 | 0 | 0 | 0 | 140 | 0 | 89 | 0 |
| AHV | 0 | 163 | 32 | 36 | 202 | 0 | 0 | 0 | 0 | 41 | 0 | 26 | 0 |

The AHV is determined by the availability of the peak hour estimates. If both Peak 1 and Peak 2 Peak Hour Volume estimates are available then AHV = (Peak1phv + Peak2phv)/4. In only the case that one estimate is available then AHV = Peak1phv/2 **or** Peak2phv/2.

**Justification 7 - OTM Book 12**

| JUSTIFICATION | DESCRIPTION | MINIMUM REQUIREMENT 1 LANE HIGHWAYS | | MINIMUM REQUIREMENT 2 OR MORE LANE HIGHWAYS | | COMPLIANCE | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Sectional | | Entire Percentage |
| | | Free Flow | Restricted Flow | Free Flow | Restricted Flow | Numerical | Percentage | |
| 1. Minimum Vehicular Volume | A. Vehicle Volume, All Approaches (Avg. Hour) | 480 | 720 | 600 | 900 | 500 | 83.3% | 37.2% |
| | B. Vehicle Volume, Along Minor Streets (Avg. Hour) | 180 | 255 | 180 | 255 | 67 | 37.2% | |
| 2. Delay to Cross Traffic | A. Vehicle Volume, Major Street (Avg. Hour) | 480 | 720 | 600 | 900 | 433 | 72.2% | 72.2% |
| | B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour) | 50 | 75 | 50 | 75 | 41 | 82.0% | |
| Applicable Threshold | | | | X | | | | |

Note: For T-intersections the thresholds for 1B have been increased by 50% per OTM Book 12.
Existing Intersections Require 120% Justification
New/Proposed Intersections Require 150% Justification

Percent Compliance: 72.2%
Percentage Required to be Justified: 150%

**Signal Justification 7 Met:** [ ] **Yes** [X] **No**

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# TRAFFIC SIGNAL WARRANTS - JUSTIFICATION 7 (PROJECTED VOLUMES)
## PER OTM BOOK 12

**Project and Scenario Summary**

| | | | |
|---|---|---|---|
| **Project** | Tullamore North Employment Area | **Project Number** | 2278-7228 |
| | | **Date** | 2025-04-29 |
| **Horizon** | 2044 FT | **Analyst** | MY |

**Study Intersection Summary**

| | | | |
|---|---|---|---|
| **Major Street** | Airport Road | **Direction** | North/South |
| **Minor Street** | Airport Road Connection | **Direction** | East/West |

**Intersection Details for Warrant Parameters**

| | | | |
|---|---|---|---|
| **Flow Conditions** | Free Flow (Rural) | **Number of Lanes** | 2+ |
| **T-Intersection?** | No | **Intersection Type** | New |

Notes: Free Flow (Rural) is used when the operating speed is greater than or equal to 70km/h. Restricted Flow (Urban) is used otherwise.
The Number of Lanes greater than 1 only needs to be for one direction along the major road.
An intersection is considered New if at least 1-leg is added to an existing intersection.

**Input Volumes and Average Hourly Volume Determination**

| **Peak Hour** | **Major: Airport Road** | | | | | | **Minor: Airport Road Connection** | | | | | | **Pedestrians Crossing Major Street** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NBL | NBT | NBR | SBL | SBT | SBR | EBL | EBT | EBR | WBL | WBT | WBR | |
| AM | 113 | 341 | 195 | 507 | 730 | 322 | 120 | 0 | 44 | 75 | 0 | 164 | 0 |
| PM | 36 | 802 | 70 | 166 | 449 | 113 | 329 | 0 | 161 | 203 | 0 | 483 | 0 |
| AHV | 37 | 286 | 66 | 168 | 295 | 109 | 112 | 0 | 51 | 70 | 0 | 162 | 0 |

The AHV is determined by the availability of the peak hour estimates. If both Peak 1 and Peak 2 Peak Hour Volume estimates are available then AHV = (Peak1phv + Peak2phv)/4. In only the case that one estimate is available then AHV = Peak1phv/2 **or** Peak2phv/2.

**Justification 7 - OTM Book 12**

| JUSTIFICATION | DESCRIPTION | MINIMUM REQUIREMENT 1 LANE HIGHWAYS | | MINIMUM REQUIREMENT 2 OR MORE LANE HIGHWAYS | | COMPLIANCE | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Sectional | | Entire Percentage |
| | | Free Flow | Restricted Flow | Free Flow | Restricted Flow | Numerical | Percentage | |
| 1. Minimum Vehicular Volume | A. Vehicle Volume, All Approaches (Avg. Hour) | 480 | 720 | 600 | 900 | 1356 | 226.0% | 226.0% |
| | B. Vehicle Volume, Along Minor Streets (Avg. Hour) | 120 | 170 | 120 | 170 | 395 | 329.2% | |
| 2. Delay to Cross Traffic | A. Vehicle Volume, Major Street (Avg. Hour) | 480 | 720 | 600 | 900 | 961 | 160.2% | 160.2% |
| | B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour) | 50 | 75 | 50 | 75 | 182 | 364.0% | |
| Applicable Threshold | | | | X | | | | |

Note: For T-intersections the thresholds for 1B have been increased by 50% per OTM Book 12.
Existing Intersections Require 120% Justification
New/Proposed Intersections Require 150% Justification

Percent Compliance: 226.0%
Percentage Required to be Justified: 150%

**Signal Justification 7 Met:** [X] **Yes** [ ] **No**

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# TRAFFIC SIGNAL WARRANTS - JUSTIFICATION 7 (PROJECTED VOLUMES)
## PER OTM BOOK 12

**Project and Scenario Summary**

| | | | |
|---|---|---|---|
| **Project** | Tullamore North Employment Area | **Project Number** | 2278-7228 |
| | | **Date** | 2025-04-29 |
| **Horizon** | 2044 FT | **Analyst** | MY |

**Study Intersection Summary**

| | | | |
|---|---|---|---|
| **Major Street** | Old School Road | **Direction** | East/West |
| **Minor Street** | Old School Road Connection | **Direction** | North/South |

**Intersection Details for Warrant Parameters**

| | | | |
|---|---|---|---|
| **Flow Conditions** | Free Flow (Rural) | **Number of Lanes** | 2+ |
| **T-Intersection?** | Yes | **Intersection Type** | New |

Notes: Free Flow (Rural) is used when the operating speed is greater than or equal to 70km/h. Restricted Flow (Urban) is used otherwise.
The Number of Lanes greater than 1 only needs to be for one direction along the major road.
An intersection is considered New if at least 1-leg is added to an existing intersection.

**Input Volumes and Average Hourly Volume Determination**

| **Peak Hour** | **Major: Old School Road** | | | | | | **Minor: Old School Road Connection** | | | | | | **Pedestrians Crossing Major Street** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | |
| AM | 0 | 381 | 88 | 231 | 173 | 0 | 12 | 0 | 40 | 0 | 0 | 0 | 0 |
| PM | 0 | 318 | 21 | 54 | 501 | 0 | 67 | 0 | 221 | 0 | 0 | 0 | 0 |
| AHV | 0 | 175 | 27 | 71 | 169 | 0 | 20 | 0 | 65 | 0 | 0 | 0 | 0 |

The AHV is determined by the availability of the peak hour estimates. If both Peak 1 and Peak 2 Peak Hour Volume estimates are available then AHV = (Peak1phv + Peak2phv)/4. In only the case that one estimate is available then AHV = Peak1phv/2 **or** Peak2phv/2.

**Justification 7 - OTM Book 12**

| JUSTIFICATION | DESCRIPTION | MINIMUM REQUIREMENT 1 LANE HIGHWAYS | | MINIMUM REQUIREMENT 2 OR MORE LANE HIGHWAYS | | COMPLIANCE | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Sectional | | Entire Percentage |
| | | Free Flow | Restricted Flow | Free Flow | Restricted Flow | Numerical | Percentage | |
| 1. Minimum Vehicular Volume | A. Vehicle Volume, All Approaches (Avg. Hour) | 480 | 720 | 600 | 900 | 527 | 87.8% | 47.2% |
| | B. Vehicle Volume, Along Minor Streets (Avg. Hour) | 180 | 255 | 180 | 255 | 85 | 47.2% | |
| 2. Delay to Cross Traffic | A. Vehicle Volume, Major Street (Avg. Hour) | 480 | 720 | 600 | 900 | 442 | 73.7% | 40.0% |
| | B. Combined Vehicle and Pedestrian Volume Crossing Artery From Minor Streets (Avg. Hour) | 50 | 75 | 50 | 75 | 20 | 40.0% | |
| Applicable Threshold | | | | X | | | | |

Note: For T-intersections the thresholds for 1B have been increased by 50% per OTM Book 12.
Existing Intersections Require 120% Justification
New/Proposed Intersections Require 150% Justification

Percent Compliance: 47.2%
Percentage Required to be Justified: 150%

**Signal Justification 7 Met:** [ ] **Yes** [X] **No**