# MAYFIELD GOLF COURSE AND SOUTH LANDS

Town of Caledon
Transportation Impact Study

Prepared For: Mayfield Golf Course Inc. and Tullamore Industrial GP Limited PIN 143470069

October 2024

BA Group

45 St. Clair Avenue West, Suite 300
Toronto, ON M4V 1K9
www.bagroup.com

## TABLE OF CONTENTS

## LIST OF TABLES



## LIST OF FIGURES

## TABLE OF APPENDICES

# 1.0 INTRODUCTION

## 1.1 Overview

BA Group is retained by Mayfield Golf Course Inc. and Tullamore Industrial GP Limited PIN 143470069 to provide transportation consulting services in relation to the proposed residential subdivision located at 12580 & 12552 Torbram Road in the Town of Caledon. A Draft Plan of Subdivision application is being made to the Town for the proposed development.

This report is being submitted in support of the proposed development and provides an assessment of the potential transportation impacts of the development proposal.

## 1.2 The Site

The site comprises two parcels of land, located on the west side of Torbram Road, approximately midblock between Mayfield Road and Old School Road.

The north parcel (the "Mayfield Golf Course lands") is currently occupied by the Mayfield Golf Club and a detached dwelling fronting Torbram Road. The Mayfield Golf Course lands are serviced by a total of two existing driveways to Torbram Road, including one to the dwelling and one to the clubhouse and associated parking.

The south parcel (the "South lands") is occupied by a rural lot, and is serviced by a single driveway to Torbram Road.

Note that there is a Greenbelt area on a portion of the lands of this proposed development (which will continue to be protected) and therefore the relevant policies and designations have been considered. The site location is shown in **Figure 1**.

## 1.3 Background

### 1.3.1 Mayfield-Tullamore Community

Mayfield-Tullamore is a proposed new greenfield community in Caledon, generally extending between Mayfield Road to the south and Old School Road in the north, and between Torbram Road in the east and midblock between Bramalea Road and Dixie Road in the west. The proposed community will comprise in the order of 7,800 residential units, as well as supporting institutional, recreational and non-residential uses.

The application is currently under review by the Town and other reviewing agencies. The proposed Structure Plan (the "Mayfield-Tullamore Structure Plan") is shown in **Figure 2**.

The application was accompanied by a Transportation Study prepared by BA Group, dated August 30, 2024 (the "Mayfield-Tullamore TIS") and included review of transportation considerations such as the proposed collector road network alignment, conceptual transit stop locations, proposed cycling network, road cross sections, traffic volume projections, operations analysis, and typical roundabout designs.

The site is located on the east side of the Mayfield-Tullamore Structure Plan, midblock between Mayfield Road and Old School Road. The transportation considerations of relevance to the site are summarized below:

- A collector road is proposed to extend through the site (identified as "Street D" on the Mayfield-Tullamore Structure Plan, however referred to as "Street A" on the concept plan prepared for the site and for the purpose of this report), summarized as follows:
    - Extends from Torbram Road to the site's west boundary.
    - At the west boundary of the site, subsequent collector road access will be available through other lands to Old School Road to the north.
    - The Mayfield-Tullamore TIS assumes a signal at the intersection with Torbram Road as part of the analysis undertaken.

- The Mayfield-Tullamore Structure Plan identifies a roundabout adjacent the west boundary of the site.

- A conceptual transit stop is identified in the Mayfield-Tullamore TIS adjacent the Torbram Road/Street A intersection
- A cycling network is proposed in the Mayfield-Tullamore TIS along Street A through the site
- Proposed cross sections are provided in the Mayfield-Tullamore TIS for Local and Collector roads. Cross sections include allowances for on-street parking and active transportation infrastructure (sidewalks, multi-use paths or cycle tracks).
- Operations analysis was undertaken for a 2051 horizon in the Mayfield-Tullamore TIS, which concludes that intersections within the study area will operate within capacity, subject to some assumed improvements where noted, including adjusted cycle lengths, auxiliary turn lanes, dual turn lanes, and future road widenings.

### 1.3.2 Town of Caledon By-law 2024-056

Town of Caledon By-law 2024-056 to amend Town of Caledon Comprehensive Zoning By-law 2006-50 with respect to the site was adopted by Council on July 23, 2024 to rezone the lands to provide a range of housing and land uses. Relevant to transportation, By-law 2024-056 includes requirements pertaining to car parking dimensions and car parking supply.

## 1.4 The Proposed Development

The proposed development contemplates the construction of a residential subdivision comprising a total of 442 residential units plus in the order of 655 residential units estimated within mixed use blocks, commercial, an elementary school and a firehall. The development statistics are summarized in **Table 1**.

Table 1 Proposed Development Statistics

| | Mayfield Golf Course lands | South lands | Total |
|---|---|---|---|
| Detached Dwellings | 231 units | 10 units | 241 units |
| Street and Lane Townhouses | 201 units | - | 201 units |
| Stacked Townhouses (medium density blocks)[1a] | 225 units | 430 units | 655 units |
| **Total Residential** | **657 units** | **440 units** | **1,097 units** |
| Commercial[1b] | 1,900 $m^2$ (20,451 $ft^2$) | - | 1,900 $m^2$ (20,451 $ft^2$) |
| Elementary School[1c] | 500 students | - | 500 students |
| Firehall[1d] | 1,900 $m^2$ (20,451 $ft^2$) | - | 1,900 $m^2$ (20,451 $ft^2$) |

Notes:

1. BA Group have been advised the following assumptions by MGP:
    a. 655 stacked townhouses within medium density blocks based on density of 176 units per hectare
    b. 1,900 $m^2$ (20,451 $ft^2$) commercial based on 40% coverage
    c. 500 students elementary school based on Peel District School Board DC Background Study
    d. 1,900 $m^2$ (20,451 $ft^2$) firehall based on 25% coverage

An internal public road network is proposed to service the subdivision, with the following road types proposed within the site, in accordance with cross sections in the Mayfield-Tullamore TIS and Town of Caledon standard road cross sections:

- Laneway – 8 metre right of way, comprising a 6 metre wide roadway, as per Town of Caledon Standard No. 200
- Local Road – 18 metre right of way, comprising a 7.5 metre wide roadway and a 1.5 metre wide sidewalk on both sides, as per the Mayfield-Tullamore TIS cross sections. On-street parking is permitted on one side.
- Local Road Window Street – 16 metre right of way, comprising a 7.5 metre wide roadway and a 1.5 metre wide sidewalk on one side. This cross section is based on the abovementioned Mayfield-Tullamore TIS Local Road cross section, but modified to satisfy the intent of the Town of Caledon Local Window Street, Standard No. 201 (i.e. 2 metres removed from the park side). On-street parking is permitted on one side.
- Collector Road – 22 metre right of way, comprising a 8.5 metre wide roadway and a 4 metre wide multi-use path on both sides, as per the Mayfield-Tullamore TIS cross sections. On-street parking is permitted on one side.

Temporary cul-de-sacs are also proposed in accordance with Town of Caledon Standard No. 217 at the north end of the site and at the north end of the South lands, to allow for potential future connections in these locations.

Vehicle access to the Mayfield Golf Course lands is proposed at two locations as follows:

- A new unsignalized intersection at Torbram Road / Street A / Tullamore Street C (aligned with the proposed Street C for the proposed Tullamore industrial development on the east side of Torbram Road). A northbound left turn lane is proposed on Torbram Road to facilitate left turn movements into the Mayfield Golf Course lands, and separate left and right turn lanes are proposed for vehicles exiting the site.
- A new unsignalized intersection at Torbram Road / Street O. A northbound left turn lane is proposed on Torbram Road to facilitate left turn movements into the Mayfield Golf Course lands.

Vehicle access to the South lands is also proposed via a new unsignalized intersection at Torbram Road / Street B. A northbound left turn lane is proposed on Torbram Road to facilitate left turn movements into the South lands.

Street A protects for a potential future signal at this location following further development within the Mayfield-Tullamore community.

In addition to the abovementioned connections to Torbram Road, access will ultimately be available via future development lands within the Mayfield-Tullamore community to the north and west.

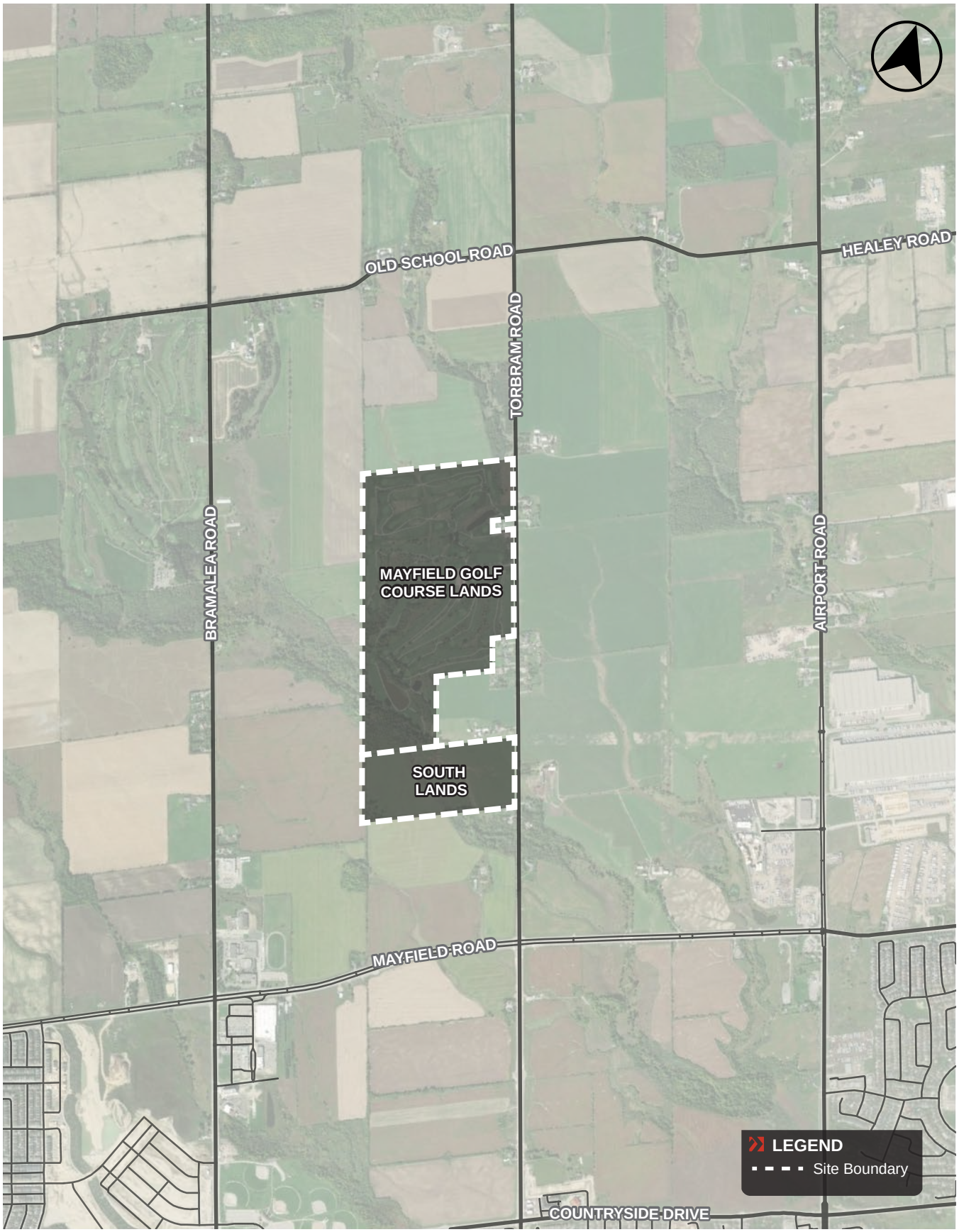
The internal intersections are expected to operate under two-way or all-way 'Stop' control. Vehicle access to individual lots is proposed via the abovementioned internal road network.

In addition to the abovementioned land uses and internal road network, the development will comprise features such as parks, storm water facilities, natural heritage systems.

It is noted that the Mayfield Golf Course and South lands are separated by a third parcel of land which does not form part of this current application (herein referred to as the central lands). As a result of the central lands, the Mayfield Golf Course and South lands road networks are not connected and are accessed separately under this application.

For the purpose of traffic sensitivity analysis, BA Group have been advised an estimate by MGP for in the order of 181 additional residential units, including 96 detached dwellings and 85 street townhouses for the central lands. The road networks between the Mayfield Golf Course and South lands are assumed to be connected.

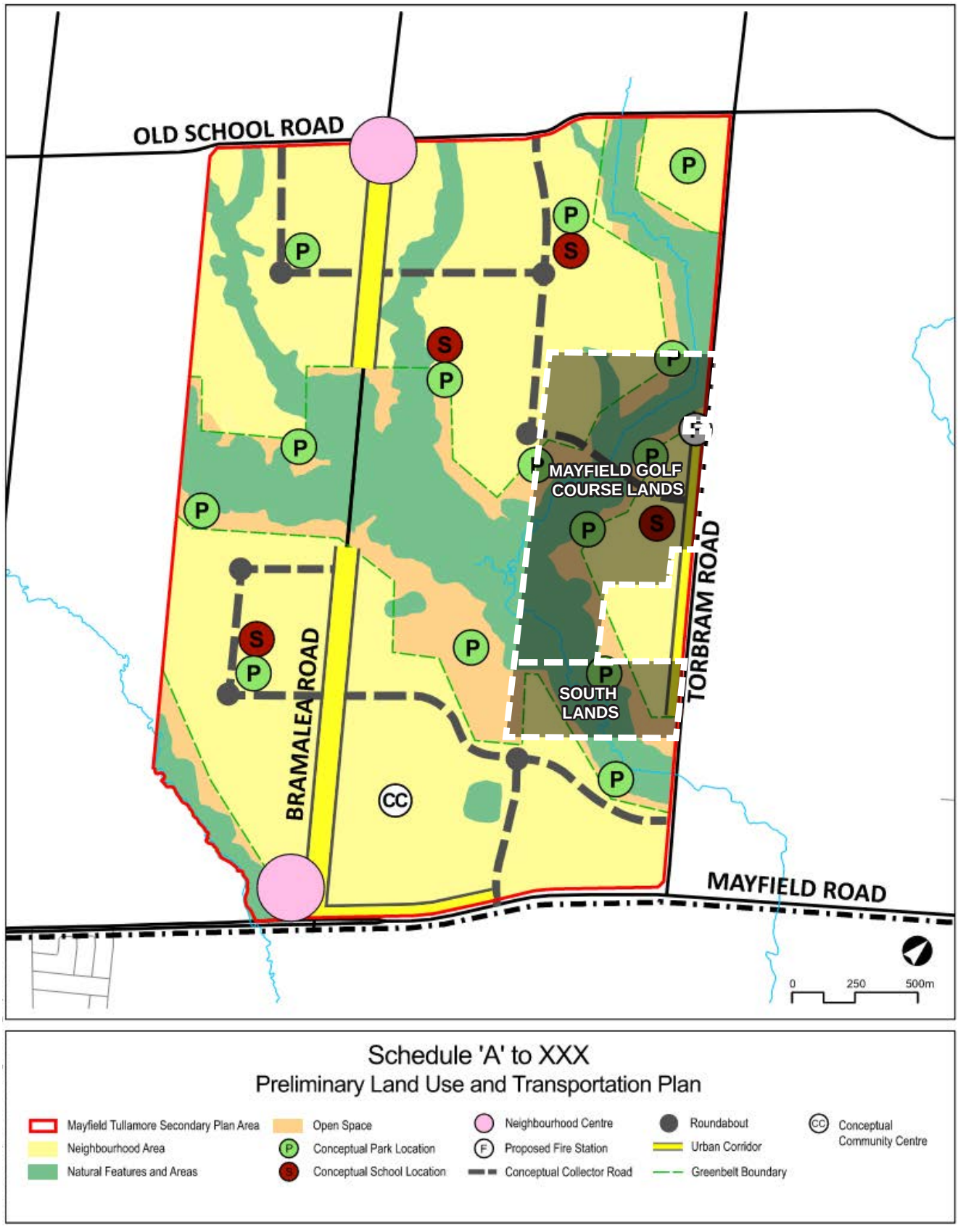
The concept plan is shown in **Figure 3** and is attached in **Appendix A** (not to scale). A preliminary concept road plan is attached in **Appendix B**, including cross sections.




P:\68\60431\Graphics\AdobeIDs\6860-43 - Figures for Report_September 2024.indd

Aerial maps provided courtesy of: Esri, DigitalGlobe, GeoEye, Earthstar Geographies, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, the GIS User Community and/or Google Earth/Maps.

**FIGURE 1 SITE LOCATION**




P:\68\60\43\Graphics\AdobeIDs\6860-43 - Figures for Report_September 2024.indd

Aerial maps provided courtesy of: Esri, DigitalGlobe, GeoEye, Earthstar Geographies, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, the GIS User Community and/or Google Earth/Maps.

**FIGURE 2 MAYFIELD-TULLAMORE STRUCTURE PLAN**


\\bamediaaccount.file.core.windows.net\fp02data\WP\6860\43\Graphics\AdobeIDs\6860-43 - Figures for Report_September 2024.indd

Aerial maps provided courtesy of: Esri, DigitalGlobe, GeoEye, Earthstar Geographies, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, the GIS User Community and/or Google Earth/Maps.

**FIGURE 3 CONCEPT PLAN**

# 2.0 BACKGROUND

## 2.1 Planning Policies

### 2.1.1 Town of Caledon Official Plan

The Town of Caledon Official Plan (herein referred to as the Caledon OP) sets out principles, goals, objectives and policies to guide future land use, development and change within the Town. The Caledon OP includes guidance on some transportation related infrastructure, notably road network, road classifications, and road right of way widths.

On March 26, 2024, the Town of Caledon adopted a new Official Plan which will guide Caledon's growth and development to the year 2051 and is currently awaiting approval from the Ministry of Municipal Affairs and Housing (herein referred to as the New Caledon OP).

### 2.1.2 Town of Caledon Multi-Modal Transportation Master Plan

The Town of Caledon Multi-Modal Transportation Master Plan (herein referred to as the Caledon MMTMP) was adopted by the Town of Caledon on June 25, 2024. The Caledon MMTMP is a long-term vision for Caledon's transportation network to the year 2051.

In addition to the guidance on transportation related infrastructure provided in the Caledon OP, the Caledon MMTMP provides a more detailed review of the transportation specific infrastructure, and includes (but is not limited to) high level traffic forecasts, recommended active transportation networks, and road classification criteria within the Town.

### 2.1.3 Region of Peel Official Plan

The Region of Peel Official Plan (herein referred to as the Peel OP) is a comprehensive document which contains goals, objectives, policies, schedules and figures to set a framework for land use decision-making and detailed planning and provision of municipal services within the Region. The Peel OP includes guidance on some transportation related infrastructure, notably the Regional road network, Regional road right of way widths, and rapid transit corridors.

The Peel OP was recently adopted by Council on April 28, 2022 and was approved by the Minister of Municipal Affairs and Housing on November 4, 2022.

### 2.1.4 Region of Peel Long Range Transportation Plan

The Region of Peel Long Range Transportation Plan, dated 2019 (herein referred to as the Peel LRTP), is a five-year plan based on a 2041 horizon that guides transportation planning needs in the Region of Peel.

In addition to the guidance on transportation related infrastructure provided in the Peel OP, the Peel LRTP provides a more detailed review of the transportation specific infrastructure, and includes (but is not limited to) recommended active transportation and transit networks, and road widenings and number of traffic lanes on roads within the Region.

# 3.0 TRANSPORTATION CONTEXT

## 3.1 Area Road Network

### 3.1.1 Overview

The existing area road network in the vicinity of the site is described below and is illustrated in **Figure 4**.

### 3.1.2 Torbram Road

In the vicinity of the site, Torbram Road is currently defined by the Caledon OP as a Collector Road operated by the Town of Caledon. In the New Caledon OP, Torbram Road in the vicinity of the site is proposed as an Arterial Road operated by the Town of Caledon.

Torbram Road extends generally in a north-south direction from Olde Base Line Road in Caledon to Derry Road in Mississauga, including along the site's eastern boundary. Adjacent the site, Torbram Road operates with a single traffic lane in each direction and a posted speed limit 70 kilometres per hour.

The Caledon MMTMP identifies Torbram Road as a future urbanized four lane cross section by 2031.

### 3.1.3 Mayfield Road

Mayfield Road is an Arterial Road operated by the Region of Peel, which extends generally in an east-west direction along the south boundary of Caledon from Highway 50 to Winston Churchill Boulevard. East of Highway 50, Mayfield Road continues into Vaughan as Albion-Vaughan Road and west of Winston Churchill Boulevard, Mayfield Road continues into Halton Hills as Side Road 17.

In the vicinity of Torbram Road, Mayfield Road was recently widened to three traffic lanes in each direction, separated by a central median, with localized widening at Torbram Road allowing for the provision of left and right turn lanes. A posted speed limit of 80 kilometres per hour applies at Torbram Road.

A shared pathway is provided along the south side of Mayfield Road adjacent Torbram Road.

### 3.1.4 Old School Road

Old School Road is currently defined by the Caledon OP as a Collector Road operated by the Town of Caledon. In the New Caledon OP, Old School Road is proposed as an Arterial Road operated by the Town of Caledon.

Old School Road extends generally in an east-west direction from Airport Road to Winston Churchill Boulevard. West of Winston Churchill Boulevard, Old School Road continues into Halton Hills as Side Road 22.

In the vicinity of Torbram Road, Old School Road operates with a single traffic lane in each direction and a posted speed limit of 70 kilometres per hour.

The Caledon MMTMP identifies Old School Road as a future urbanized four lane cross section by 2041.

## 3.2 Future Road Projects

### 3.2.1 Highway 413 (GTA West Transportation Corridor)

Highway 413 (GTA West Transportation Corridor) is a proposed highway and transit corridor running through York, Peel and Halton Regions.

The proposed 52 kilometre highway is proposed to extend generally in an east-west direction from Highway 400 between Kirby Road and King-Vaughan Road in Vaughan to the area of the Highway 401 / Highway 407 interchange in Halton Hills. The Highway will also connect to Highway 410, Highway 427 and Highway 27.

Relevant to the site, interchanges are proposed in proximity to the site on Airport Road and Bramalea Road, just north of Old School Road.

The Highway 413 Project is following Ontario's process for Individual Environmental Assessment under the Environmental Assessment Act.

The preferred route for the Highway 413 project is shown in **Figure 5**.

## 3.3 Area Transit Network

There are no transit services in the immediate vicinity of the site, with the nearest transit services operating in Brampton approximately 2.5 kilometres to the south of the site.

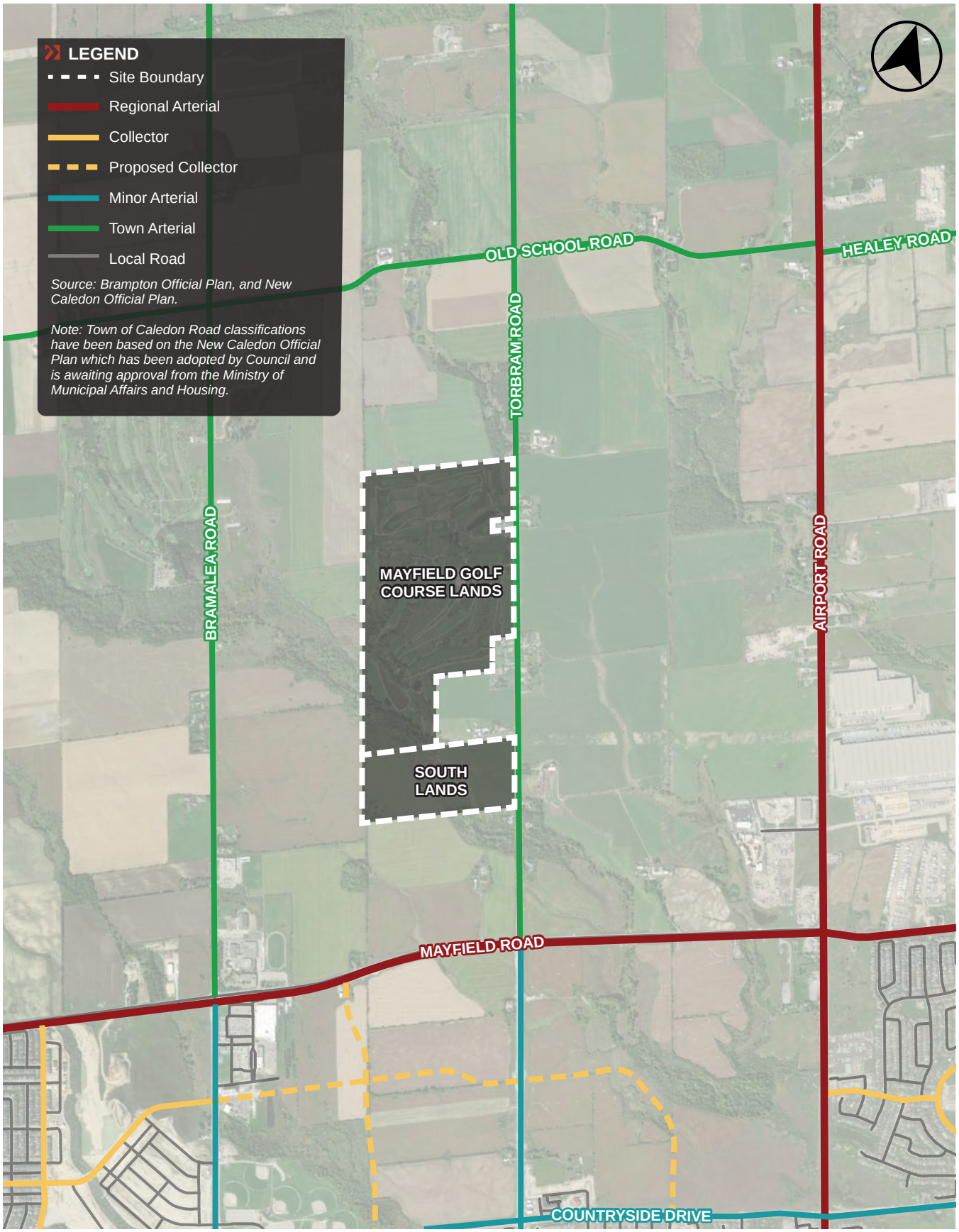
The Caledon MMTMP identifies Torbram Road, Mayfield Road and Old School Road for local transit service in the future.

## 3.4 Active Transportation Network

Existing active transportation infrastructure in the area includes a mixed use path on the south side of Mayfield Road, and signed bicycle routes along Old School Road and Torbram Road north of Old School Road.

In addition to the existing infrastructure, the Caledon MMTMP specifically identifies Torbram Road and Old School Road for a separated cycling facility in the future.

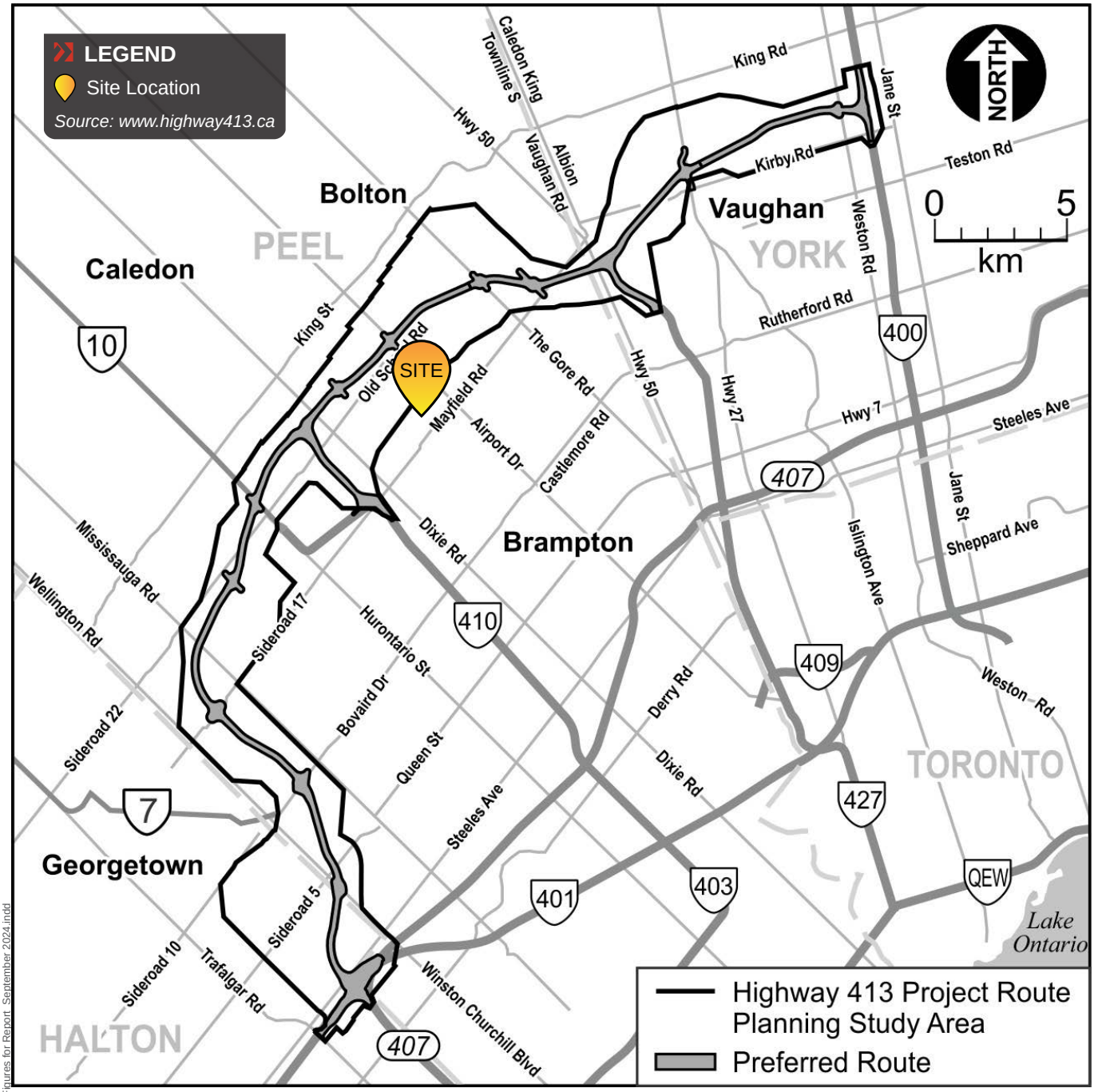
The active transportation network is shown in **Figure 6**.




P:\68\60\43\Graphics\AdobeIDs\6860-43 - Figures for Report_September 2024.indd

Aerial maps provided courtesy of: Esri, DigitalGlobe, GeoEye, Earthstar Geographies, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, the GIS User Community and/or Google Earth/Maps.

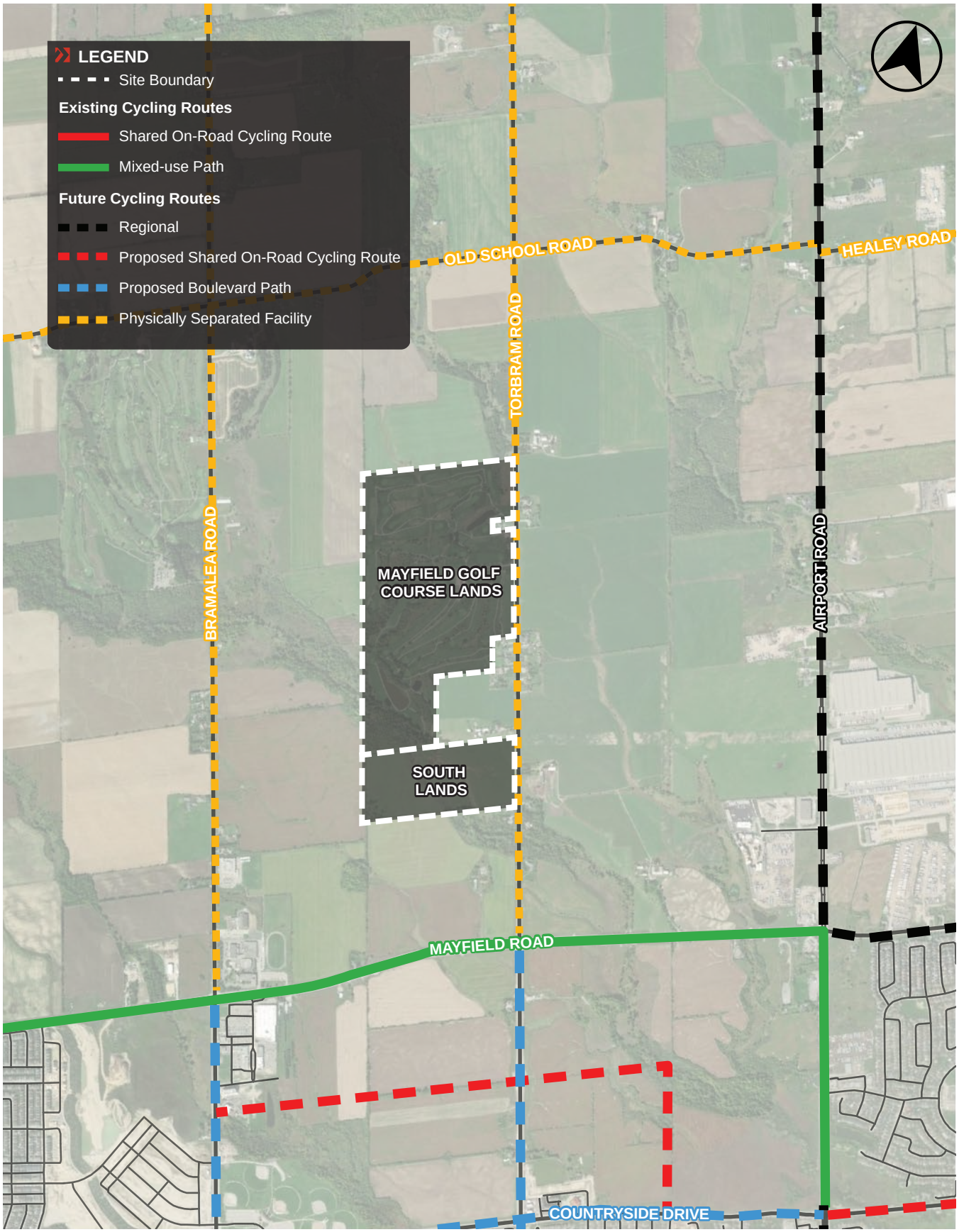
**FIGURE 4 AREA ROAD NETWORK**




P:\68\60443\Graphics\AdobeIDs\6860-43 - Figures for Report_September 2024.indd

Aerial maps provided courtesy of: Esri, DigitalGlobe, GeoEye, Earthstar Geographies, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, the GIS User Community and/or Google Earth/Maps.

**FIGURE 5 HIGHWAY 413 (GTA WEST TRANSPORTATION CORRIDOR) PREFERRED ROUTE**




P:\68\60\43\Graphics\AdobeIDs\6860-43 - Figures for Report_September 2024.indd

Aerial maps provided courtesy of: Esri, DigitalGlobe, GeoEye, Earthstar Geographies, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, the GIS User Community and/or Google Earth/Maps.

**FIGURE 6 AREA ACTIVE TRANSPORTATION NETWORK**

# 4.0 TRAFFIC VOLUME PROJECTIONS

## 4.1 Scope

For the purpose of analysis, a 5-year build-out timeframe (i.e. 2029) has been assumed, and analysis has been undertaken for a 10-year horizon representing opening date plus 5 years (i.e. 2034).

In addition, analysis has been undertaken both with and without the Highway 413 Project.

Accordingly, analysis has been completed for the following scenarios during the AM and PM peak hour:

- Existing Conditions
- Future Background Conditions (2034) – with Highway 413
- Future Background Conditions (2034) – without Highway 413
- Future Total Conditions (2034) – with Highway 413
- Future Total Conditions (2034) – without Highway 413

Intersections included within the analysis study area are listed below:

- Torbram Road / Mayfield Road;
- Torbram Road / Old School Road; and
- Torbram Road / Site Driveway

Existing lane configurations are shown in **Figure 7** and future lane configurations are shown in **Figure 8**. It's noted that the Caledon MMTMP identifies Torbram Road to be widened to four lanes by 2031. However, analysis has conservatively been undertaken on the basis of the existing two lane configuration on Torbram Road. In the event that Torbram Road is widened to four lanes by 2031, this would provide additional capacity beyond the existing configuration which has been assessed within this study.

## 4.2 Existing Traffic Volumes

Existing peak hour traffic volumes have been established based on traffic counts undertaken by Spectrum Traffic Data on behalf of BA Group in June, 2022. The intersections which were counted are summarized in **Table 2**. The existing baseline area traffic volumes for the AM and PM peak hours are provided in **Figure 9**, and the raw data is attached in **Appendix C**.

Table 2 Existing Traffic Data Sources

| Intersection | Count Date | Count Times | Source |
|---|---|---|---|
| Torbram Rd / Old School Rd | Tuesday, June 28, 2022 | 7:00am-7:00pm | Spectrum Traffic Data |
| Torbram Rd / Mayfield Rd | | 7:00am-9:00am<br>4:00pm-6:00pm | |
| Torbram Rd / Golf Club Main Driveway | | | |
| Torbram Rd / Golf Club Maintenance Driveway | | | |

## 4.3 Future Background Traffic Volumes

### 4.3.1 Background Development Growth

A series of background development traffic allowances were made for specific proposed developments in the area, based on information available within the Town of Caledon and City of Brampton development application maps.

A summary of the background developments considered are outlined in **Table 3**. Where a transportation study was not available, trip generation and distribution assumptions were manually applied to the proposed development statistics in order to derive estimated traffic volumes. Overall, the background developments represent in the order of 8,400 residential units and 1.1 million square metres of non-residential. Background development traffic volumes are shown in **Figure 10** and **Figure 11** for the scenarios with and without Highway 413 respectively.

Table 3 Area Background Development

| Site | Development Statistics | Study |
|---|---|---|
| 12245 Torbram Road | 458,475 $m^2$ industrial | April 2023 TIS prepared by Crozier |
| 12101 Airport Road | 44,535 $m^2$ industrial | July 2021 TIS prepared by WSP |
| Block 48-1 (Countryside Villages) | 2,647 residential units, 11,295 $m^2$ retail GFA, 4 Schools | January 2012 TIS prepared by MMM (WSP) |
| Block 48-2 (Countryside Villages) | 3,391 residential units, 143,000 $m^2$ commercial GFA, 5 schools, 2 places of worship | May 2017 TIS prepared by Cole Engineering |
| 12035 Dixie Road | 200,293 $m^2$ industrial | March 2021 TIS prepared by LEA |
| 12862 Dixie Road | 247,243 $m^2$ industrial | February 2021 TIS prepared by LEA |
| Snell's Hollow | 1,087 residential units<br>14,700 $m^2$ commercial | April 2021 TIS prepared by Nextrans |
| Mayfield West Phase 1 – Stage 1 | 1,282 residential units | August 2023 TIS prepared by BA Group |
| **Total (Rounded)** | **8,407 residential units**<br>**1,097,541 $m^2$ non-residential** | |

### 4.3.2 Corridor Growth

Given the recent widening to Mayfield Road, historical data at the Torbram Road / Mayfield Road intersection does not provide sufficient insight on future growth in this location, while at Old School Road the availability of historical data was limited. Therefore, for the purpose of analysis, the corridor growth rates outlined in **Table 4** have been adopted, which are generally consistent with other traffic studies completed in the area. It's noted that the 5% growth rate along Mayfield Road is not expected to be sustained over the long-term, however for the purpose of this analysis, has been conservatively assumed for the full 10-year horizon.

Corridor growth traffic are shown in **Figure 12**.

Table 4 Adopted Corridor Growth Rates

| Road | AM & PM Growth Rate |
|---|---|
| Mayfield Road – Both Directions | 5% |
| Old School Road – Both Directions | 2% |
| Torbram Road – Both Directions | 1% |

### 4.3.3 Future Background Traffic Volumes

The future background traffic volumes are determined by adding existing traffic volumes, background development traffic volumes and corridor growth traffic volumes.

Future background traffic volumes for the scenarios with and without Highway 413 are shown in **Figure 13** and **Figure 14** respectively.

## 4.4 Site Traffic Forecasts

### 4.4.1 Existing Site Traffic Volumes

Existing traffic volumes associated with the site are shown on **Figure 15**, and are assumed to be removed from the network with the development of the site.

### 4.4.2 Vehicle Trip Generation Rates

Vehicle trip generation rates were adopted based on the ITE Trip Generation Manual 11th Edition, as outlined in **Table 5**.

Table 5 Adopted Vehicle Trip Generation Rates

| Land Use | Trip Rate Source | Vehicle Trip Generation Rate | | | | | |
|---|---|---|---|---|---|---|---|
| | | AM Peak Hour | | | PM Peak Hour | | |
| | | In | Out | 2-Way | In | Out | 2-Way |
| Detached Dwelling | ITE 11th Edition<br>LUC 210 (Single-Family Detached Housing)<br>General Urban/Suburban<br>*(vehicle trips per unit)* | 0.18 | 0.52 | 0.70 | 0.59 | 0.35 | 0.94 |
| Street and Lane Townhouse | ITE 11th Edition<br>LUC 215 (Single-Family Attached Housing)<br>General Urban/Suburban<br>*(vehicle trips per unit)* | 0.15 | 0.33 | 0.48 | 0.32 | 0.25 | 0.57 |
| Stacked Townhouse | ITE 11th Edition<br>LUC 220 (Multifamily Housing (Low-Rise))<br>General Urban/Suburban<br>*(vehicle trips per unit)* | 0.10 | 0.30 | 0.40 | 0.32 | 0.19 | 0.51 |
| Commercial[1] | ITE 11th Edition<br>LUC 822 (Strip Retail Plaza (<40k))<br>General Urban/Suburban<br>*(vehicle trips per 1,000 ft²)* | 1.39 | 0.93 | 2.32 | 3.25 | 3.25 | 6.50 |
| Elementary School | ITE 11th Edition<br>LUC 520 (Elementary School)<br>General Urban/Suburban<br>*(vehicle trips per student)* | 0.40 | 0.34 | 0.74 | 0.07 | 0.09 | 0.16 |
| Firehall[2] | ITE 11th Edition<br>LUC 575 (Fire and Rescue Station)<br>General Urban/Suburban<br>*(vehicle trips per 1,000 ft²)* | 0.34 | 0.14 | 0.48 | 0.14 | 0.34 | 0.48 |

Notes:

1. LUC 822 rates back calculated from fitted curve equations as follows:
   AM: Ln(T) = 0.66Ln(X) + 1.84
   PM: Ln(T) = 0.71Ln(X) + 2.72
2. LUC 575 only has data for PM peak hour. AM peak hour assumed as the reverse of PM peak hour.

### 4.4.3 Base Site Vehicle Trip Generation

Based on the above adopted rates, the traffic volumes projected to be generated by the development are summarized in **Table 6**.

Table 6 Base Site Vehicle Trip Generation

| Land Use | Number | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|---|
| | | In | Out | 2-Way | In | Out | 2-Way |
| **Mayfield Golf Course lands** | | | | | | | |
| Detached Dwellings | 231 units[1] | *0.18* | *0.52* | *0.70* | *0.59* | *0.35* | *0.94* |
| | | **45** | **120** | **165** | **135** | **80** | **215** |
| Street Townhouses | 201 units | *0.15* | *0.33* | *0.48* | *0.32* | *0.25* | *0.57* |
| | | **30** | **65** | **95** | **65** | **50** | **115** |
| Stacked Townhouses | 225 units[1] | *0.10* | *0.30* | *0.40* | *0.32* | *0.19* | *0.51* |
| | | **20** | **70** | **90** | **70** | **40** | **110** |
| Commercial | 20,451 ft² | *1.39* | *0.93* | *2.32* | *3.25* | *3.25* | *6.50* |
| | | **30** | **20** | **50** | **70** | **70** | **140** |
| Elementary School | 500 students | *0.40* | *0.34* | *0.74* | *0.07* | *0.09* | *0.16* |
| | | **200** | **170** | **370** | **35** | **45** | **80** |
| Firehall | 20,451 ft² | 0.34 | 0.14 | 0.48 | 0.14 | 0.34 | 0.48 |
| | | **10** | **5** | **15** | **5** | **10** | **15** |
| **Subtotal** | | **335** | **450** | **785** | **380** | **295** | **675** |
| **South lands** | | | | | | | |
| Detached Dwellings | 10 units | *0.18* | *0.52* | *0.70* | *0.59* | *0.35* | *0.94* |
| | | **0** | **5** | **5** | **5** | **5** | **10** |
| Stacked Townhouses | 430 units | *0.10* | *0.30* | *0.40* | *0.32* | *0.19* | *0.51* |
| | | **40** | **135** | **175** | **140** | **85** | **225** |
| **Subtotal** | | **40** | **140** | **180** | **145** | **90** | **235** |
| **Total** | | | | | | | |
| **Total** | | **375** | **590** | **965** | **525** | **385** | **910** |

### 4.4.4 Internal Site Vehicle Trips

#### 4.4.4.1 OVERVIEW

It is expected that the proposed commercial and elementary school will largely service the proposed development, and other future development in the area. As a result, many trips to/from the commercial and elementary school would access the site via the internal connections to future development lands within the Mayfield-Tullamore community, as opposed to via Torbram Road.

For the purpose of analysis, it has therefore been assumed that 10% of the commercial and elementary school trips are internal to the site residential itself, and another 40% of the commercial and elementary school trips are internal to the future local and collector road network.

The resultant interaction trips is summarized in **Table 7**, **Table 8** and **Table 9**.

for the site commercial, site elementary school and site residential respectively.

Table 7 Site Commercial Interaction Trips

| Land Use | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|
| | In | Out | 2-Way | In | Out | 2-Way |
| Commercial Interaction with Site Residential[1] | 5 | 0 | 5 | 5 | 5 | 10 |
| Commercial Interaction with Surrounding Residential[2] | 10 | 10 | 20 | 30 | 30 | 60 |
| **Total Site Commercial Interaction** | **15** | **10** | **25** | **35** | **35** | **70** |

Notes:
1. Assumed as 10% of the total projected commercial trips.
2. Assumed as 40% of the total projected commercial trips

Table 8 Site Elementary School Interaction Trips

| Land Use | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|
| | In | Out | 2-Way | In | Out | 2-Way |
| Elementary School Interaction with Site Residential[1] | 20 | 15 | 35 | 5 | 5 | 10 |
| Elementary School Interaction with Surrounding Residential[2] | 80 | 70 | 150 | 15 | 15 | 30 |
| **Total Site Elementary School Interaction** | **100** | **85** | **185** | **20** | **20** | **40** |

Notes:
1. Assumed as 10% of the total projected elementary school trips.
2. Assumed as 40% of the total projected elementary school trips

Table 9 Site Residential Interaction Trips

| Land Use | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|
| | In | Out | 2-Way | In | Out | 2-Way |
| Site Residential Interaction with Commercial[1] | 0 | 5 | 5 | 5 | 5 | 10 |
| Site Residential Interaction with Elementary School[2] | 15 | 20 | 35 | 5 | 5 | 10 |
| **Total Site Residential Interaction Trips** | **15** | **25** | **40** | **10** | **10** | **20** |

Notes:
1. Assumed as 10% of the total projected commercial trips, with direction reversed
2. Assumed as 10% of the total projected elementary school trips, with direction reversed

### 4.4.5 Site Vehicle Trip Summary

On the basis of the above, the projected vehicle trip generation associated with each of the uses is summarized in **Table 10**. For the purpose of analysis, it is assumed that internal trips would utilize the future local and collector road network and would not add trips to the broader arterial road network. Therefore, only external trips have been assigned to the road network. It is noted that pass-by trip rates of 0% and 34% have been assumed for the commercial use during the AM and PM peak hours respectively, in accordance with the average pass-by rates identified in the ITE Trip Generation Handbook 3rd Edition for Land Use Code 820 (Shopping Centre).

Table 10 Site Vehicle Trip Summary

| Land Use | Trip Type | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|---|
| | | In | Out | 2-Way | In | Out | 2-Way |
| Residential | Base Trips | 140 | 390 | 530 | 420 | 260 | 680 |
| | Internal Trips | 15 | 25 | 40 | 10 | 10 | 20 |
| | **External Trips** | **125** | **365** | **490** | **410** | **250** | **660** |
| Commercial | Base Trips | 30 | 20 | 50 | 70 | 70 | 140 |
| | Internal Trips | 15 | 10 | 25 | 35 | 35 | 70 |
| | **External Trips** | **15** | **10** | **25** | **35** | **35** | **70** |
| | *Primary* | *15* | *10* | *25* | *25* | *25* | *50* |
| | *Pass-by[1]* | *0* | *0* | *0* | *10* | *10* | *20* |
| Elementary School | Base Trips | 200 | 170 | 370 | 35 | 45 | 80 |
| | Internal Trips | 100 | 85 | 185 | 20 | 20 | 40 |
| | **External Trips** | **100** | **85** | **185** | **15** | **25** | **40** |
| Firehall | **External Trips** | **10** | **5** | **15** | **5** | **10** | **15** |

Notes:
1. Assumes 0% pass-by in the AM and 34% pass-by in the PM

### 4.4.6 Vehicle Trip Distribution

Site traffic was assigned onto the area road network based on the results of the 2016 Transportation Tomorrow Survey (TTS), prevailing traffic patterns and area turn restrictions. General direction of approach percentages for residential, commercial, school and firehall traffic was based on the results of the TTS and is summarized in **Table 11** and **Table 12** for the scenarios with and without Highway 413 respectively.

Table 11 Site Traffic Distribution – with Highway 413

| Street | To/From | Residential | | Commercial | | School | | Firehall | |
|---|---|---|---|---|---|---|---|---|---|
| | | In | Out | In | Out | In | Out | In | Out |
| Torbram Rd | North | 30% | 5% | 45% | 5% | 30% | 20% | 15% | 30% |
| | South | 5% | 30% | 5% | 40% | 20% | 30% | 0% | 10% |
| Mayfield Rd | East | 30% | 15% | 45% | 5% | 30% | 0% | 5% | 0% |
| | West | 5% | 30% | 0% | 40% | 0% | 30% | 80% | 60% |
| Old School Rd | East | 20% | 0% | 5% | 5% | 20% | 0% | 0% | 0% |
| | West | 10% | 20% | 0% | 5% | 0% | 20% | 0% | 0% |
| **Total** | | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** |

Notes:
1. Based on TTS zones 3010, 3012, 3014 & 3442

Table 12 Site Traffic Distribution – without Highway 413

| Street | To/From | Residential | | Commercial | | School | | Firehall | |
|---|---|---|---|---|---|---|---|---|---|
| | | In | Out | In | Out | In | Out | In | Out |
| Torbram Rd | North | 5% | 10% | 45% | 5% | 30% | 20% | 15% | 30% |
| | South | 40% | 35% | 5% | 40% | 20% | 30% | 0% | 10% |
| Mayfield Rd | East | 40% | 5% | 45% | 5% | 30% | 0% | 5% | 0% |
| | West | 10% | 40% | 0% | 45% | 0% | 30% | 80% | 60% |
| Old School Rd | East | 5% | 5% | 5% | 0% | 20% | 0% | 0% | 0% |
| | West | 0% | 5% | 0% | 5% | 0% | 20% | 0% | 0% |
| **Total** | | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** |

Notes:
1. Based on TTS zones 3010, 3012, 3014 & 3442

### 4.4.7 Site Traffic Volumes

The residential, commercial primary, commercial pass-by, elementary school, firehall and net new site traffic volumes are shown in **Figure 16** through to **Figure 21** respectively for the scenario with Highway 413 and **Figure 22** through to **Figure 27** respectively for the scenario without Highway 413.

### 4.4.8 Future Total Traffic Volumes

Future total traffic volumes are determined by adding the future background traffic volumes and the site traffic volumes.

The future total traffic volumes for the scenarios with and without Highway 413 are shown in **Figure 28** and **Figure 29** respectively.

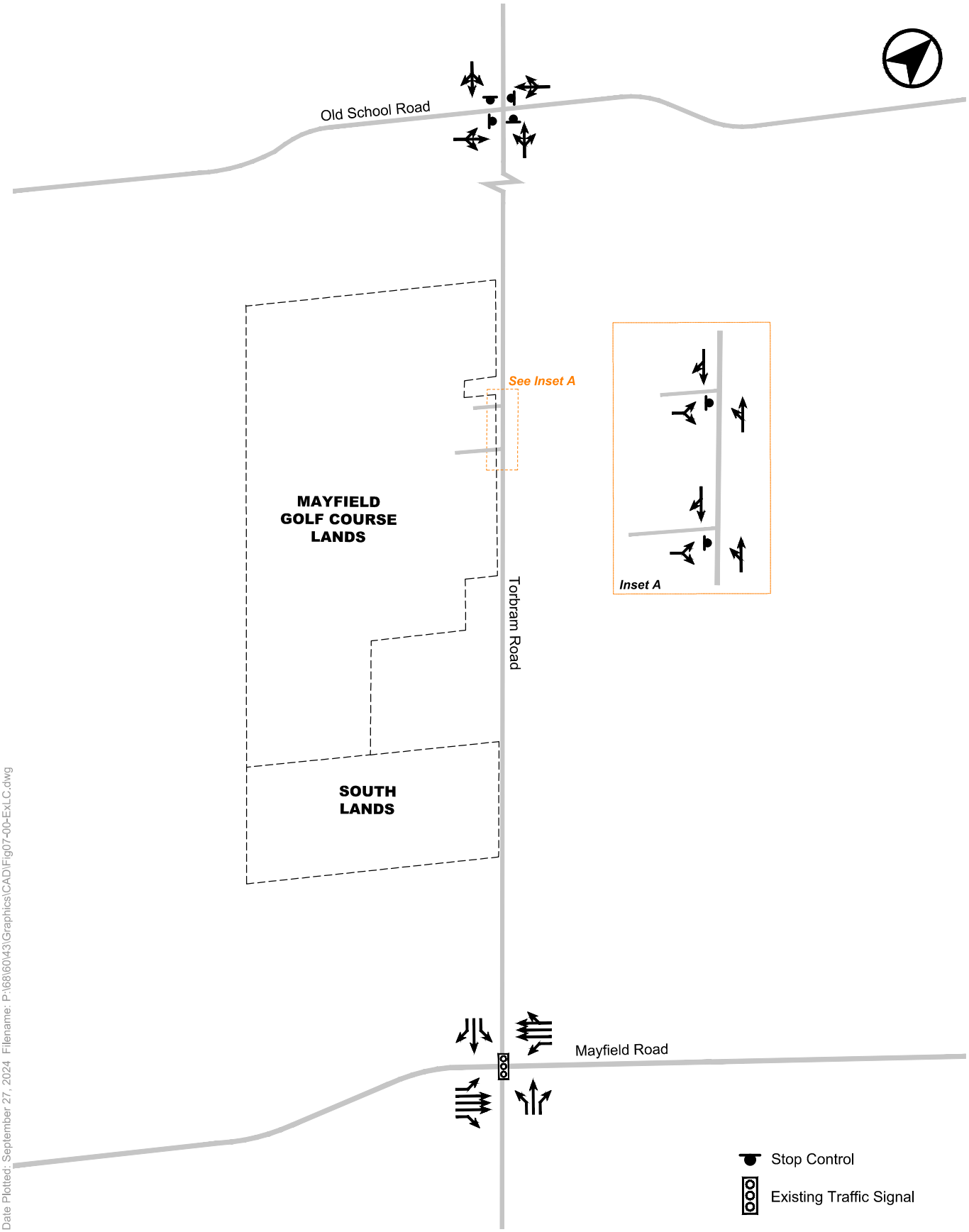
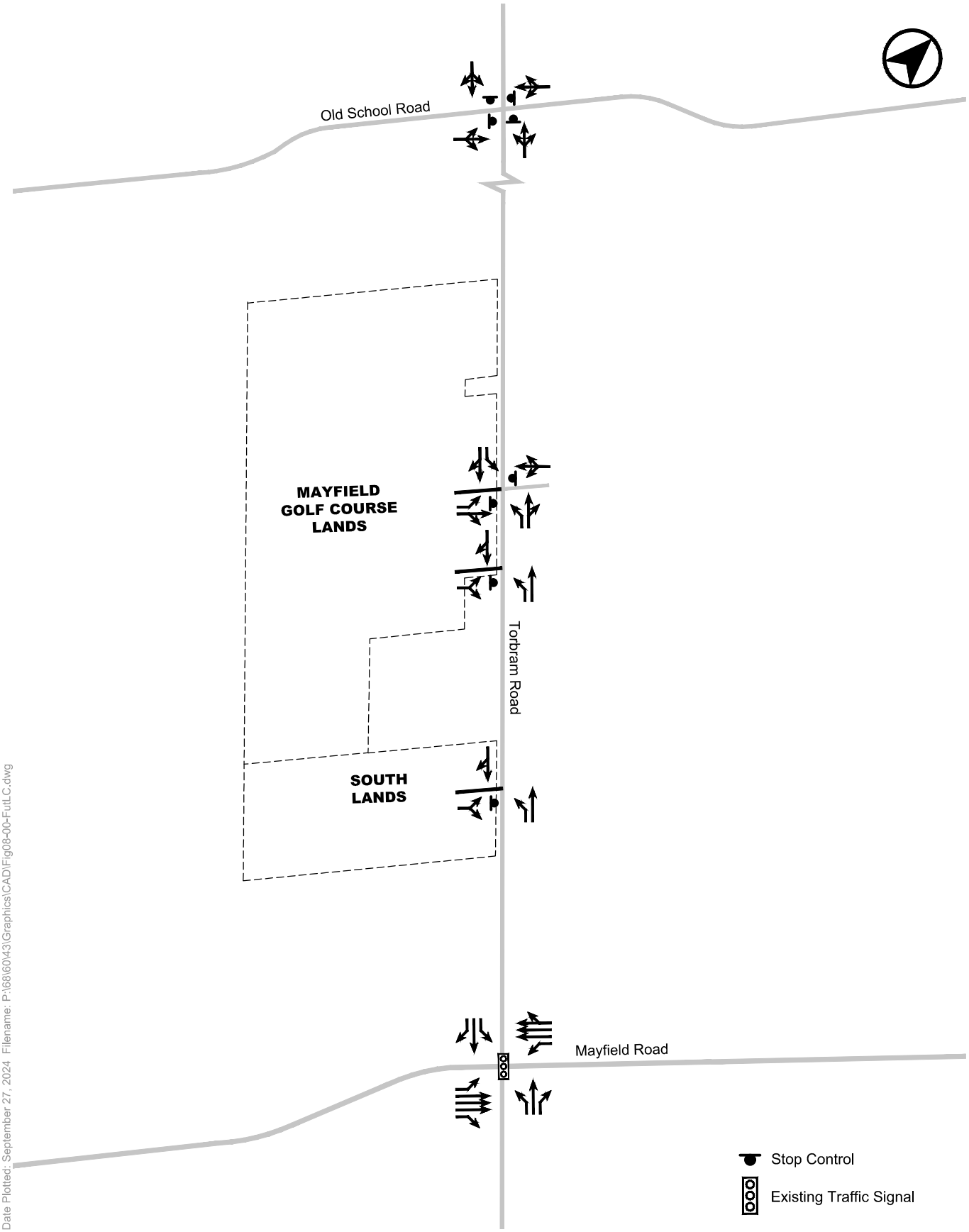
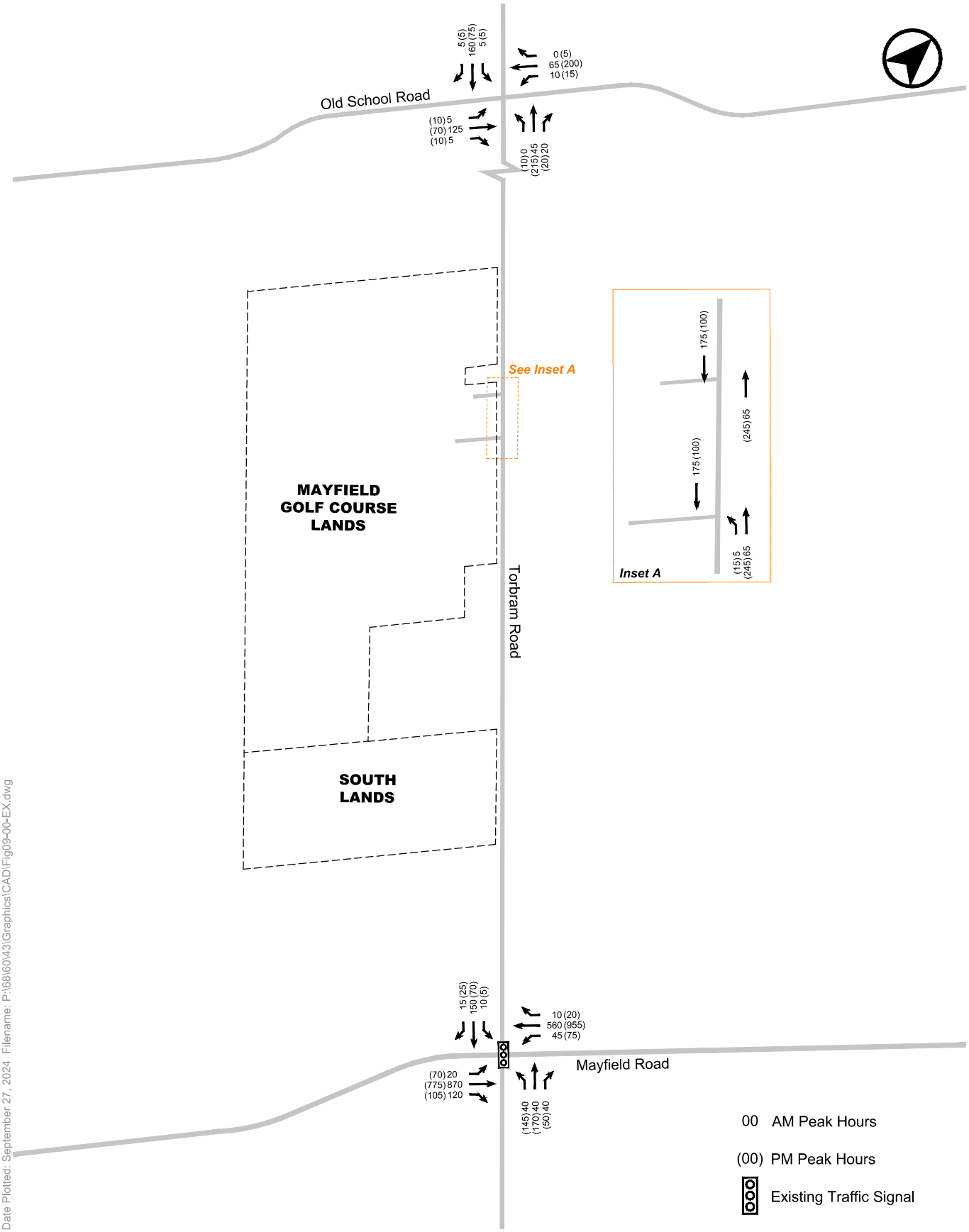



**FIGURE 7 EXISTING LANE CONFIGURATIONS**



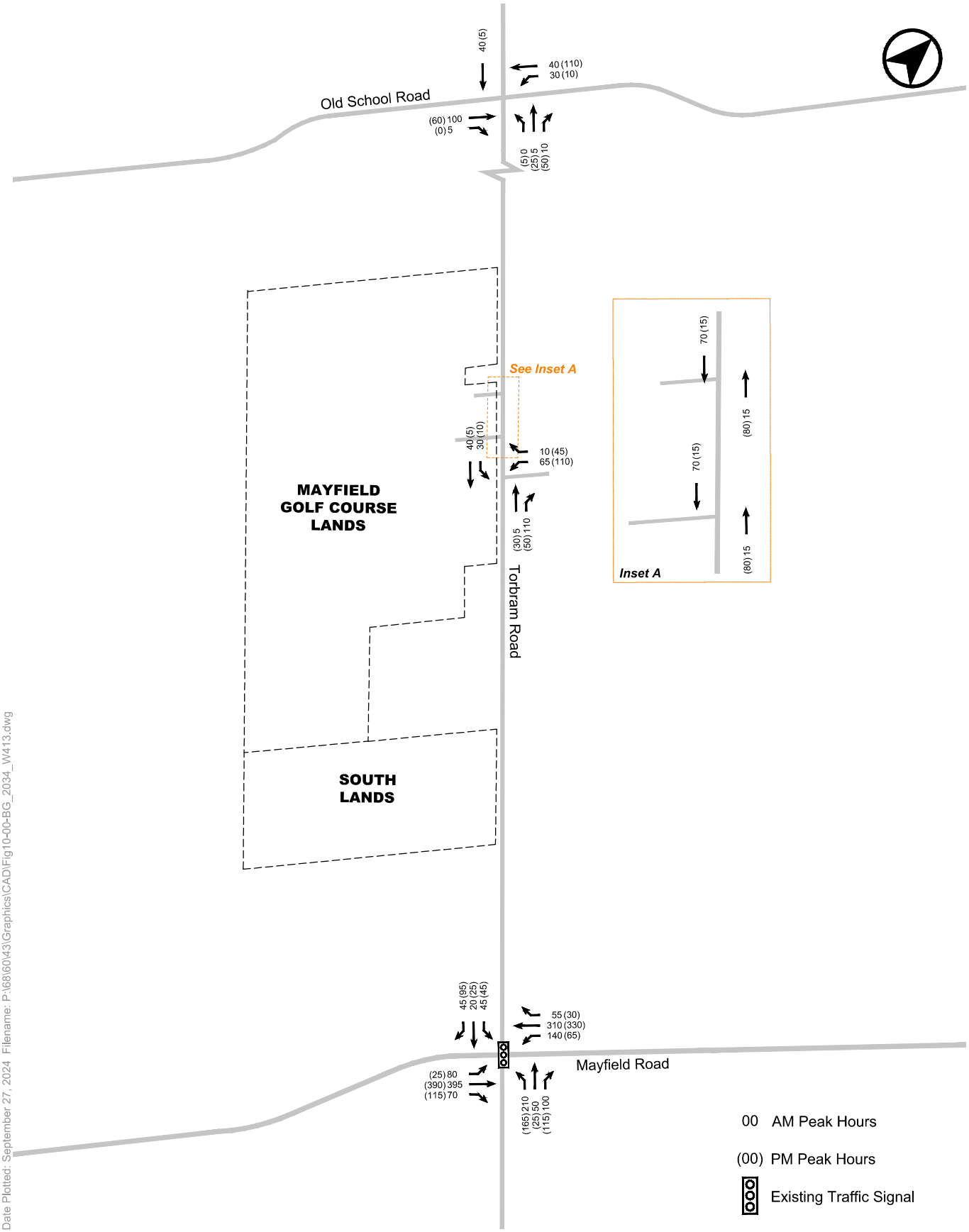

Date Plotted: September 27, 2024 Filename: P:\68\60\43\Graphics\CAD\Fig08-00-FutLC.dwg

**FIGURE 8 FUTURE LANE CONFIGURATIONS (2034)**



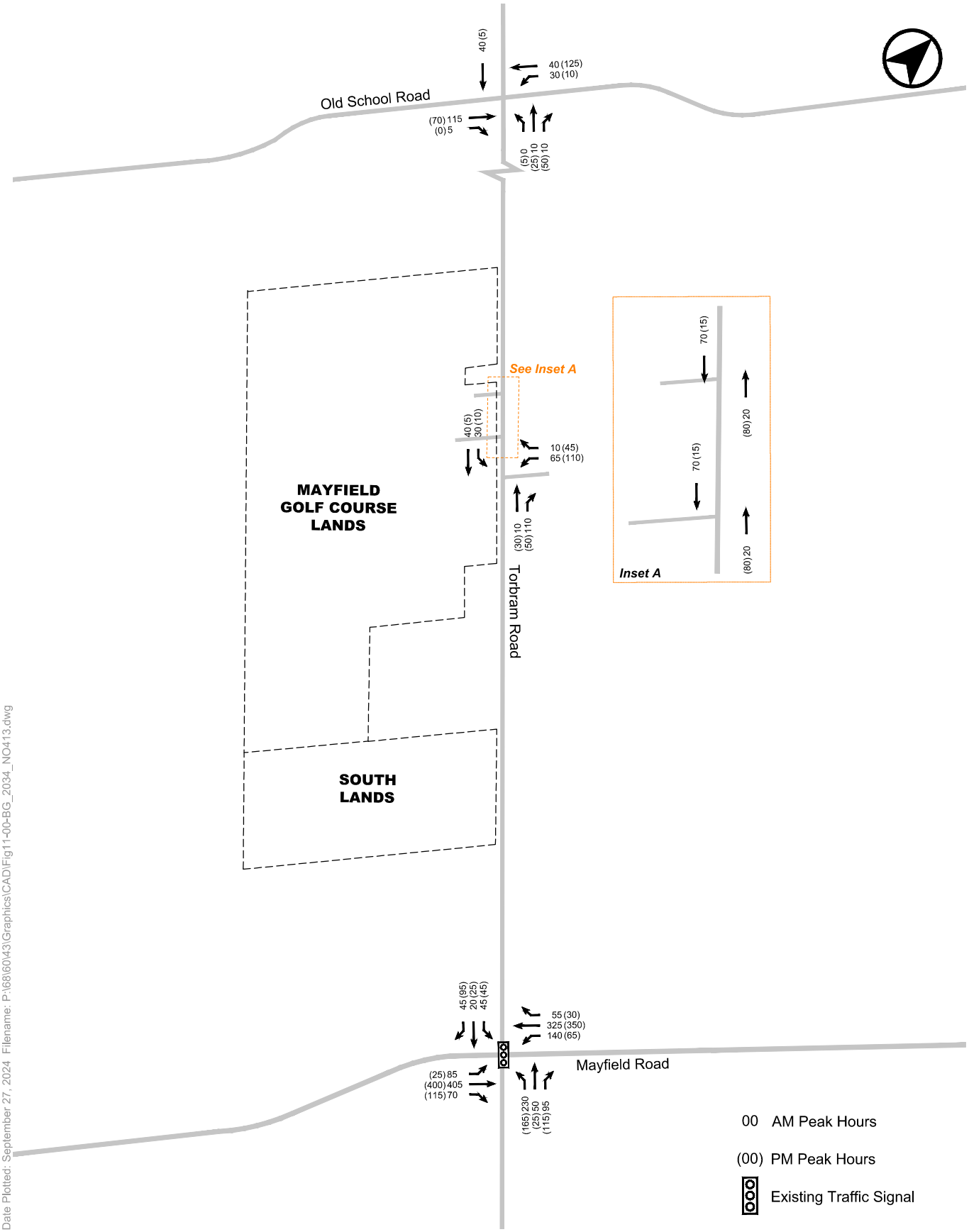

Date Plotted: September 27, 2024 Filename: P:\68\60\43\Graphics\CAD\Fig09-00-EX.dwg

**FIGURE 9 EXISTING TRAFFIC VOLUMES**




Date Plotted: September 27, 2024 Filename: P:\68\60\43\Graphics\CAD\Fig10-00-BG_2034_W413.dwg

**FIGURE 10 BACKGROUND TRAFFIC VOLUMES (2034) - WITH HIGHWAY 413**




Date Plotted: September 27, 2024 Filename: P:\68\60\43\Graphics\CAD\Fig11-00-BG_2034_NO413.dwg

**FIGURE 11 BACKGROUND TRAFFIC VOLUMES (2034) - WITHOUT HIGHWAY 413**

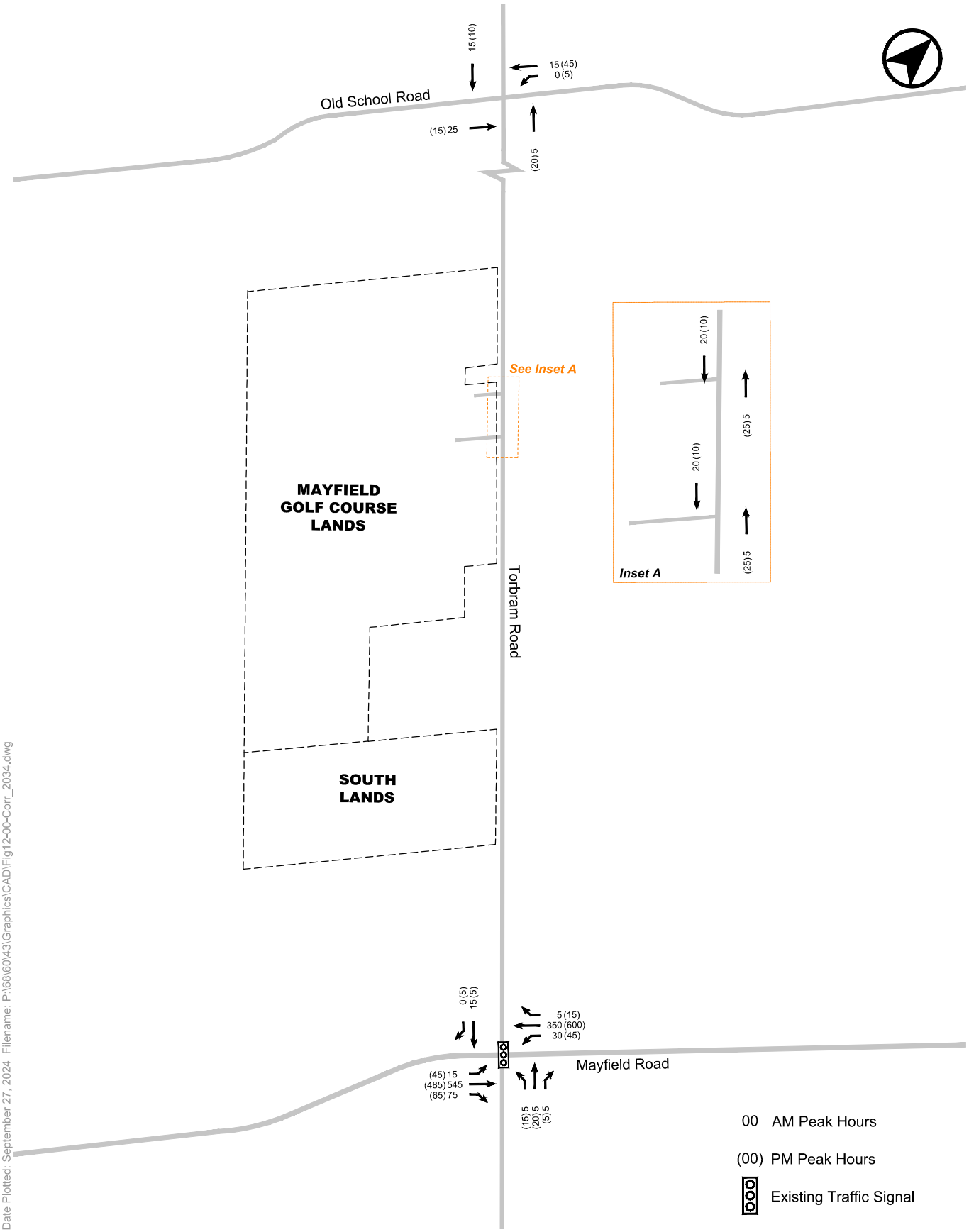
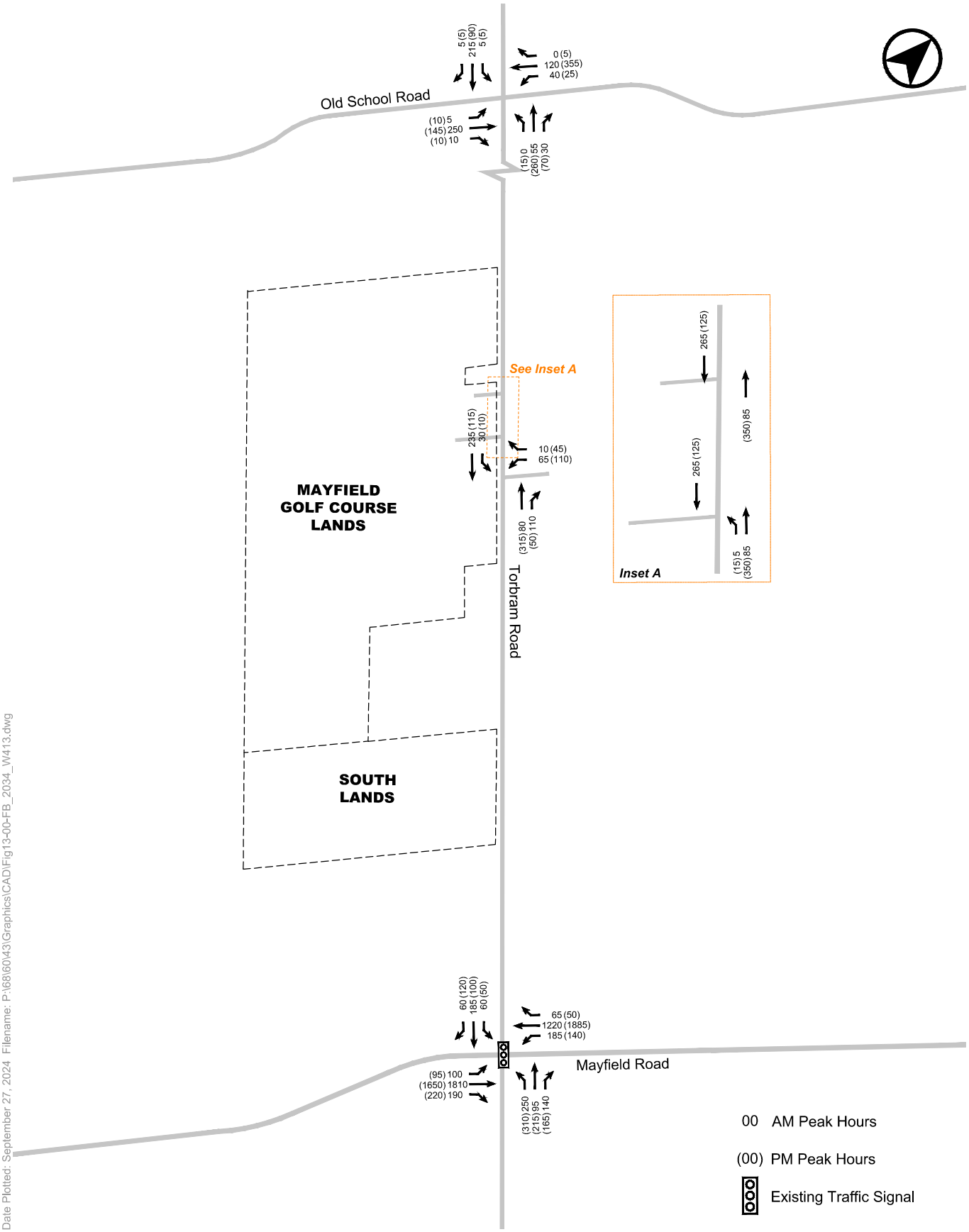
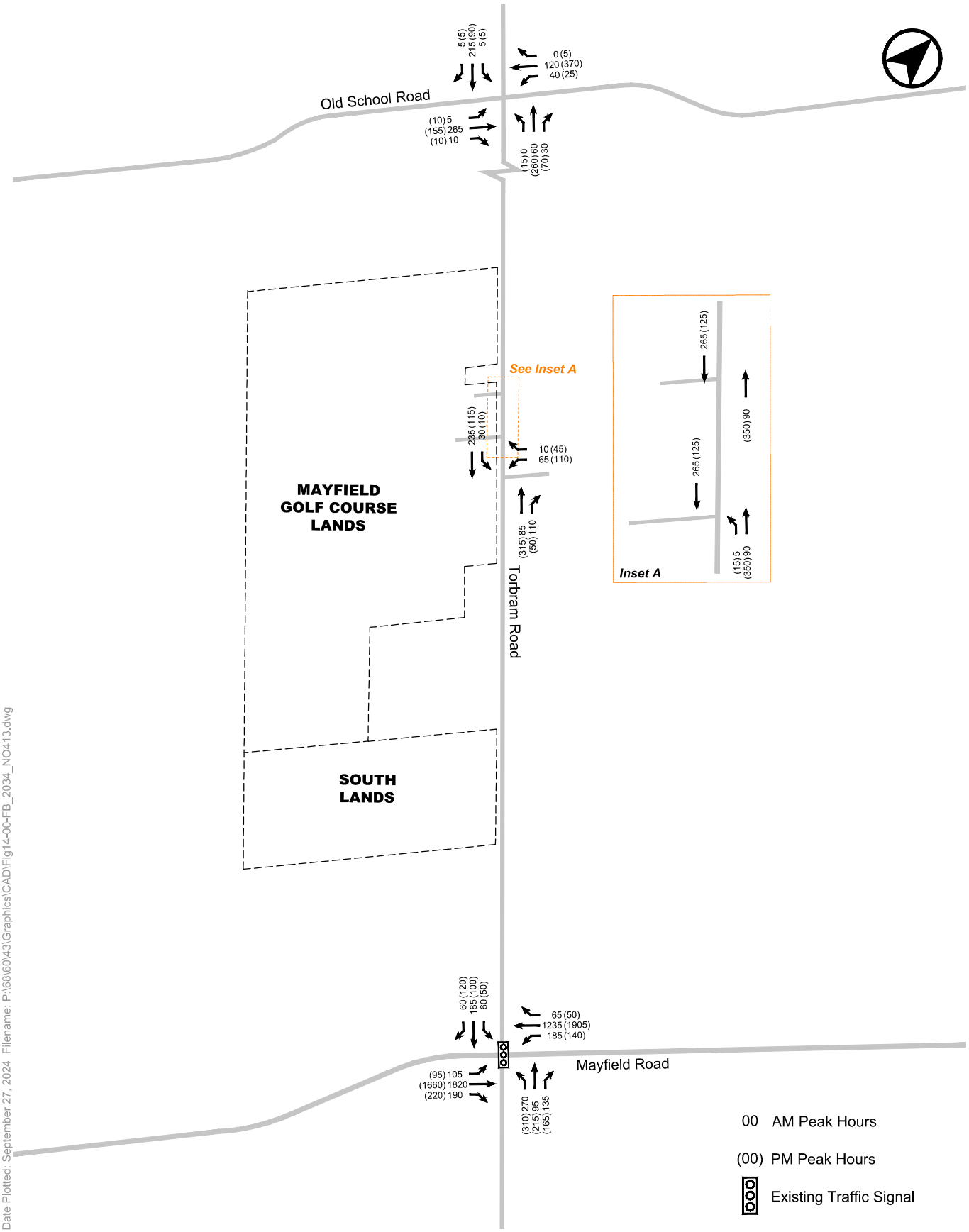



**FIGURE 12 CORRIDOR GROWTH TRAFFIC VOLUMES (2034)**




Date Plotted: September 27, 2024 Filename: P:\68\60\43\Graphics\CAD\Fig13-00-FB_2034_W413.dwg

**FIGURE 13 FUTURE BACKGROUND TRAFFIC VOLUMES (2034) - WITH HIGHWAY 413**

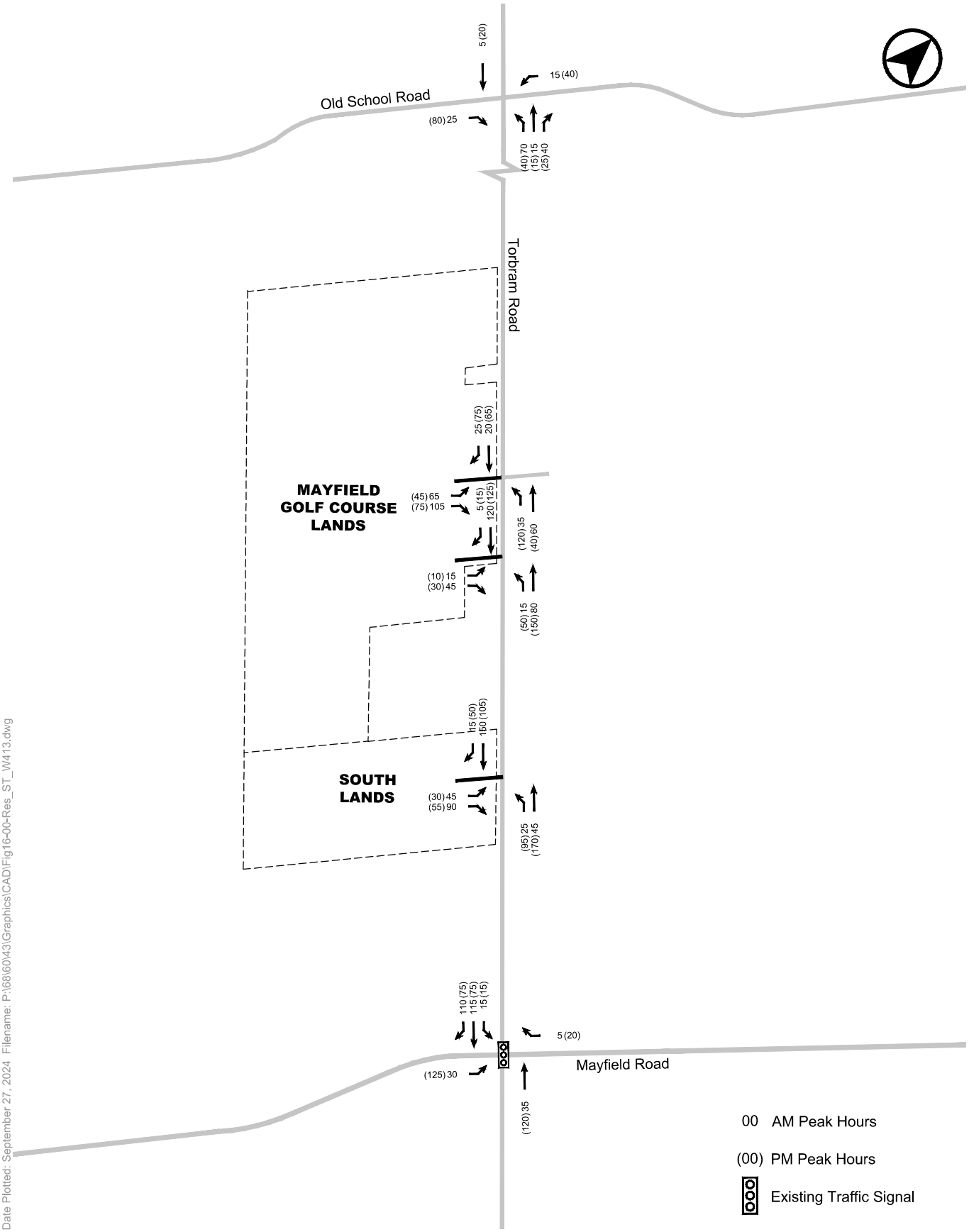



Date Plotted: September 27, 2024 Filename: P:\68\60\43\Graphics\CAD\Fig14-00-FB_2034_NO413.dwg

**FIGURE 14 FUTURE BACKGROUND TRAFFIC VOLUMES (2034) - WITHOUT HIGHWAY 413**

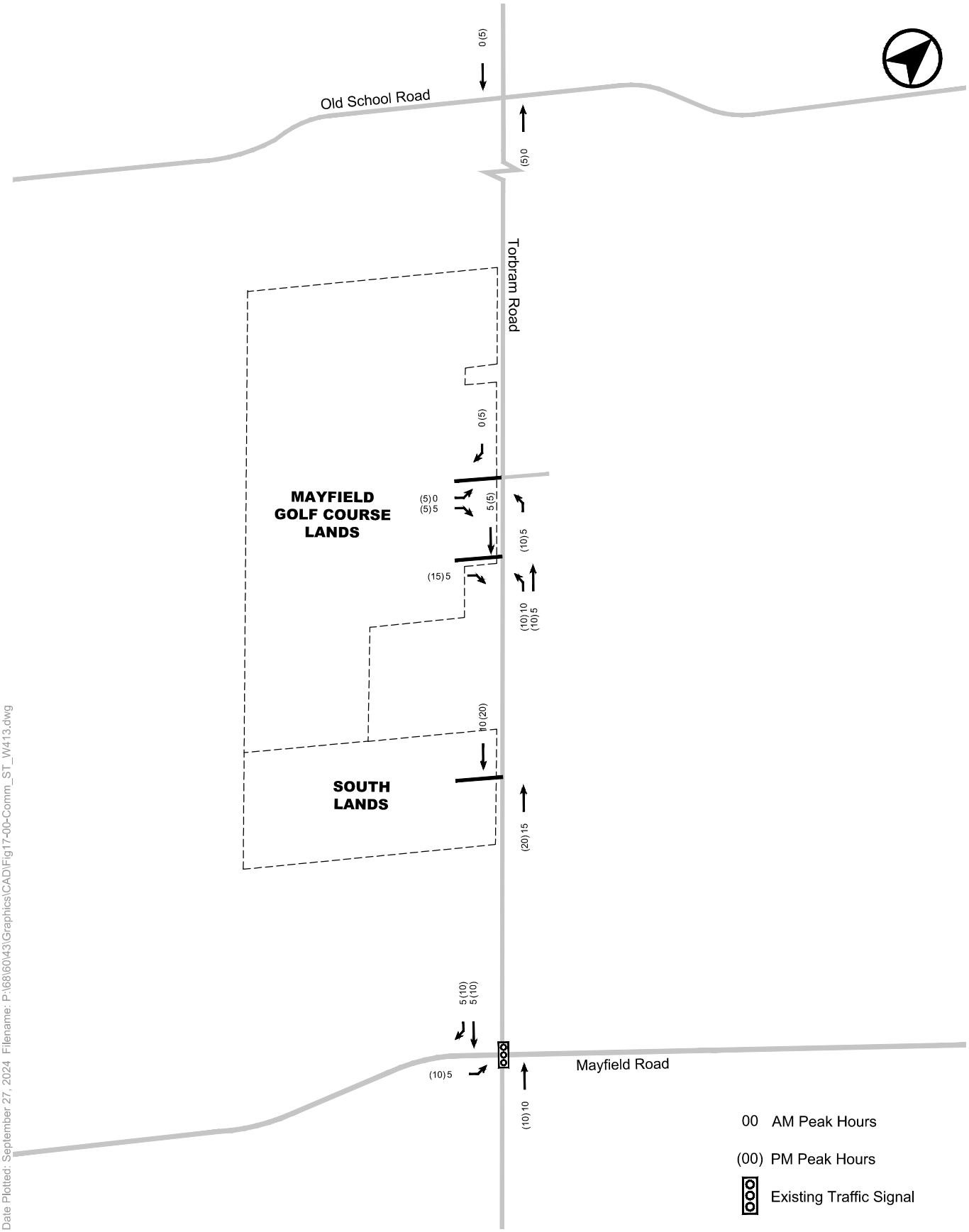

Date Plotted: September 27, 2024 Filename: P:\68\60\43\Graphics\CAD\Fig15-00-EX_Rem.dwg

**FIGURE 15 EXISTING SITE TRAFFIC VOLUMES REMOVAL (2034)**




Date Plotted: September 27, 2024 Filename: P:\68\60\43\Graphics\CAD\Fig16-00-Res_ST_W413.dwg

**FIGURE 16 RESIDENTIAL SITE TRAFFIC VOLUMES (2034) - WITH HIGHWAY 413**

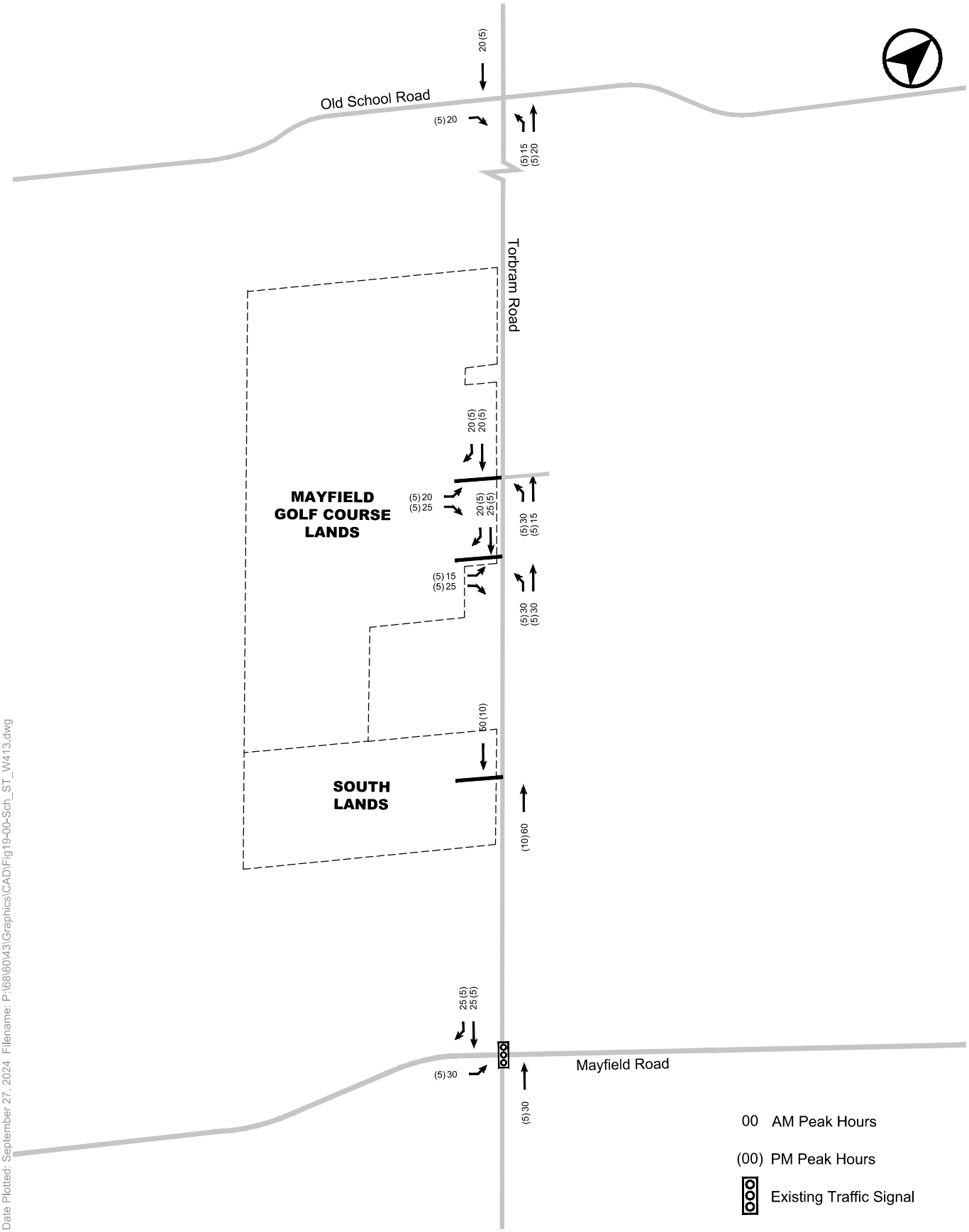



Date Plotted: September 27, 2024 Filename: P:\68\60\43\Graphics\CAD\Fig17-00-Comm_ST_W413.dwg

**FIGURE 17 COMMERCIAL PRIMARY SITE TRAFFIC VOLUMES (2034) - WITH HIGHWAY 413**


Date Plotted: September 27, 2024 Filename: P:\68\60\43\Graphics\CAD\Fig18-00-Comm_PassBY_ST_W413.dwg

**FIGURE 18 COMMERCIAL PASS-BY SITE TRAFFIC VOLUMES (2034) - WITH HIGHWAY 413**




Date Plotted: September 27, 2024 Filename: P:\68\60\43\Graphics\CAD\Fig19-00-Sch_ST_W413.dwg

**FIGURE 19 ELEMENTARY SCHOOL SITE TRAFFIC VOLUMES (2034) - WITH HIGHWAY 413**

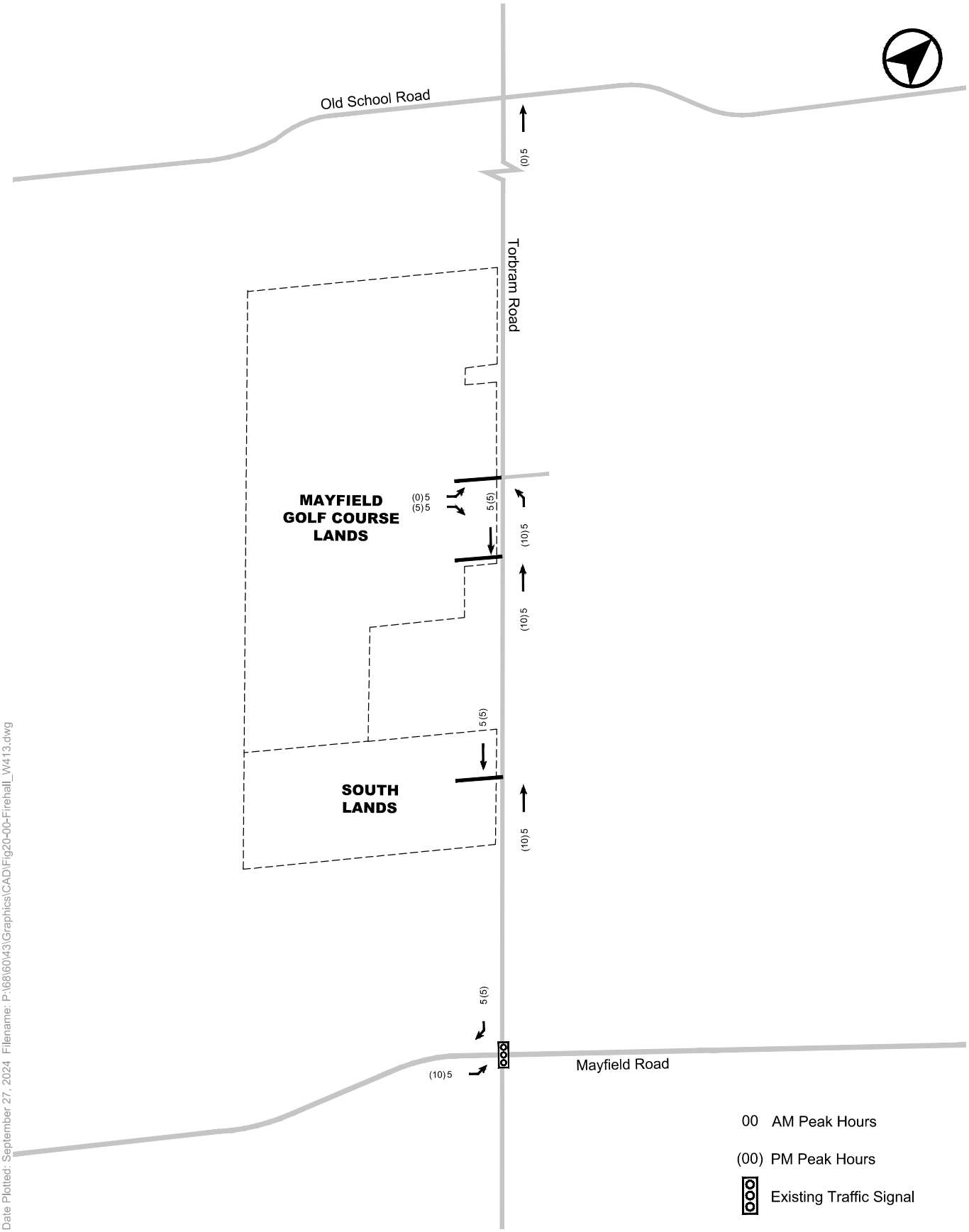
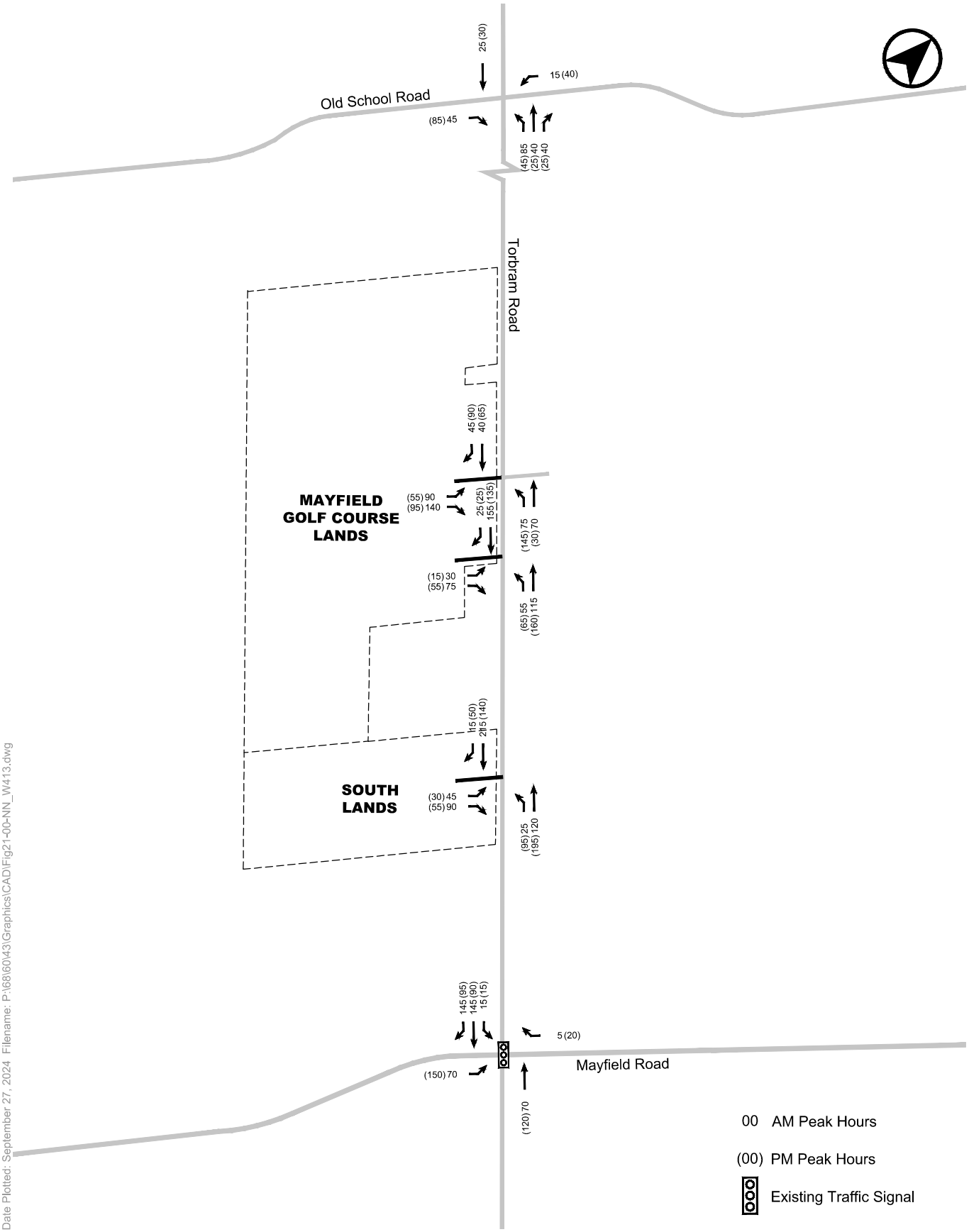
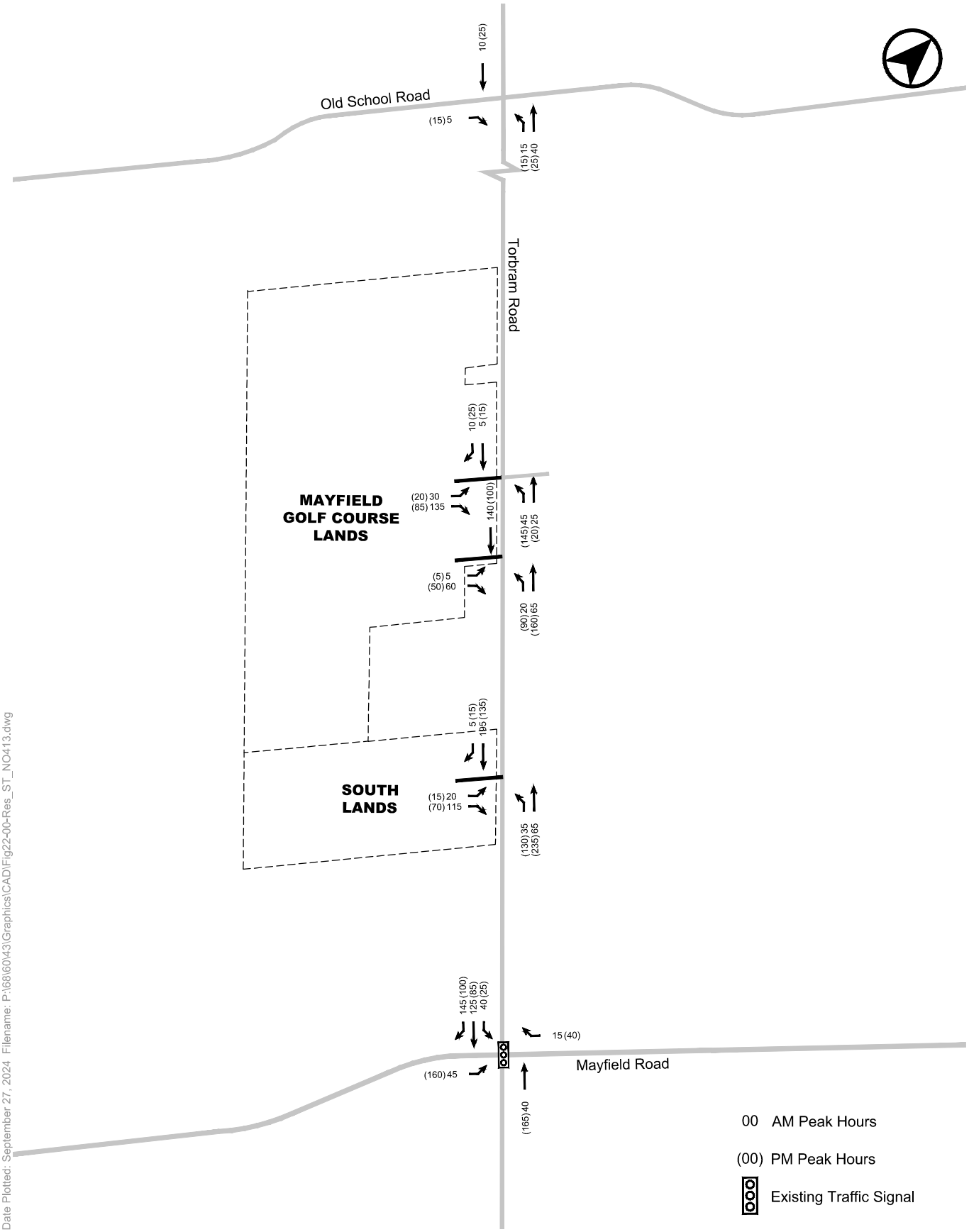



**FIGURE 20 FIREHALL SITE TRAFFIC VOLUMES (2034) - WITH HIGHWAY 413**



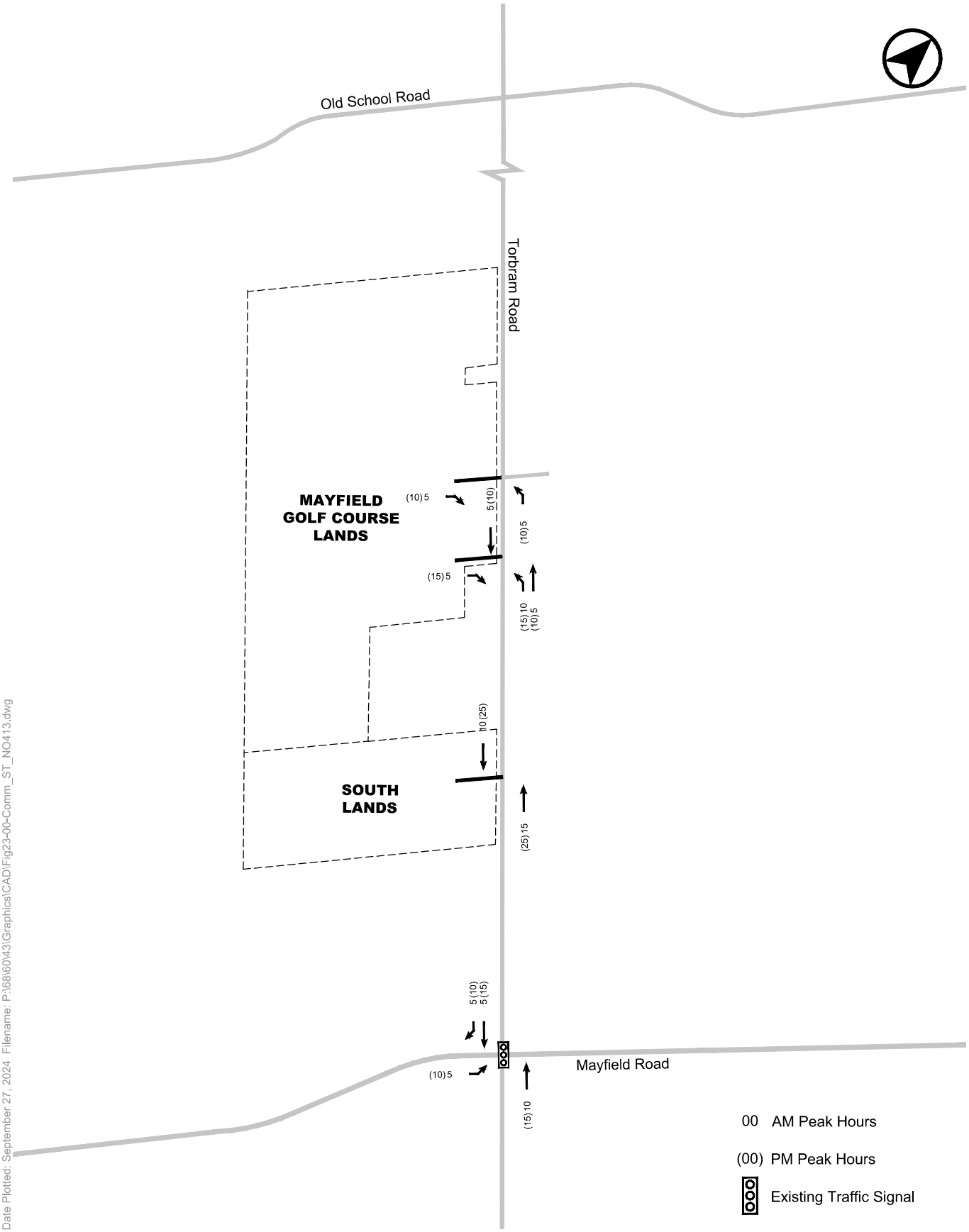

Date Plotted: September 27, 2024 Filename: P:\68\60\43\Graphics\CAD\Fig21-00-NN_W413.dwg

**FIGURE 21 NET NEW SITE TRAFFIC VOLUMES (2034) - WITH HIGHWAY 413**




Date Plotted: September 27, 2024 Filename: P:\68\60\43\Graphics\CAD\Fig22-00-Res_ST_NO413.dwg

**FIGURE 22 RESIDENTIAL SITE TRAFFIC VOLUMES (2034) - WITHOUT HIGHWAY 413**

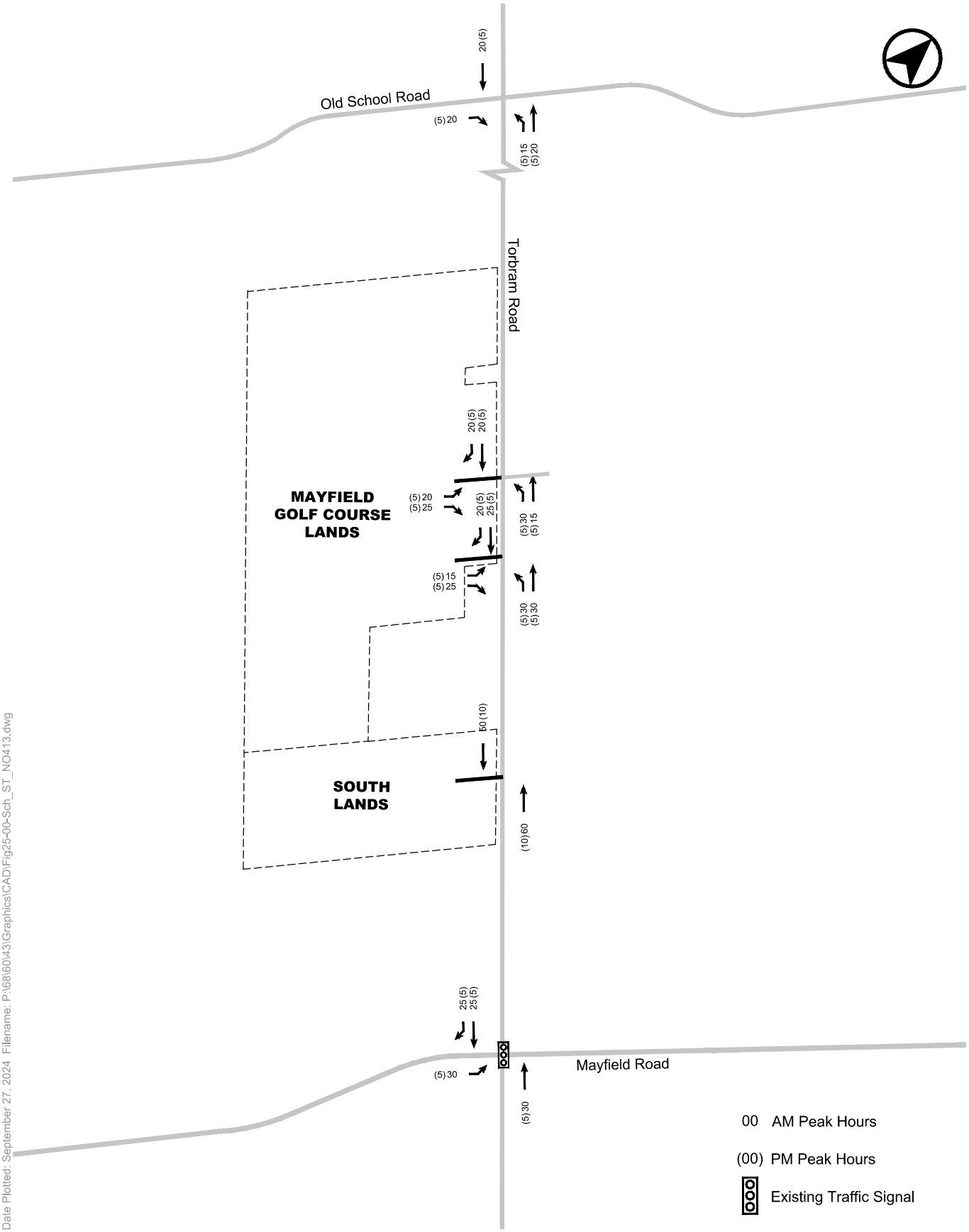



Date Plotted: September 27, 2024 Filename: P:\68\60\43\Graphics\CAD\Fig23-00-Comm_ST_NO413.dwg

**FIGURE 23 COMMERCIAL PRIMARY SITE TRAFFIC VOLUMES (2034) - WITHOUT HIGHWAY 413**

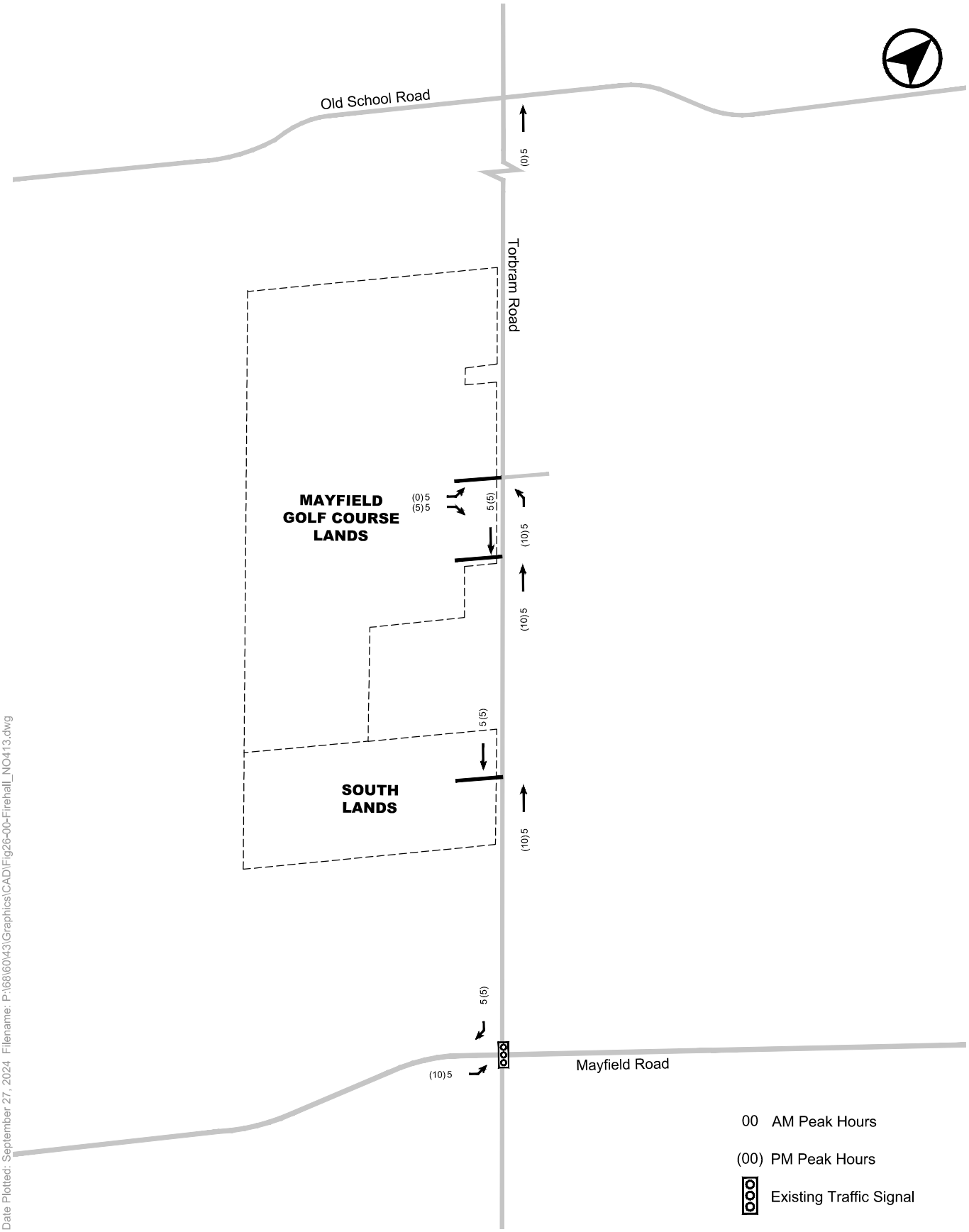

Date Plotted: September 27, 2024 Filename: P:\68\60\43\Graphics\CAD\Fig24-00-Comm_PassBy_ST_NO413.dwg

**FIGURE 24 COMMERCIAL PASS-BY SITE TRAFFIC VOLUMES (2034) - WITHOUT HIGHWAY 413**



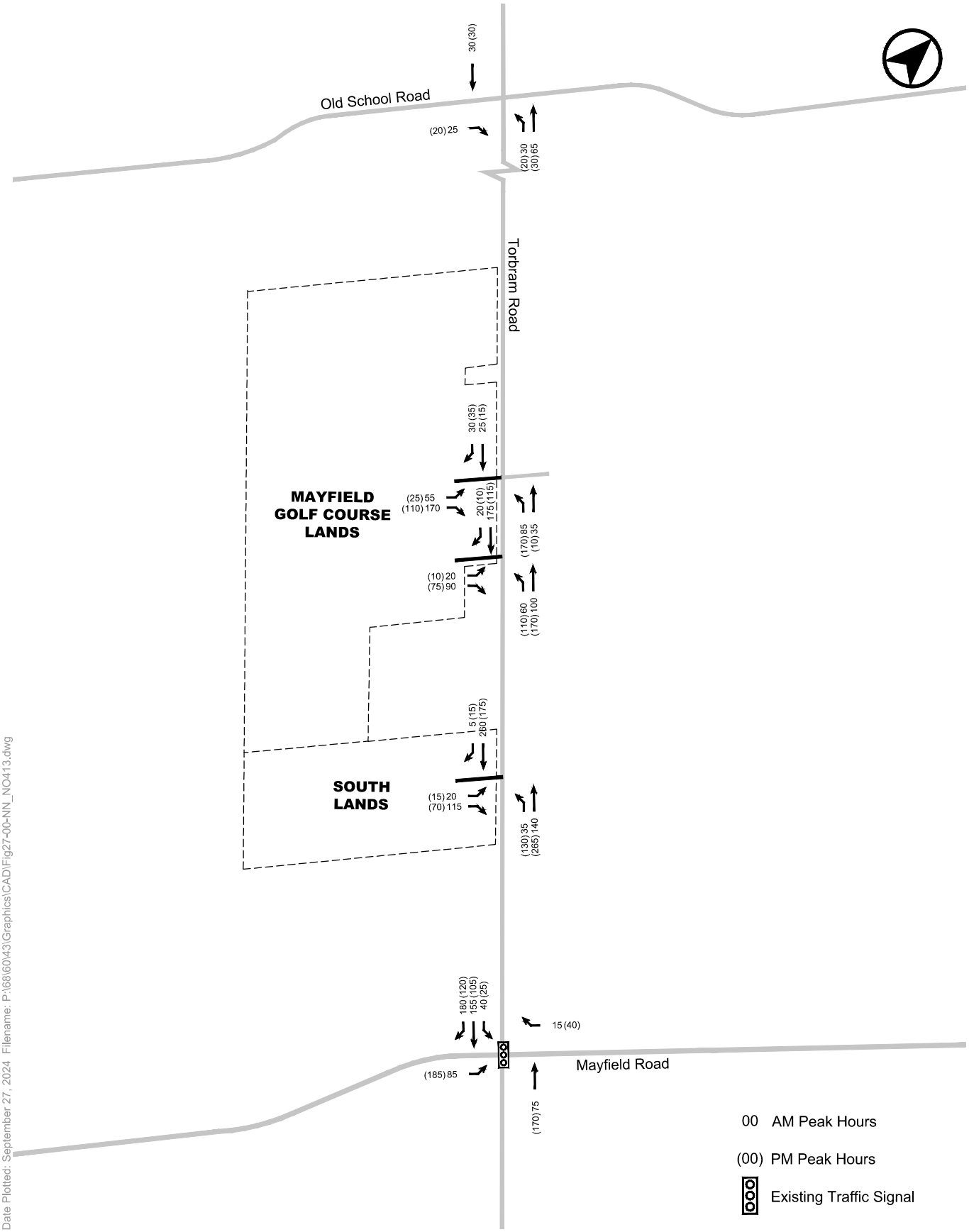

Date Plotted: September 27, 2024 Filename: P:\68\60\43\Graphics\CAD\Fig25-00-Sch_ST_NO413.dwg

**FIGURE 25 ELEMENTARY SCHOOL SITE TRAFFIC VOLUMES (2034) - WITHOUT HIGHWAY 413**




Date Plotted: September 27, 2024 Filename: P:\68\60\43\Graphics\CAD\Fig26-00-Firehall_NO413.dwg

**FIGURE 26 FIREHALL SITE TRAFFIC VOLUMES (2034) - WITHOUT HIGHWAY 413**




Date Plotted: September 27, 2024 Filename: P:\68\60\43\Graphics\CAD\Fig27-00-NN_NO413.dwg

**FIGURE 27 NET NEW SITE TRAFFIC VOLUMES (2034) - WITHOUT HIGHWAY 413**

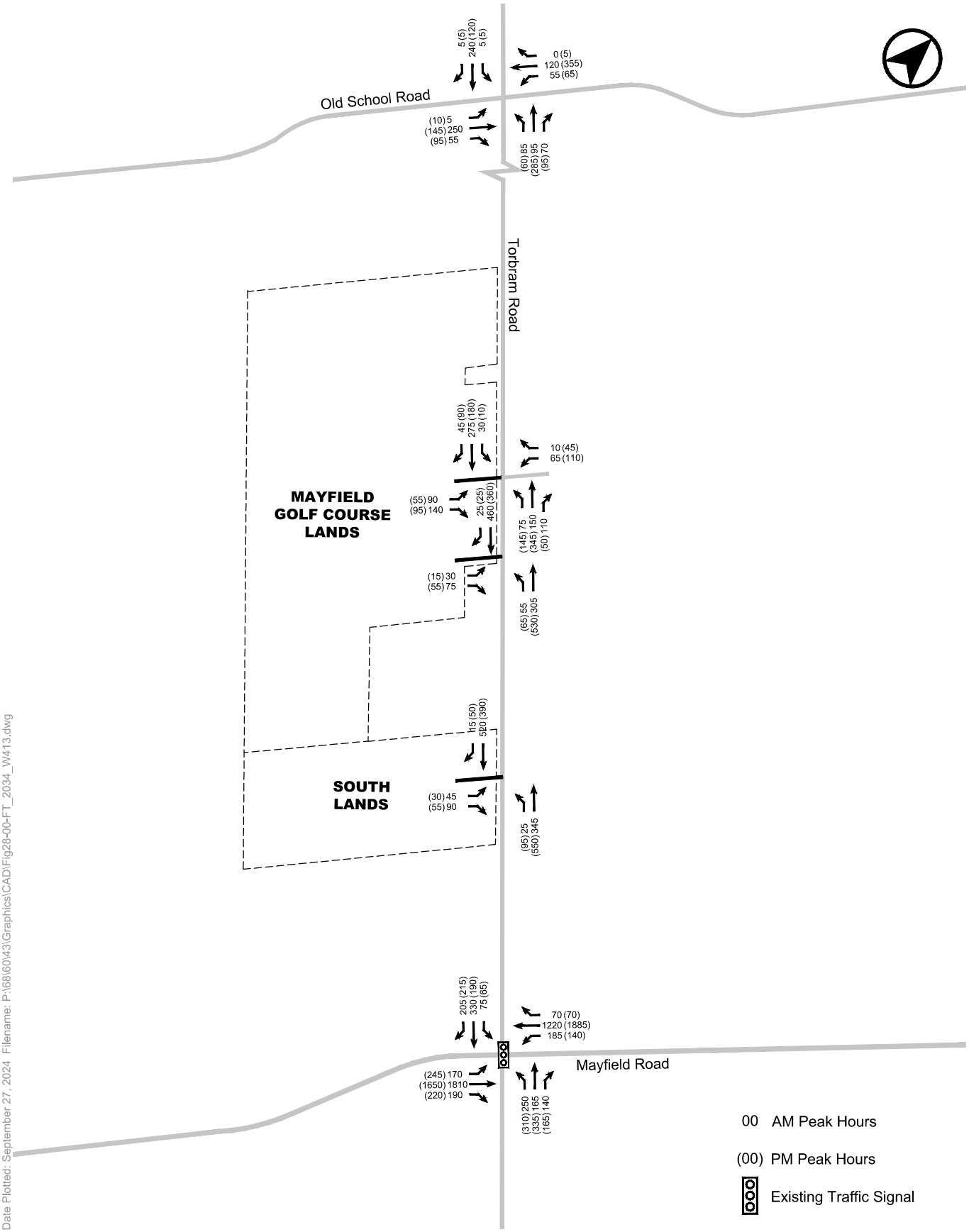
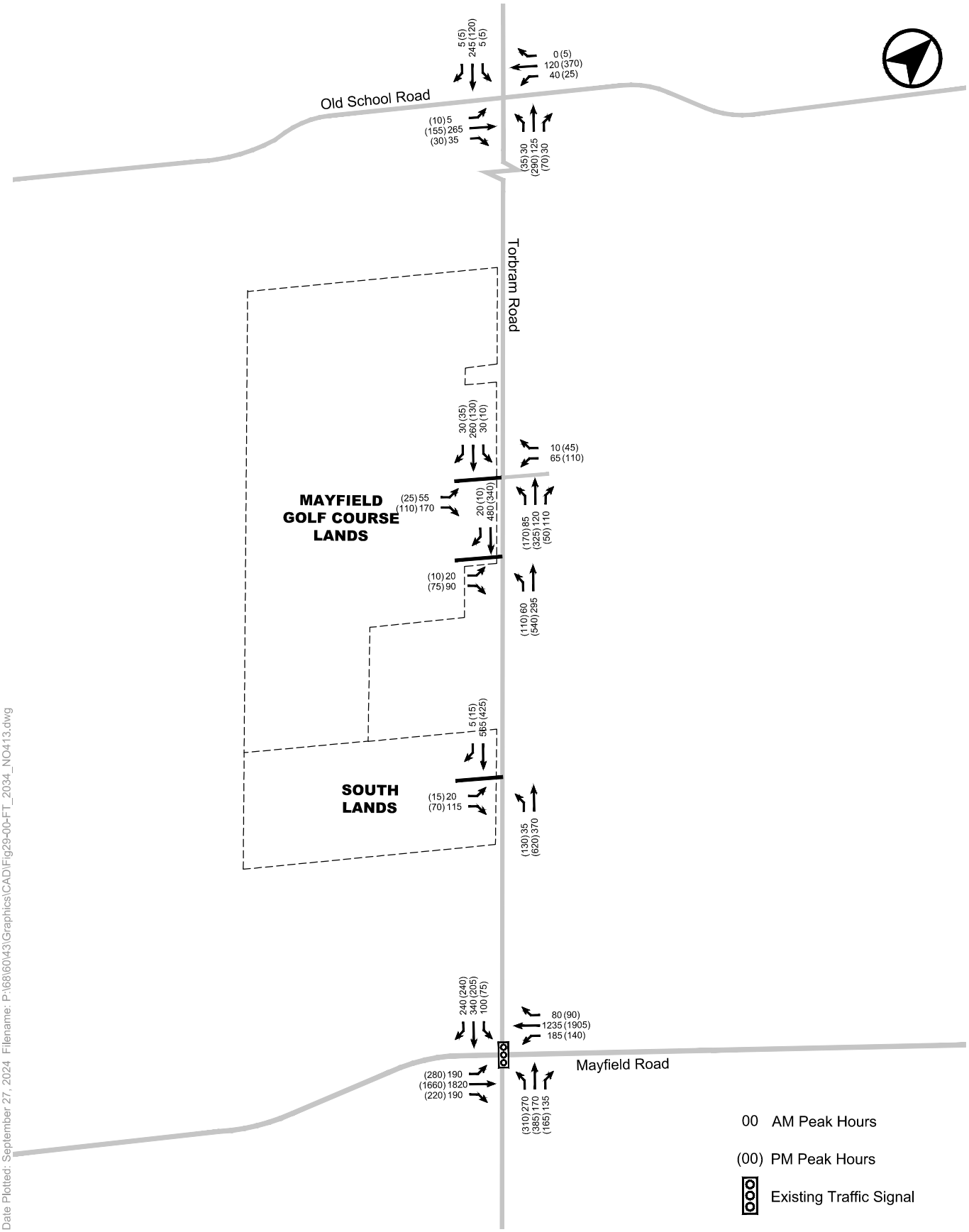



**FIGURE 28 FUTURE TOTAL TRAFFIC VOLUMES (2034) - WITH HIGHWAY 413**




Date Plotted: September 27, 2024 Filename: P:\68\60\43\Graphics\CAD\Fig29-00-FT_2034_NO413.dwg

**FIGURE 29 FUTURE TOTAL TRAFFIC VOLUMES (2034) - WITHOUT HIGHWAY 413**

# 5.0 OPERATIONS ANALYSIS

## 5.1 Analysis Methodology

Synchro Version 11 and the Highway Capacity Manual (HCM) methodology were used to analyze the study area intersections and site access points.

For signalized intersections, the volume-to-capacity ratio (v/c) is an indicator of the capacity utilization for the key movements in the intersection. A v/c of 1.00 indicates that a traffic movement through an intersection is operating at or near maximum capacity.

For unsignalized intersections, level of service (LOS) characterizes operational conditions for key movements in terms of average delay experienced by vehicles attempting to complete a manoeuvre through the intersection. LOS 'A' represents a good level of service with short delays, while LOS 'F' represents a poor level of service with extended delays.

Synchro summary tables and detailed analysis worksheets are attached in **Appendix D**.

## 5.2 Analysis Assumptions and Parameters

Synchro analyses have been prepared in general accordance with the requirements of the *Region of Peel Regional Guidelines for Using Synchro Version 7.73 Rev 8,* dated December 2010 (herein referred to as the Peel Synchro Guidelines).

A base saturation flow of 1,900 vehicles per hour per lane, a peak hour factor of 1.00 and a lost time adjustment of 0 seconds were utilized, in accordance with Peel Synchro Guidelines. Lane widths were also adopted in accordance with Peel Synchro Guidelines (3.7 metres for through lanes and 3.5 metres for turn lanes) and heavy vehicle percentages were calculated based on existing traffic volume data extracted from the traffic counts utilized in this study.

Existing traffic signal timing plans for the signalized intersections within the study area were obtained from the Region of Peel and are attached in **Appendix E**. Analyses were undertaken using these signal timing plans.

## 5.3 Signalized Intersection Operations Analysis

### 5.3.1 Torbram Road / Mayfield Road

The intersection of Torbram Road / Mayfield Road is signalized and operates with a cycle length of 120 seconds in the AM peak hour and 135 seconds in the PM peak hour.

Under existing conditions, the intersection operates at overall v/c ratios of 0.32 and 0.38 during the AM and PM peak hours, respectively.

Under future background conditions with the construction of Highway 413, the intersection is expected to operate at overall v/c ratios of 0.87 and 0.79 in the AM and PM peak hours, respectively.

Under future background conditions without the construction of Highway 413, the intersection is expected to operate at overall v/c ratios of 0.89 and 0.76 in the AM and PM peak hours, respectively.

To accommodate the corridor growth expected along Mayfield Road and the area background development traffic, it is proposed that the signal timing plan for this intersection be adjusted to provide more time for the eastbound left and westbound left movements by increasing the protected split lengths, as well as providing a protected northbound left phase, while maintaining the overall cycle length.

Under future total conditions with the construction of Highway 413, the intersection is expected to operate at overall v/c ratios of 0.96 and 0.93 in the AM and PM peak hours, respectively.

Under future total conditions without the construction of Highway 413, the intersection is expected to operate at overall v/c ratios of 0.93 and 0.99 in the AM and PM peak hours, respectively.

Overall, it is projected that site traffic can be accommodated at this intersection, with or without the construction of Highway 413. It's also noted that the majority of the volume increase at this intersection is associated with the assumed

corridor growth, which has been conservatively set at 5% per year over a 10-year horizon as discussed in **Section 4.3.2**. Furthermore, as discussed in **Section 4.1**, analysis has conservatively been undertaken on the basis of the existing two lane configuration on Torbram Road. In the event that Torbram Road is widened to four lanes by 2031, this would provide additional capacity beyond the existing configuration which has been assessed within this study.

## 5.4 Unsignalized Intersection Results Operations Analysis

### 5.4.1 Torbram Road / Old School Road

The intersection of Torbram Road / Old School Road is unsignalized and all movements are projected to operate at LOS D or better without the Highway 413. With the construction of Highway 413, an LOS E is projected for the westbound and northbound movements in the PM peak hour, with delays of 47 and 49 seconds respectively. Furthermore, the Caledon MMTMP has reviewed the long-term road network requirements to accommodate projected future population growth and traffic patterns. While the specifics of future intersection control at this location is not currently available, the Caledon MMTMP identifies both Torbram Road and Old School Road for widening to 4 lanes and increased capacity would be provided.

Overall, it is projected that site traffic can be accommodated at this intersection. Detailed Synchro summary tables are provided in **Appendix D**.

## 5.5 Driveway Results Operations Analysis

### 5.5.1 Torbram Road / Street A / Tullamore Street C

The future Torbram Road / Street A / Tullamore Street C intersection is proposed to be unsignalized. Under future total conditions with or without the construction of Highway 413, all movements are projected to operate at LOS E or better in all analysis scenarios. Movements into and out of the site are projected to operate at LOS D or better.

Overall, it is projected that site traffic can be accommodated at this intersection. Detailed Synchro summary tables are provided in **Appendix D**.

### 5.5.2 Torbram Road / Street O

The future Torbram Road / Street O intersection is proposed to be unsignalized. Under future total conditions with or without the construction of Highway 413, all movements are projected to operate at LOS C or better in all analysis scenarios.

Overall, it is projected that site traffic can be accommodated at this intersection. Detailed Synchro summary tables are provided in **Appendix D**.

### 5.5.3 Torbram Road / Street B

The future Torbram Road / Street B intersection is proposed to be unsignalized. Under future total conditions with or without the construction of Highway 413, all movements are projected to operate at LOS C or better in all analysis scenarios.

Overall, it is projected that site traffic can be accommodated at this intersection. Detailed Synchro summary tables are provided in **Appendix D**.

# 6.0 SENSITIVITY ANALYSIS

## 6.1 Overview

As noted in **Section 1.3**, for the purpose of traffic sensitivity analysis, BA Group have been advised an estimate by MGP for in the order of 181 additional residential units, including 96 detached dwellings and 85 street townhouses for the central lands. The road networks between the Mayfield Golf Course and South lands are assumed to be connected.

Accordingly, a sensitivity analysis was undertaken which assesses future conditions with the potential development of the central lands, as follows:

- Future Total Plus Central Lands Conditions (2034) – with Highway 413
- Future Total Plus Central Lands Conditions (2034) – without Highway 413

The sensitivity analysis was undertaken for the site driveways only, to ensure the proposed access arrangements could accommodate potential additional traffic associated with the central lands.

## 6.2 Vehicle Trip Generation with Central Lands

The base vehicle trip generation for the development plus the central lands is summarized in **Table 12**. Internal trips remain consistent with those outlined in **Section 4.4.4**.

Table 13 Site and Central Lands Vehicle Trip Generation

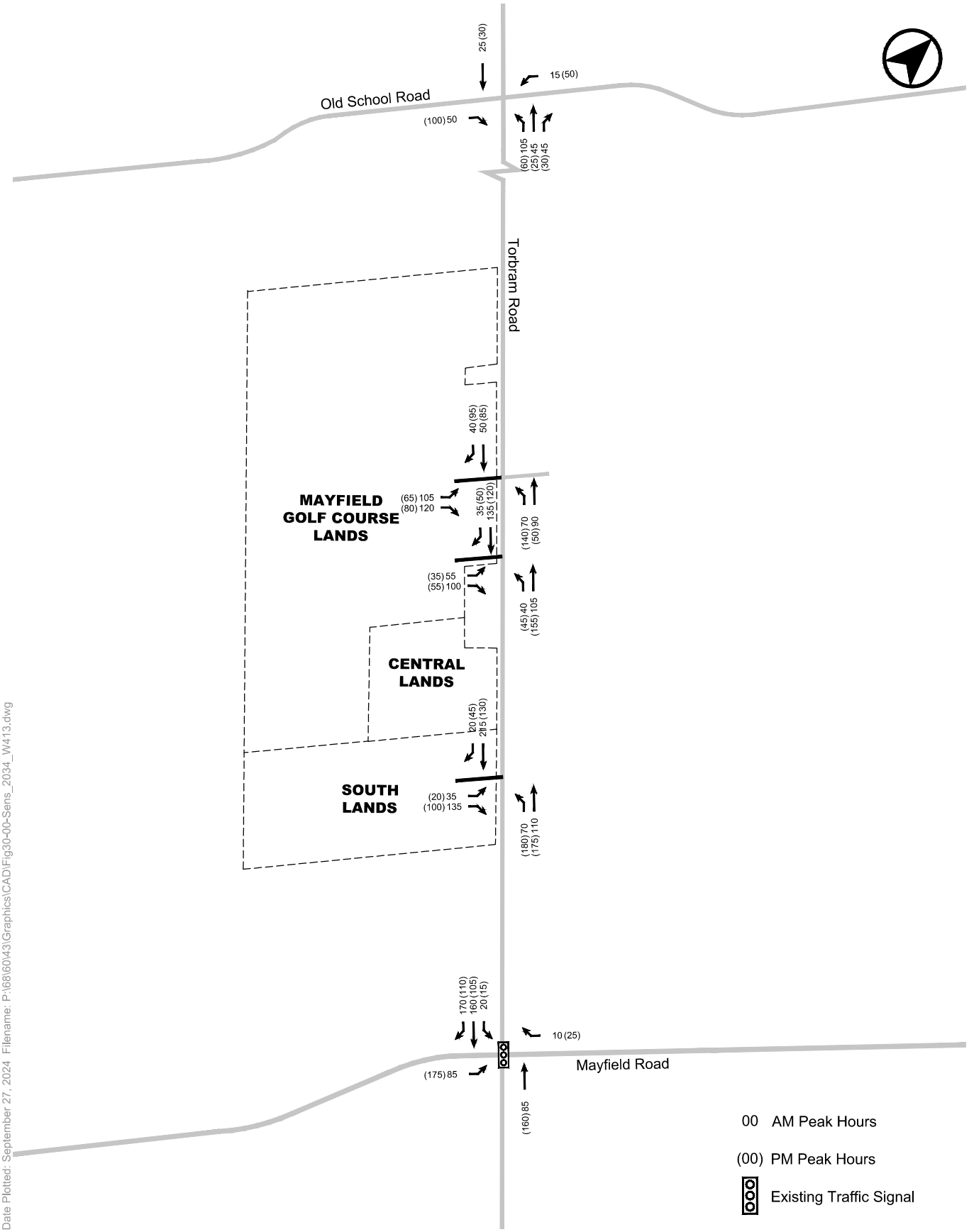
| Land Use | Number | | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|---|---|
| | | | In | Out | 2-Way | In | Out | 2-Way |
| Detached Dwellings | 337 units[1] | Base Trips | *0.18* | *0.52* | *0.70* | *0.59* | *0.35* | *0.94* |
| | | | 60 | 175 | 235 | 200 | 115 | 315 |
| Street Townhouses | 286 units[1] | Base Trips | *0.15* | *0.33* | *0.48* | *0.32* | *0.25* | *0.57* |
| | | | 45 | 95 | 140 | 95 | 70 | 165 |
| Stacked Townhouses | 655 units | Base Trips | *0.10* | *0.30* | *0.40* | *0.32* | *0.19* | *0.51* |
| | | | 65 | 200 | 265 | 210 | 125 | 335 |
| Total Residential | 1,278 units | Base Trips | 170 | 470 | 640 | 505 | 310 | 815 |
| | | Internal Trips | 15 | 25 | 40 | 10 | 10 | 20 |
| | | **External Trips** | **155** | **445** | **600** | **495** | **300** | **795** |
| Commercial | 20,451 ft² | Base Trips | *1.39* | *0.93* | *2.32* | *3.25* | *3.25* | *6.50* |
| | | | 30 | 20 | 50 | 70 | 70 | 140 |
| | | Internal Trips | **15** | **10** | **25** | **35** | **35** | **70** |
| | | **External Trips** | **15** | **10** | **25** | **35** | **35** | **70** |
| | | *Primary* | *15* | *10* | *25* | *25* | *25* | *50* |
| | | *Pass-by[1]* | *0* | *0* | *0* | *10* | *10* | *20* |
| Elementary School | 500 students | Base Trips | *0.40* | *0.34* | *0.74* | *0.07* | *0.09* | *0.16* |
| | | | 200 | 170 | 370 | 35 | 45 | 80 |
| | | Internal Trips | 100 | 85 | 185 | 20 | 20 | 40 |
| | | **External Trips** | **100** | **85** | **185** | **15** | **25** | **40** |
| Firehall | 20,451 ft² | **External Trips** | 0.34 | 0.14 | 0.48 | 0.14 | 0.34 | 0.48 |
| | | | **10** | **5** | **10** | **5** | **10** | **15** |

## 6.3 Projected Traffic Volumes

Projected site plus central lands traffic volumes for the scenarios with and without Highway 413 are shown in **Figure 30** and **Figure 31** respectively. Projected future total plus central lands traffic volumes for the scenarios with and without Highway 413 are shown in **Figure 32** and **Figure 33** respectively.

## 6.4 Operations Analysis

Overall, it is projected that the site driveways can operate within capacity with the potential development of the central lands. Detailed Synchro summary tables are provided in **Appendix D**.

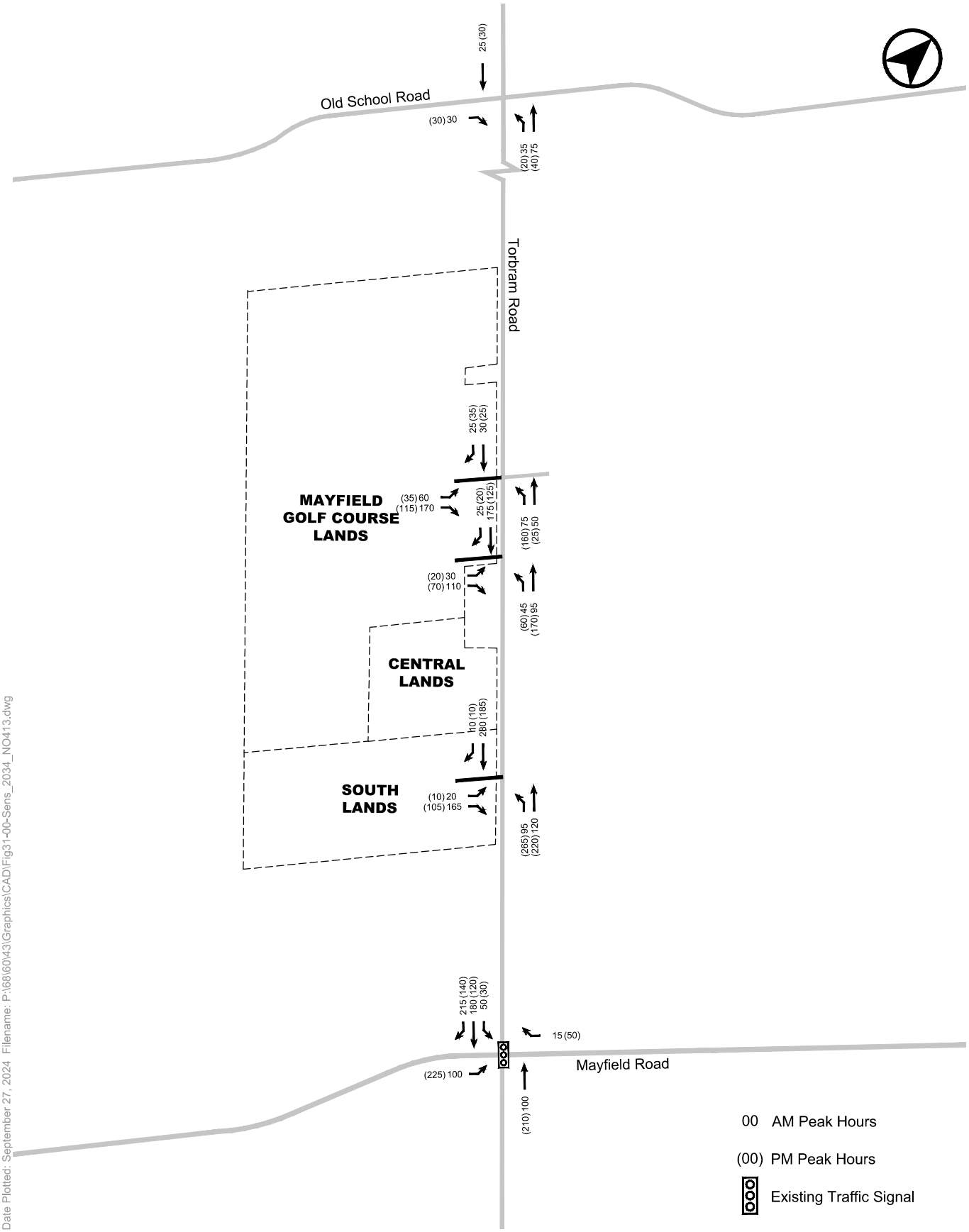



Date Plotted: September 27, 2024 Filename: P:\68\60\43\Graphics\CAD\Fig30-00-Sens_2034_W413.dwg

**FIGURE 30 SENSITIVITY ANALYSIS - SITE PLUS CENTRAL PARCEL TRAFFIC VOLUMES (2034) - WITH HIGHWAY 413**

BA GROUP 6860-43

MAYFIELD GOLF COURSE - 12580 & 12552 TORBRAM ROAD, CALEDON

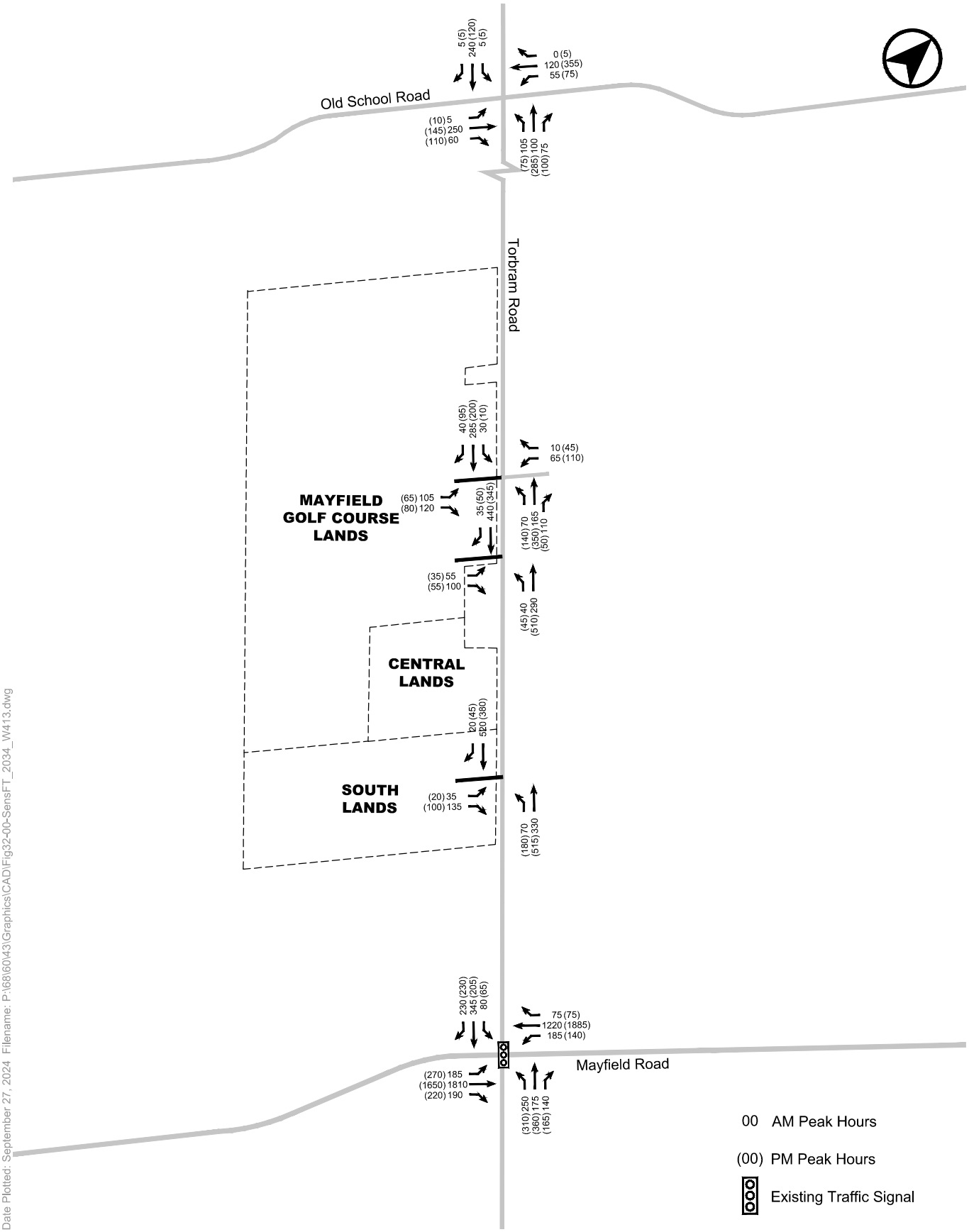



Date Plotted: September 27, 2024 Filename: P:\68\60\43\Graphics\CAD\Fig31-00-Sens_2034_NO413.dwg

**FIGURE 31 SENSITIVITY ANALYSIS - SITE PLUS CENTRAL PARCEL TRAFFIC VOLUMES (2034) - WITHOUT HIGHWAY 413**

BA GROUP 6860-43

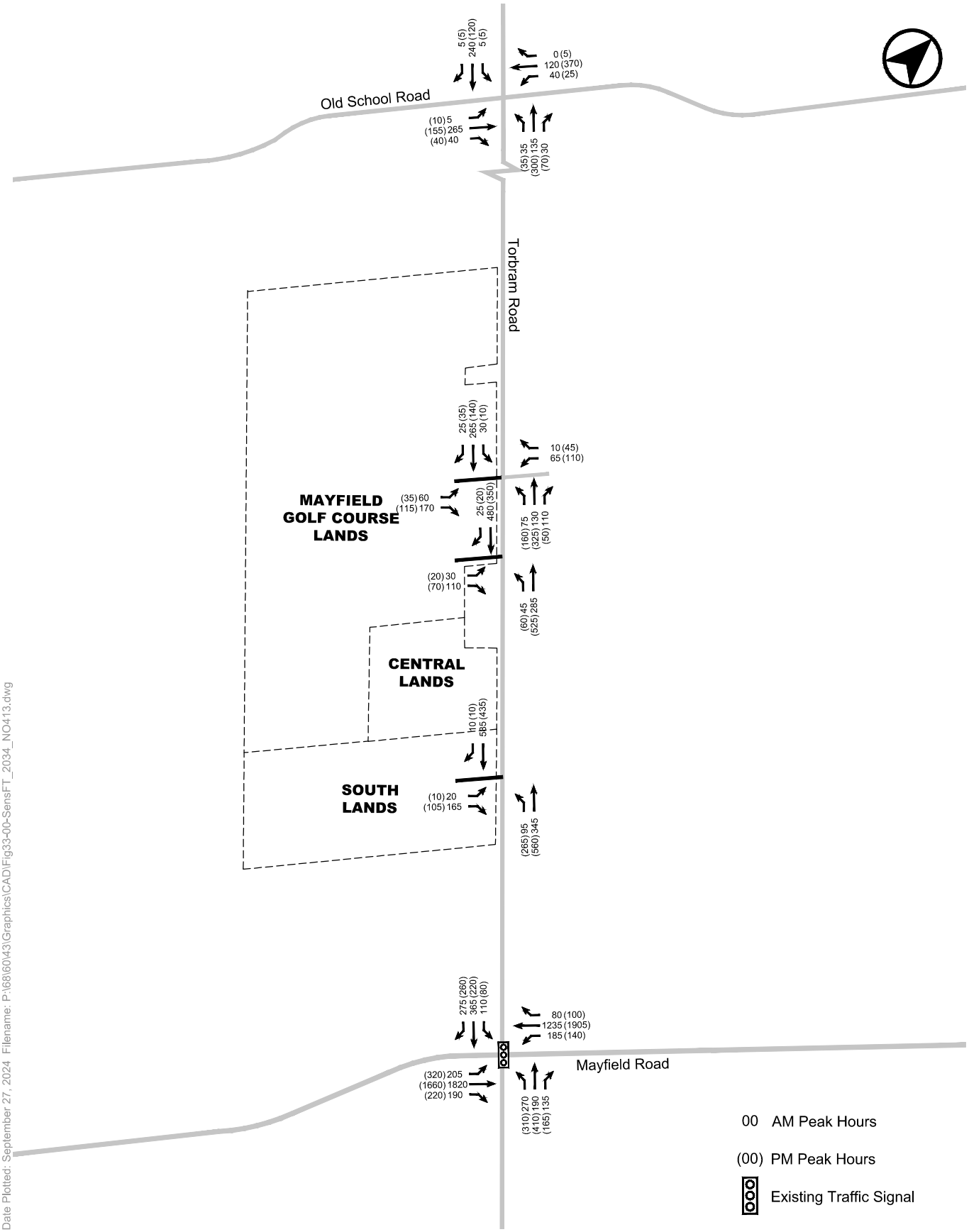
MAYFIELD GOLF COURSE - 12580 & 12552 TORBRAM ROAD, CALEDON




Date Plotted: September 27, 2024 Filename: P:\68\60\43\Graphics\CAD\Fig32-00-SensFT_2034_W413.dwg

**FIGURE 32 SENSITIVITY ANALYSIS - FUTURE TOTAL PLUS CENTRAL PARCEL TRAFFIC VOLUMES (2034) - WITH HIGHWAY 413**

BA GROUP 6860-43 MAYFIELD GOLF COURSE - 12580 & 12552 TORBRAM ROAD, CALEDON




Date Plotted: September 27, 2024 Filename: P:\68\60\43\Graphics\CAD\Fig33-00-SensFT_2034_NO413.dwg

**FIGURE 33 SENSITIVITY ANALYSIS - FUTURE TOTAL PLUS CENTRAL PARCEL TRAFFIC VOLUMES (2034) - WITHOUT HIGHWAY 413**

BA GROUP 6860-43 MAYFIELD GOLF COURSE - 12580 & 12552 TORBRAM ROAD, CALEDON

# 7.0 TRANSPORTATION DEMAND MANAGEMENT

## 7.1 Mobility Choice Travel Plan

The location of the site and its surrounding uses greatly influence the success of a Mobility Choice Travel Plan. The purpose of the Mobility Choice Travel Plan is to guide the provision of viable alternative personal transportation options beyond the single-occupant, private automobile. This plan intends to support the proposed development by outlining Transportation Demand Management (TDM) measures and the suite of strategies under consideration to promote the use of more active and sustainable transportation modes; respond to the mobility needs of residents, employees and visitors of the site; and to reduce the overall dependence on the private automobile.

Four specific objectives define the policy framework for the Mobility Choice Travel Plan:

- Encourage the use of alternate travel modes (transit, cycling, walking);
- Increase vehicle occupancy;
- Shift travel to off-peak periods; and
- Reduce vehicle kilometres travelled.

## 7.2 Organizational Framework

The four broader objectives can be organized within the following categories:

- Encourage Transit Use;
- Encourage and Facilitate Bicycle Use;
- Enhance Pedestrian Access and Walkability;
- Facilitation of Reduced Car Ownership and Usage;
- Vehicular Parking Supply and Management;
- Land Use and Building Infrastructure; and
- Coordination, Communication, and Promotion.

Potential Mobility Choice Travel Plan Strategies for the proposed development are summarized in **Table 14**.

Table 14 Potential Mobility Choice Travel Plan Strategies

| | | | |
|---|---|---|---|
| LAND USE INTEGRATION |  | **Intent:**<br>**Reduce reliance on privately owned vehicle**<br>A mixed-use development provides several uses that allow people to meet a variety of their needs on the site. These local land uses provide a level of convenience that reduces the need to travel far off-site for typical daily activity. | **Existing Context:**<br>• The existing site area is rural in nature<br>**Mobility Strategies:**<br>• The proposed development contains a mix of residential, commercial and elementary school uses providing opportunities for internal walking trips. |
| TRANSIT USE |  | **Intent:**<br>**Encourage Transit Use**<br>Support for and the promotion of the use of area transit services for both short and long-distance travel by residents, visitors, and employees will reduce the overall use of a vehicle and the need to own one. | **Existing Context:**<br>• The nearest transit services are operating in Brampton approximately 2.5 kilometres to the south of the site.<br>**Mobility Strategies:**<br>• At first occupancy, provide new residents, students and employees with a transit information package detailing available transit services in the area |
| BICYCLE FACILITIES |  | **Intent:**<br>**Encourage Bicycle Use**<br>Provide cycling infrastructure that supports and promotes cycling as a convenient and viable travel alternative to the personal automobile. | **Existing Context:**<br>• Existing active transportation infrastructure in the area includes a mixed use path on the south side of Mayfield Road, and signed bicycle routes along Old School Road and Torbram Road north of Old School Road.<br>**Mobility Strategies:**<br>• At first occupancy, provide new residents, students and employees with a cycling information package detailing available routes in the area<br>• Provision of multi-use paths on collector roads within the site in accordance with the proposed cross sections |
| PEDESTRIAN CONNECTIVITY |  | **Intent:**<br>**Encourage Pedestrian Use**<br>A high-quality, safe, connection between the site and transit stations / stops, cycling network, and public street system encourages residents, employees and visitors to travel around the site area without a vehicle. | **Existing Context:**<br>• There are no existing sidewalks on Torbram Road in the vicinity of the site. A mixed use path is currently available on the south side of Mayfield Road at Torbram Road.<br>**Mobility Strategies:**<br>• Provision of sidewalks on local roads and multi-use paths on collector roads within the site in accordance with the proposed cross sections |

# 8.0 DESIGN CONSIDERATIONS

## 8.1 Concept Road Plan

A concept road plan has been prepared in accordance with Town of Caledon standard drawings and Development Standards Manual, and is attached in **Appendix B**.

## 8.2 Sight Distance

An on-site sight distance assessment was undertaken of the proposed connections to Torbram Road (i.e. Street A, Street O and Street B) in accordance with the TAC Geometric Design Guide for Canadian Roads ("TAC"). A desktop sight distance assessment was also undertaken for key collector road intersections internal to the site, and is attached in **Appendix F**.

The relevant sight distances for consideration in this case are stopping sight distance ("SSD") and intersection sight distance ("ISD") case B1 (stop control on the minor road, left turn from the minor road), case B2 (stop control on the minor road, right turn from the minor road), case B3 (stop control on the minor road, crossing manoeuvre from the minor road), and case F (left turns from the major road). It's noted that of the relevant ISD cases, case B1 (stop control on the minor road, left turn from the minor road) has the highest sight distance requirement. The ISD assessment has therefore been undertaken against case B1.

The following sight distance properties were considered:

- Torbram Road posted speed: 70 km/h
- Torbram Road design speed: 80 km/h
- Collector road design speed: 60 km/h
- Design vehicle: Passenger car
- Average road grade: 0%
- Driver's eye height: 1.08 metres (TAC Section 9.11)
- Object height: 1.3 metres (TAC Section 9.11)
- Setback distance of driver's eye: 4.4 metres (TAC Section 9.9.2.3)

A summary of the sight distance assessment is provided in **Table 15**. Available sight distance at each of the proposed connections to Torbram Road, and the Street A / Street E intersection satisfy the requirements of TAC. It's also worth noting that Torbram Road may be regraded with widening/urbanization and potentially reduce sight distance constraints resulting from existing vertical curves.

The assessment identifies a shortfall from the TAC requirements at the Street A / Street B / Street L intersection to the east due to the horizontal curvature of the road. As such, this intersection may be a candidate for all-way stop control to address the sight distance constraint. This would also provide crossing opportunities for pedestrians, noting the school on the south side of Street A. Other options that could be considered through the detailed design process may include a curb bump out for the parking, which would allow the driver on the minor road to sit further forward in the intersection, or traffic calming measures to reduce the design speed.

Table 15 Sight Distance

| Intersection | TAC Requirement[1] | On-site / Desktop Assessment | |
|---|---|---|---|
| Torbram Road / Street A | SSD: 130 m<br>ISD Case B1: 170 m | **Based on on-site sight distance assessment:**<br><br>To the north: Approximately 280 m available<br>To the south: No impediments identified | Sight distance satisfies SSD and ISD TAC requirements in both directions. |
| Torbram Road / Street O | | **Based on on-site sight distance assessment:**<br><br>To the north: No impediments identified<br>To the south: No impediments identified | |
| Torbram Road / Street B | | **Based on on-site sight distance assessment:**<br><br>To the north: No impediments identified<br>To the south: Approximately 175 m available | |
| Street A / Street E | SSD: 85 m<br>ISD Case B1: 130 m | Sight distance satisfies SSD and ISD TAC requirements in both directions. | |
| Street A / Street B / Street L | | Sight distance satisfies both SSD and ISD TAC requirements to the west, however the horizontal curvature of the road to the east constrains sight distance in this direction. Intersection may be a candidate for all-way stop control or other traffic calming measures. | |
| Street A / Street J | | Sight distance to the east is available to the Torbram Road intersection and beyond. To the west, SSD is satisfied, however there is a slight shortfall to the rounded ISD requirement of 130 metres. Notwithstanding, it's noted that the calculated ISD requirement is 125.1 metres and the available sight distance is 125.04 metres which is generally in line with the calculated requirement. A driver would also be able to slightly reduce the drivers eye setback if required, noting some jurisdictions require a setback of less than 4.4 metres. | |
| Street B / Street O | | Sight distance satisfies SSD and ISD TAC requirements in both directions. | |

Notes:
1. Transportation Association of Canada Manual, Case B1; Table 9.9.4

## 8.3 On-Street Parking

The current concept plan does not currently show driveway locations. However, high level estimates have been made assuming parking is permitted on one side of streets within the site and based on driveway width and spacing assumptions. Accordingly, an on-street parking plan is attached in **Appendix G**, which estimates in the order of 346 on-street car parking spaces for the proposed 432 detached dwellings and street and lane townhouses in the Mayfield Golf Course lands (0.8 spaces per dwelling), and in the order of 22 on-street car parking spaces for the proposed 10 detached dwellings in the South lands (2.2 spaces per dwelling).

# 9.0 SUMMARY AND CONCLUSIONS

**Proposal Overview**

1. The site is located within the Mayfield-Tullamore community. A Structure Plan and Transportation Study (the "Mayfield-Tullamore TIS") have been prepared for the Mayfield-Tullamore community and included review of transportation considerations such as the proposed collector road network alignment, conceptual transit stop locations, proposed cycling network, road cross sections, traffic volume projections, operations analysis, and typical roundabout designs.
2. The proposal is for a residential subdivision comprising a total of 442 residential dwellings plus in the order of 655 residential dwellings estimated within mixed use blocks, estimated 1,900 square metres of commercial, a school with an estimated enrolment for up to 500 elementary students and a firehall with an estimated floor area of 1,900 square metres.
3. An internal road network is proposed to service the subdivision, with proposed roads in accordance with the Mayfield-Tullamore TIS and the Town of Caledon standard road cross sections.
4. Access to the subdivision is proposed via three new unsignalized intersections with Torbram Road. Street A protects for a potential future signal at this location following further development within the Mayfield-Tullamore community.
5. It is noted that the Mayfield Golf Course and South lands are separated by a third parcel of land which does not form part of this current application (the central lands). As a result of the central lands, the Mayfield Golf Course and South lands road networks are not connected and are accessed separately under this application. For the purpose of traffic sensitivity analysis, BA Group have been advised an estimate by MGP for in the order of 181 additional residential units, including 96 detached dwellings and 85 street townhouses for the central lands. The road networks between the Mayfield Golf Course and South lands are assumed to be connected.

**Traffic Analysis**

6. Analysis has been completed for the following scenarios during the AM and PM peak hour:
   - Existing Conditions
   - Future Background Conditions (2034) – with Highway 413
   - Future Background Conditions (2034) – without Highway 413
   - Future Total Conditions (2034) – with Highway 413
   - Future Total Conditions (2034) – without Highway 413
7. Capacity analysis was undertaken to determine the site vehicular traffic impact within the analysis study area listed below:
   - Torbram Road / Mayfield Road;
   - Torbram Road / Old School Road; and
   - Torbram Road / Site Driveways
8. The proposed development is projected to generate the following two-way external vehicle trips during the AM and PM peak hours respectively:
   - 490 and 660 external vehicle trips for the residential use;
   - 25 and 70 external vehicle trips for the commercial use (inclusive of pass-by trips);
   - 185 and 40 external vehicle trips for the elementary school use;
   - 15 and 15 external vehicle trips for the firehall
9. It is projected that traffic associated with the proposed development can be suitably accommodated at all intersections within the study area.

10. A sensitivity analysis was also undertaken which assesses future conditions with the potential development of the central lands, which does not form part of this current application. The analysis indicates that with the development of the central lands, all proposed site driveways would continue to operate within capacity.

**Transportation Demand Management**

11. Proposed Transportation Demand Management measures include:
    - Mix of proposed land uses on the site
    - Provision of transit information package
    - Provision of cycling information package
    - Provision of sidewalks and multi-use paths within the site

**Design Considerations**

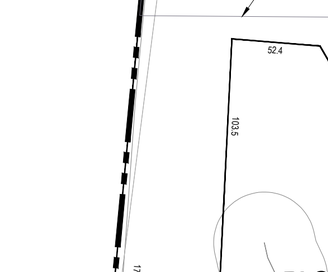
12. The concept road plan has been prepared in accordance with Town of Caledon standard drawings and Development Standards Manual.
13. An on-site sight distance assessment was undertaken of the proposed connections to Torbram Road (i.e. Street A, Street O and Street B) and a desktop sight distance assessment was undertaken for key collector road intersections internal to the site. The assessment identifies a shortfall from the TAC requirements at the Street A / Street B / Street L intersection to the east due to the horizontal curvature of the road. As such, this intersection may be a candidate for all-way stop control to address the sight distance constraint.
14. An on-street parking plan has been prepared which estimates in the order of 346 on-street car parking spaces for the proposed 432 detached dwellings and street and lane townhouses in the Mayfield Golf Course lands (0.8 spaces per dwelling), and in the order of 22 on-street car parking spaces for the proposed 10 detached dwellings in the South lands (2.2 spaces per dwelling).

## APPENDIX A:
## Concept Plan (Not to Scale)

# DRAFT PLAN OF SUBDIVISION

**Part of Lots 19, 20 and 21**
**Concession 5,**
**East of Hurontario Street**
**Town of Caledon**
**Regional Municipality of Peel**

## KEY PLAN




SUBJECT PROPERTY

## SCHEDULE OF LAND USE

| LOT/BLOCK | LAND USE | | UNITS | AREA (ha) |
|---|---|---|---|---|
| 1-241 | Single Detached Min. 13.40m | + | 47 | 9.23 |
| | Single Detached Min. 11.60m | = | 13 | |
| | Single Detached Min. 11.00m | o | 124 | |
| | Single Detached Min. 9.45m | ^ | 26 | |
| | Single Detached Min. 9.15m | □ | 31 | |
| 242-254 | Street Townhouse Min 6.10m | X | 77 | 1.79 |
| 255-274 | Lane Townhouse Min. 5.80m | L | 124 | 2.50 |
| 275-280 | Medium Density Residential | | | 4.13 |
| 281 | Elementary School | | | 2.12 |
| 282-287 | Park | | | 6.46 |
| 288 | Storm Water Management Pond | | | 3.65 |
| 289-291 | Storm Water Management Pond/Park | | | 4.65 |
| 292 | Commercial | | | 0.47 |
| 293 | Firehall | | | 0.76 |
| 294-296 | Natural Heritage System | | | 40.44 |
| 297-308 | Future Residential | | | 3.73 |
| 309-311 | Road Widening | | | 0.82 |
| 312 | Open Space | | | 0.02 |
| 313-315 | Future Road | | | 0.21 |
| 316-318 | 0.3m Reserve | | | 0.01 |
| Streets A-B | 22.0m Right of Way | 1,281 m | | 2.84 |
| Streets C-Q | 18.0m Right of Way | 3,685 m | | 6.92 |
| Lane A-D | 8.0m Right of Way | 463 m | | 0.43 |
| | TOTAL | 5,429 m | 442 | 91.18 |

## OWNER'S AUTHORIZATION

I hereby authorize Malone Given Parsons Ltd. to prepare and submit this Draft Plan of Subdivision to the Town of Caledon.

Mayfield Golf Course Inc. — Date

Tullamore Industrial GP Inc. — Date

Tullamore Industrial GP Inc. — Date

## SURVEYOR'S CERTIFICATE

I hereby certify that the boundaries of the lands to be subdivided as shown on this Plan and their relationship to the adjacent lands are accurately and correctly shown.

RPE — Date

## ADDITIONAL INFORMATION

AS REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT, CHAPTER P.13(R.S.O. 1990).
(a),(e),(f),(g),(j),(l) - As shown of the Draft Plan.
(b),(c) - As shown on the Draft and Key Plan.
(d) - Land to be used in accordance with the Schedule of Land Use.
(i) - Soil is silt and clay loam.
(h),(k) - Full municipal services to be provided.

| Date | Revision | By |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

MGP File No.: 22-3154
Date: May 31, 2024
Revised: October 1, 2024


Malone Given Parsons.
140 Renfrew Drive, Suite 201 | Markham, ON | L3R 6B3
905 513 0170 | mgp.ca


**Prepared For:**

**Mayfield Golf Course Inc. &**
**Tullamore Industrial GP Inc.**

**DRAFT - FOR DISCUSSION PURPOSES ONLY**

# APPENDIX B:
# Concept Road Plan and Cross Sections

BLOCK 294
Natural Heritage System
0.31 ha

BLK 297
Future Residential

Temporary
Turning Circle

BLOCK 316
0.3m Reserve

BLK 282
Park

BLK 299
Future Residential

BLK 301
Future
Residential

BLK 283
Park
0.63 ha

315
Road
ha

STREET C

STREET A

STREET B

STREET D

STREET E

STREET F

STREET G

STREET H

STREET J

STREET L

STREET M

STREET N

STREET O

STREET P

STREET Q

GREENBELT

BLOCK 289
Storm Water
Management Pond
/ Park
1.51 ha

BLOCK 275
Medium
Density
0.38 ha

BLOCK 288
Storm Water
Management Pond
3.65 ha

BLOCK 284
Park
1.58 ha

BLOCK 293
Firehall
0.75 ha

BLOCK 276
Medium Density
0.81 ha

BLOCK 285
Park
1.81 ha

BLOCK 281
Elementary School
2.12 ha

BLOCK 277
Medium Density
0.48 ha

BLOCK 292
Commercial
0.47 ha

BLOCK 290
Storm Water
Management Pond
/ Park
2.29 ha

BLOCK 296
Natural Heritage
System
29.78 ha

BLOCK 317
0.3m Reserve

BLK 304
Future
Residential

BLK 274 6 Units
BLK 273 6 Units
BLK 272 6 Units
BLK 271 6 Units
BLK 270 7 Units
BLK 269 7 Units
BLK 268 7 Units
BLK 267 7 Units
BLK 266 7 Units
BLK 265 7 Units
BLK 264 6 Units
BLK 263 6 Units
BLK 262 6 Units
BLK 261 7 Units
BLK 260 5 Units
BLK 259 6 Units
BLK 253 6 Units
BLK 254 6 Units

BLK 242 5 Units
BLK 243 6 Units
BLK 244 5 Units
BLK 245 7 Units
BLK 246 8 Units
BLK 247 4 Units
BLK 248 5 Units
BLK 255 4 Units
BLK 256 6 Units
BLK 257 7 Units
BLK 258 5 Units
BLK 249 7 Units
BLK 250 4 Units
BLK 251 5 Units
BLK 252 8 Units

NOTES:
- SIGHT TRIANGLES AS PER CALEDON DEVELOPMENT STANDARDS MANUAL (2019) 1.5.9
  -- 15x15 FOR INTERSECTION OF STREET LINES WITH REGIONAL ROADS
  -- 9X9 FOR INTERSECTION OF STREET LINES
- HORIZONTAL CURVE RADII AS PER CALEDON DEVELOPMENT STANDARDS (2019) 1.5.2.1 TABLE 1.2
- ROAD ELBOWS DESIGNED AS PER CALEDON STANDARD No. 214
- CORNER RADIUS 10.0m (UNLESS OTHERWISE NOTED) MEASURED AT EDGE OF PAVEMENT, PER CALEDON DEVELOPMENT STANDARDS (2019) 1.5.2.1 TABLE 1.2

LIMIT OF CONSTRAINTS
BEACON ENVIROMENTAL AUG. 22, 2024

TOP OF BANK STAKED BY R-PE
WITH TRCA ON AUGUST 28, 2023

DRIPLINE
BEACON ENVIROMENTAL
AUG. 22, 2024

REGIONAL FLOOD LINE

10m FROM REGIONAL
FLOOD LINE

RESIDENTIAL CUL-DE-SAC
PER STANDARD NO. 216

FUTURE 36.0m ROW
EXISTING 20.0m ROW
25.0m
7.7m
CL OF
EXISTING ROW
MATCHLINE

TORBRAM ROAD

WB APPROACH
TO BE DESIGNED
BY OTHERS

TORBRAM ROAD

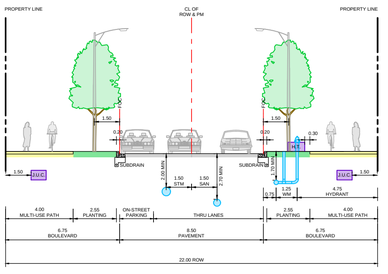
POSTED SPEED = 70 KM/H
ASSUMED DESIGN SPEED = 80 KM/H

INTERSECTION DESIGNED AS PER
TAC STANDARD 9.14 AND 9.17

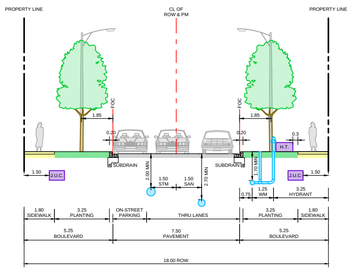
LANE WIDTHS AS PER TOWN OF
CALEDON DEVELOPMENT
STANDARDS MANUAL (2019)

MATCHLINE
CL OF EXISTING ROW
EX. 7.9m
FUTURE 36.0m ROW

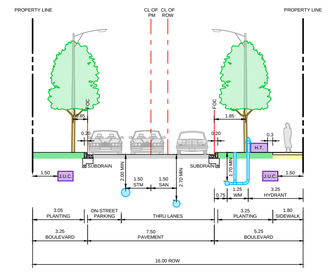
## SECTION A-A - 22m ROW COLLECTOR ROAD WITH MULTI-USE PATH



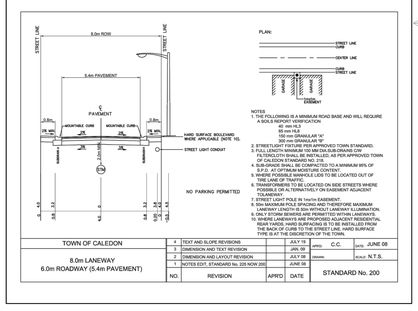

## SECTION B-B - 18m ROW LOCAL ROAD




## SECTION C-C - 16m ROW LOCAL ROAD




## SECTION D-D




| NO. | DATE | REVISION |
|---|---|---|
| 00 | MM-DD-YR | INT REVISION NOTE |


BA Group

BA Consulting Group Ltd.
300 - 45 St. Clair Ave. W.
Toronto ON M4V 1K9
TEL 416 961 7110
EMAIL bagroup@bagroup.com

MOVEMENT IN URBAN ENVIRONMENTS
BAGROUP.COM


# MAYFIELD GOLF COURSE

# CONCEPT ROAD PLAN

Date: October 2024

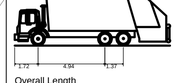
Project No.: 6860-43

Scale: 1:1,250 (0, 25, 50m)

# FD-01A

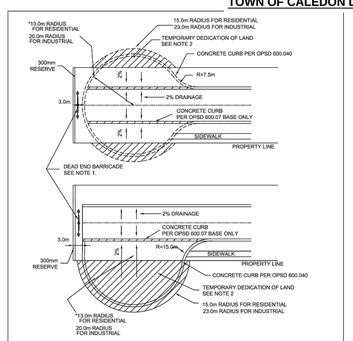
VMD-01: PEEL REGION GARBAGE - REAR LOADER

Peel Region Garbage - Rear Loader




Overall Length
Overall Width
Overall Body Height
Min Body Ground Clearance
Track Width
Lock-to-lock time
Wall to Wall Turning Radius

## TOWN OF CALEDON DESIGN STANDARDS (NTS)

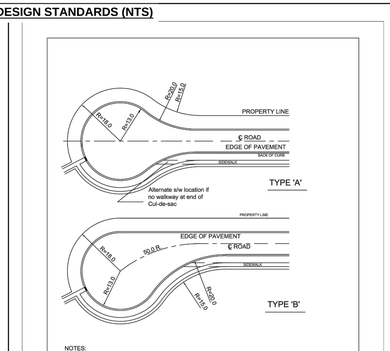



NOTES:
1. DEAD END BARRICADE PER OPSD 906.01 COMPLETE WITH ADDITIONAL 500mm X 500mm BLACK ON WHITE SIGN NOTING "-TEMPORARY ONLY- LOCATION OF FUTURE ROAD'.
2. TEMPORARY LAND DEDICATION VIA BLOCK ON PLAN.
3. *IF SCHOOL BUS SERVICE IS REQUIRED THE MINIMUM RADIUS SHALL BE 14.5m.

| NO. | REVISION | APP'D | DATE |
|---|---|---|---|
| 4 | | | |
| 3 | STANDARD No. 252 NOW 217 | | JUNE 08 |
| 2 | CURB MATERIAL AND OPSD NUMBER CORRECTION | | MARCH 08 |
| 1 | INDUSTRIAL RADII ADDED | | JUNE 04 |

TOWN OF CALEDON
TEMPORARY CUL-DE-SAC
APP'D BJM DATE 29/11/99
DRAWN: SCALE: N.T.S.
STANDARD No. 217

## TOWN OF CALEDON DESIGN STANDARDS (NTS)

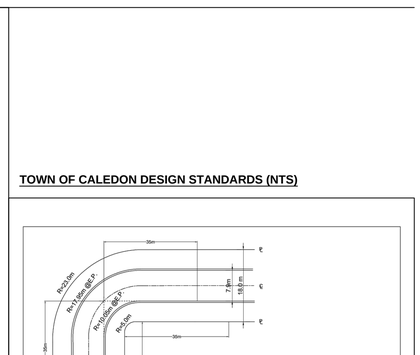



NOTES:
1. MAXIMUM 40 UNITS ON CUL-DE-SAC OR MAXIMUM 150m IN LENGTH.
2. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN.
3. ALL CURB RADII ARE 9.0m.
4. TREE PLANTING AS PER APPROVED LANDSCAPE PLANS.

| NO. | REVISION | APP'D | DATE |
|---|---|---|---|
| 4 | | | |
| 3 | STANDARD No. 251 NOW 218 | | JUNE 08 |
| 2 | CURB CUT BOSE AND NUMBER DIMENSIONAL NOTE CORRECTIONS | | MARCH 08 |
| 1 | ISLAND CURB STANDARD 600.060 ADDED | C.C. | 01/03 |

TOWN OF CALEDON
RESIDENTIAL CUL-DE-SAC
APP'D C.C. DATE: 26/06/19
DRAWN: SCALE: N.T.S.
STANDARD No.216

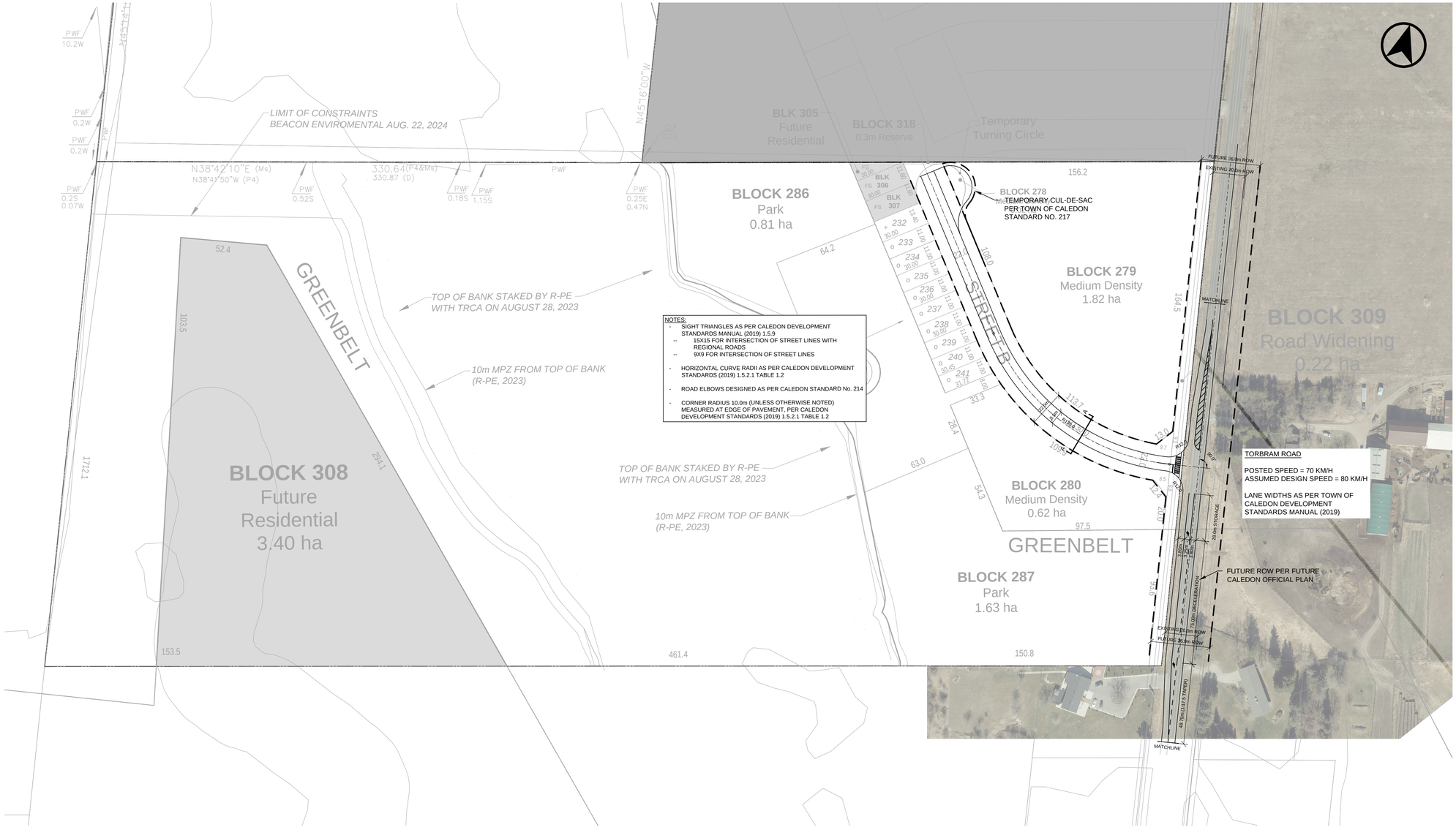
## TOWN OF CALEDON DESIGN STANDARDS (NTS)



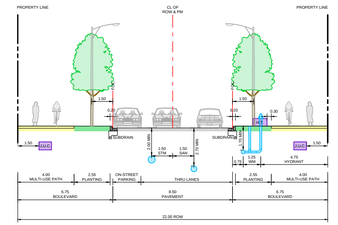

TOWN OF CALEDON
LOCAL RESIDENTIAL
ROAD ELBOW DESIGN

| NO. | REVISION | APP'D | DATE |
|---|---|---|---|
| 4 | | | |
| 3 | TEXT AND DIMENSION REVISION | | APR 19 |
| 2 | STANDARD No. 253 NOW 214 | | JUNE 08 |
| 1 | STANDARD NAME AND NUMBER CHANGE, CURB RADII AND BOULEVARD DIMENSIONS CORRECTION | | MARCH 08 |

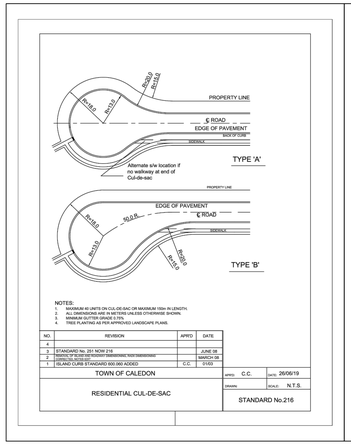
APP'D C.C. DATE: 12/05/01
DRAWN: BJM SCALE: N.T.S.
STANDARD No. 214

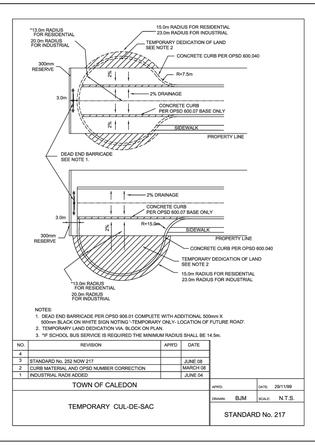


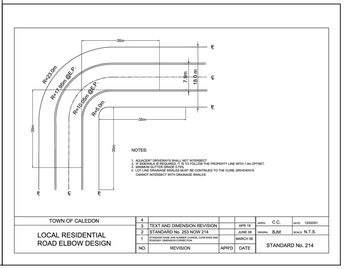

## SECTION A-A - 22m ROW COLLECTOR ROAD WITH MULTI-USE PATH




## TOWN OF CALEDON DESIGN STANDARDS (NTS)




BA Consulting Group Ltd.
1000 - 95 St. Clair Ave. W.
Toronto ON M4V 1N6
TEL 416 961 7110
EMAIL bagroup@bagroup.com
MOVEMENT IN URBAN ENVIRONMENTS
BAGROUP.COM

# MAYFIELD GOLF COURSE

## CONCEPT ROAD PLAN

Date: October 2024

Project No.: 6860-43

Scale: 1:1,250 (0 25 50m)

FD-01B

# APPENDIX C:
# Traffic Counts

Spectrum

Turning Movement Count
Location Name: MAYFIELD RD & TORBRAM RD
Date: Tue, Jun 28, 2022 Deployment Lead: Tasos Issaaakidis

BA Group
300 45 ST. CLAIR AVE W
TORONTO ONTARIO, M4V 1K9
CANADA

## Turning Movement Count (3 . MAYFIELD RD & TORBRAM RD) CustID: 01409611 MioID:

| Start Time | N Approach TORBRAM RD | | | | | | E Approach MAYFIELD RD | | | | | | S Approach TORBRAM RD | | | | | | W Approach MAYFIELD RD | | | | | | Int. Total (15 min) | Int. Total (1 hr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right N:W | Thru N:S | Left N:E | UTurn N:N | Peds N: | Approach Total | Right E:N | Thru E:W | Left E:S | UTurn E:E | Peds E: | Approach Total | Right S:E | Thru S:N | Left S:W | UTurn S:S | Peds S: | Approach Total | Right W:S | Thru W:E | Left W:N | UTurn W:W | Peds W: | Approach Total | | |
| 07:00:00 | 5 | 15 | 2 | 0 | 0 | 22 | 2 | 142 | 8 | 0 | 0 | 152 | 12 | 10 | 14 | 0 | 0 | 36 | 15 | 200 | 3 | 0 | 0 | 218 | 428 | |
| 07:15:00 | 4 | 24 | 0 | 0 | 0 | 28 | 1 | 132 | 11 | 0 | 0 | 144 | 11 | 20 | 13 | 0 | 1 | 44 | 23 | 219 | 5 | 0 | 0 | 247 | 463 | |
| 07:30:00 | 2 | 34 | 4 | 0 | 0 | 40 | 1 | 149 | 9 | 0 | 0 | 159 | 13 | 11 | 5 | 0 | 1 | 29 | 26 | 225 | 8 | 0 | 0 | 259 | 487 | |
| 07:45:00 | 2 | 37 | 4 | 0 | 0 | 43 | 1 | 138 | 17 | 0 | 0 | 156 | 8 | 12 | 10 | 0 | 0 | 30 | 26 | 229 | 5 | 0 | 0 | 260 | 489 | 1867 |
| 08:00:00 | 4 | 41 | 2 | 0 | 0 | 47 | 4 | 131 | 12 | 0 | 0 | 147 | 11 | 6 | 5 | 0 | 0 | 22 | 25 | 208 | 6 | 0 | 0 | 239 | 455 | 1894 |
| 08:15:00 | 6 | 40 | 0 | 0 | 0 | 46 | 4 | 141 | 5 | 0 | 0 | 150 | 8 | 13 | 19 | 0 | 0 | 40 | 42 | 206 | 3 | 0 | 0 | 251 | 487 | 1918 |
| 08:30:00 | 5 | 18 | 1 | 0 | 0 | 24 | 4 | 138 | 7 | 0 | 0 | 149 | 15 | 15 | 11 | 0 | 1 | 41 | 31 | 201 | 3 | 0 | 0 | 235 | 449 | 1880 |
| 08:45:00 | 3 | 24 | 2 | 0 | 0 | 29 | 3 | 125 | 14 | 0 | 0 | 142 | 13 | 12 | 14 | 0 | 0 | 39 | 32 | 193 | 12 | 0 | 0 | 237 | 447 | 1838 |
| ***BREAK*** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16:00:00 | 5 | 20 | 2 | 0 | 0 | 27 | 5 | 229 | 15 | 0 | 0 | 249 | 9 | 40 | 32 | 0 | 1 | 81 | 27 | 176 | 24 | 0 | 0 | 227 | 584 | |
| 16:15:00 | 4 | 13 | 2 | 0 | 0 | 19 | 1 | 220 | 23 | 0 | 0 | 244 | 9 | 39 | 28 | 0 | 0 | 76 | 18 | 174 | 20 | 0 | 0 | 212 | 551 | |
| 16:30:00 | 9 | 23 | 0 | 0 | 0 | 32 | 6 | 245 | 15 | 1 | 0 | 267 | 16 | 40 | 38 | 0 | 0 | 94 | 18 | 192 | 22 | 0 | 0 | 232 | 625 | |
| 16:45:00 | 2 | 20 | 2 | 0 | 0 | 24 | 7 | 239 | 21 | 1 | 0 | 268 | 13 | 41 | 37 | 0 | 0 | 91 | 22 | 198 | 19 | 0 | 0 | 239 | 622 | 2382 |
| 17:00:00 | 6 | 13 | 1 | 0 | 0 | 20 | 3 | 232 | 20 | 1 | 0 | 256 | 10 | 47 | 34 | 0 | 0 | 91 | 37 | 197 | 13 | 0 | 0 | 247 | 614 | 2412 |
| 17:15:00 | 7 | 16 | 2 | 0 | 0 | 25 | 5 | 241 | 17 | 0 | 0 | 263 | 13 | 38 | 35 | 0 | 0 | 86 | 28 | 186 | 16 | 0 | 0 | 230 | 604 | 2465 |
| 17:30:00 | 3 | 20 | 1 | 0 | 0 | 24 | 5 | 238 | 24 | 0 | 0 | 267 | 20 | 33 | 39 | 0 | 0 | 92 | 37 | 187 | 16 | 0 | 0 | 240 | 623 | 2463 |
| 17:45:00 | 11 | 17 | 1 | 0 | 0 | 29 | 1 | 213 | 27 | 0 | 0 | 241 | 18 | 38 | 33 | 0 | 0 | 89 | 37 | 187 | 16 | 0 | 0 | 240 | 599 | 2440 |
| **Grand Total** | 78 | 375 | 26 | 0 | 0 | 479 | 53 | 2953 | 245 | 3 | 0 | 3254 | 199 | 415 | 367 | 0 | 4 | 981 | 444 | 3178 | 191 | 0 | 0 | 3813 | **8527** | - |
| **Approach%** | 16.3% | 78.3% | 5.4% | 0% | | - | 1.6% | 90.7% | 7.5% | 0.1% | | - | 20.3% | 42.3% | 37.4% | 0% | | - | 11.6% | 83.3% | 5% | 0% | | - | **-** | - |
| **Totals %** | 0.9% | 4.4% | 0.3% | 0% | | 5.6% | 0.6% | 34.6% | 2.9% | 0% | | 38.2% | 2.3% | 4.9% | 4.3% | 0% | | 11.5% | 5.2% | 37.3% | 2.2% | 0% | | 44.7% | **-** | - |
| **Heavy** | 5 | 5 | 0 | 0 | | - | 3 | 459 | 13 | 0 | | - | 10 | 7 | 10 | 0 | | - | 13 | 495 | 2 | 0 | | - | **-** | - |
| **Heavy %** | 6.4% | 1.3% | 0% | 0% | | - | 5.7% | 15.5% | 5.3% | 0% | | - | 5% | 1.7% | 2.7% | 0% | | - | 2.9% | 15.6% | 1% | 0% | | - | **-** | - |
| **Bicycles** | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | **-** | - |
| **Bicycle %** | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | - | - | - | - | | - | **-** | - |

Spectrum

Turning Movement Count
Location Name: MAYFIELD RD & TORBRAM RD
Date: Tue, Jun 28, 2022 Deployment Lead: Tasos Issaaakidis

BA Group
300 45 ST. CLAIR AVE W
TORONTO ONTARIO, M4V 1K9
CANADA

**Peak Hour: 07:30 AM - 08:30 AM Weather: Clear Sky (11.13 °C)**

| Start Time | N Approach TORBRAM RD | | | | | | E Approach MAYFIELD RD | | | | | | S Approach TORBRAM RD | | | | | | W Approach MAYFIELD RD | | | | | | Int. Total (15 min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right | Thru | Left | UTurn | Peds | Approach Total | Right | Thru | Left | UTurn | Peds | Approach Total | Right | Thru | Left | UTurn | Peds | Approach Total | Right | Thru | Left | UTurn | Peds | Approach Total | |
| 07:30:00 | 2 | 34 | 4 | 0 | 0 | 40 | 1 | 149 | 9 | 0 | 0 | 159 | 13 | 11 | 5 | 0 | 1 | 29 | 26 | 225 | 8 | 0 | 0 | 259 | 487 |
| 07:45:00 | 2 | 37 | 4 | 0 | 0 | 43 | 1 | 138 | 17 | 0 | 0 | 156 | 8 | 12 | 10 | 0 | 0 | 30 | 26 | 229 | 5 | 0 | 0 | 260 | 489 |
| 08:00:00 | 4 | 41 | 2 | 0 | 0 | 47 | 4 | 131 | 12 | 0 | 0 | 147 | 11 | 6 | 5 | 0 | 0 | 22 | 25 | 208 | 6 | 0 | 0 | 239 | 455 |
| 08:15:00 | 6 | 40 | 0 | 0 | 0 | 46 | 4 | 141 | 5 | 0 | 0 | 150 | 8 | 13 | 19 | 0 | 0 | 40 | 42 | 206 | 3 | 0 | 0 | 251 | 487 |
| **Grand Total** | 14 | 152 | 10 | 0 | 0 | 176 | 10 | 559 | 43 | 0 | 0 | 612 | 40 | 42 | 39 | 0 | 1 | 121 | 119 | 868 | 22 | 0 | 0 | 1009 | **1918** |
| **Approach%** | 8% | 86.4% | 5.7% | 0% | | - | 1.6% | 91.3% | 7% | 0% | | - | 33.1% | 34.7% | 32.2% | 0% | | - | 11.8% | 86% | 2.2% | 0% | | - | **-** |
| **Totals %** | 0.7% | 7.9% | 0.5% | 0% | | 9.2% | 0.5% | 29.1% | 2.2% | 0% | | 31.9% | 2.1% | 2.2% | 2% | 0% | | 6.3% | 6.2% | 45.3% | 1.1% | 0% | | 52.6% | **-** |
| **PHF** | 0.58 | 0.93 | 0.63 | 0 | | 0.94 | 0.63 | 0.94 | 0.63 | 0 | | 0.96 | 0.77 | 0.81 | 0.51 | 0 | | 0.76 | 0.71 | 0.95 | 0.69 | 0 | | 0.97 | **-** |
| **Heavy** | 2 | 0 | 0 | 0 | | 2 | 1 | 146 | 3 | 0 | | 150 | 4 | 2 | 1 | 0 | | 7 | 6 | 101 | 0 | 0 | | 107 | **-** |
| **Heavy %** | 14.3% | 0% | 0% | 0% | | 1.1% | 10% | 26.1% | 7% | 0% | | 24.5% | 10% | 4.8% | 2.6% | 0% | | 5.8% | 5% | 11.6% | 0% | 0% | | 10.6% | **-** |
| **Lights** | 12 | 152 | 10 | 0 | | 174 | 9 | 413 | 40 | 0 | | 462 | 36 | 40 | 38 | 0 | | 114 | 113 | 767 | 22 | 0 | | 902 | **-** |
| **Lights %** | 85.7% | 100% | 100% | 0% | | 98.9% | 90% | 73.9% | 93% | 0% | | 75.5% | 90% | 95.2% | 97.4% | 0% | | 94.2% | 95% | 88.4% | 100% | 0% | | 89.4% | **-** |
| **Single-Unit Trucks** | 1 | 0 | 0 | 0 | | 1 | 0 | 56 | 0 | 0 | | 56 | 1 | 1 | 1 | 0 | | 3 | 4 | 48 | 0 | 0 | | 52 | **-** |
| **Single-Unit Trucks %** | 7.1% | 0% | 0% | 0% | | 0.6% | 0% | 10% | 0% | 0% | | 9.2% | 2.5% | 2.4% | 2.6% | 0% | | 2.5% | 3.4% | 5.5% | 0% | 0% | | 5.2% | **-** |
| **Buses** | 1 | 0 | 0 | 0 | | 1 | 1 | 18 | 3 | 0 | | 22 | 3 | 1 | 0 | 0 | | 4 | 2 | 10 | 0 | 0 | | 12 | **-** |
| **Buses %** | 7.1% | 0% | 0% | 0% | | 0.6% | 10% | 3.2% | 7% | 0% | | 3.6% | 7.5% | 2.4% | 0% | 0% | | 3.3% | 1.7% | 1.2% | 0% | 0% | | 1.2% | **-** |
| **Articulated Trucks** | 0 | 0 | 0 | 0 | | 0 | 0 | 72 | 0 | 0 | | 72 | 0 | 0 | 0 | 0 | | 0 | 0 | 43 | 0 | 0 | | 43 | **-** |
| **Articulated Trucks %** | 0% | 0% | 0% | 0% | | 0% | 0% | 12.9% | 0% | 0% | | 11.8% | 0% | 0% | 0% | 0% | | 0% | 0% | 5% | 0% | 0% | | 4.3% | **-** |
| **Pedestrians** | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 1 | - | - | - | - | - | 0 | - | **-** |
| **Pedestrians%** | - | - | - | - | 0% | | - | - | - | - | 0% | | - | - | - | - | 100% | | - | - | - | - | 0% | | **-** |

Spectrum

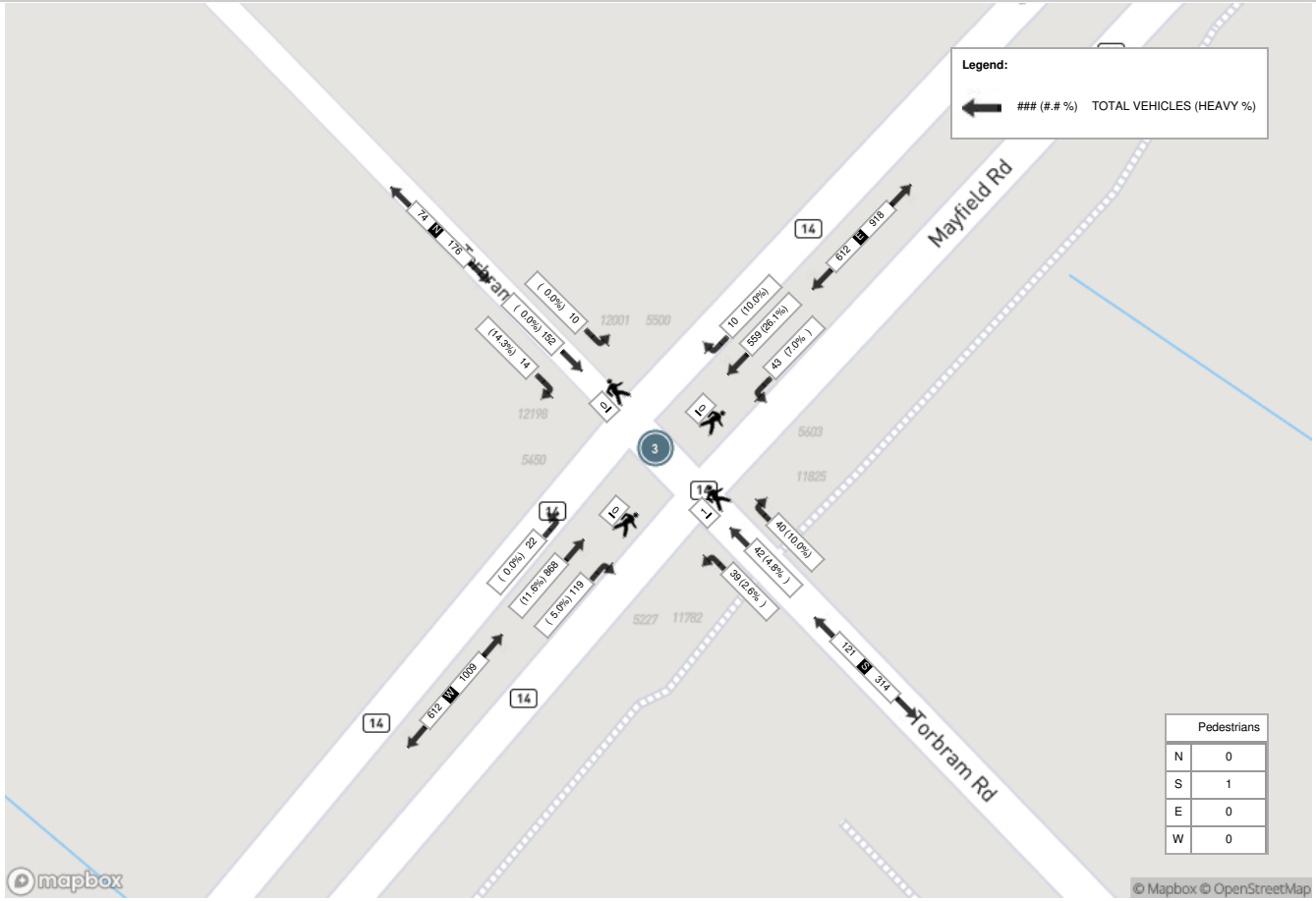
Turning Movement Count
Location Name: MAYFIELD RD & TORBRAM RD
Date: Tue, Jun 28, 2022 Deployment Lead: Tasos Issaaakidis

BA Group
300 45 ST. CLAIR AVE W
TORONTO ONTARIO, M4V 1K9
CANADA

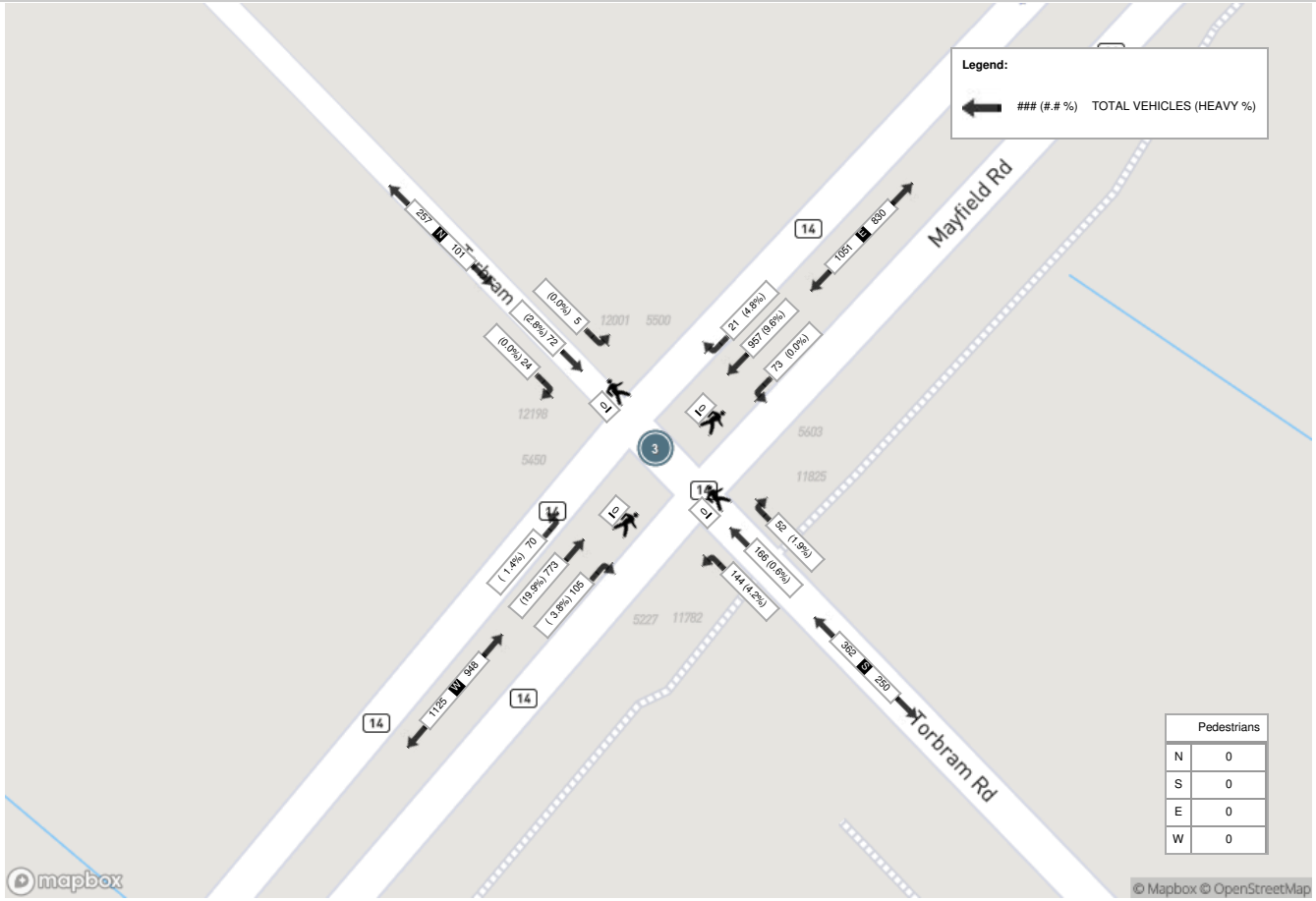
**Peak Hour: 04:30 PM - 05:30 PM Weather: Clear Sky (23.75 °C)**

| Start Time | N Approach TORBRAM RD | | | | | | E Approach MAYFIELD RD | | | | | | S Approach TORBRAM RD | | | | | | W Approach MAYFIELD RD | | | | | | Int. Total (15 min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right | Thru | Left | UTurn | Peds | Approach Total | Right | Thru | Left | UTurn | Peds | Approach Total | Right | Thru | Left | UTurn | Peds | Approach Total | Right | Thru | Left | UTurn | Peds | Approach Total | |
| 16:30:00 | 9 | 23 | 0 | 0 | 0 | 32 | 6 | 245 | 15 | 1 | 0 | 267 | 16 | 40 | 38 | 0 | 0 | 94 | 18 | 192 | 22 | 0 | 0 | 232 | 625 |
| 16:45:00 | 2 | 20 | 2 | 0 | 0 | 24 | 7 | 239 | 21 | 1 | 0 | 268 | 13 | 41 | 37 | 0 | 0 | 91 | 22 | 198 | 19 | 0 | 0 | 239 | 622 |
| 17:00:00 | 6 | 13 | 1 | 0 | 0 | 20 | 3 | 232 | 20 | 1 | 0 | 256 | 10 | 47 | 34 | 0 | 0 | 91 | 37 | 197 | 13 | 0 | 0 | 247 | 614 |
| 17:15:00 | 7 | 16 | 2 | 0 | 0 | 25 | 5 | 241 | 17 | 0 | 0 | 263 | 13 | 38 | 35 | 0 | 0 | 86 | 28 | 186 | 16 | 0 | 0 | 230 | 604 |
| **Grand Total** | 24 | 72 | 5 | 0 | 0 | 101 | 21 | 957 | 73 | 3 | 0 | 1054 | 52 | 166 | 144 | 0 | 0 | 362 | 105 | 773 | 70 | 0 | 0 | 948 | **2465** |
| **Approach%** | 23.8% | 71.3% | 5% | 0% | | - | 2% | 90.8% | 6.9% | 0.3% | | - | 14.4% | 45.9% | 39.8% | 0% | | - | 11.1% | 81.5% | 7.4% | 0% | | - | **-** |
| **Totals %** | 1% | 2.9% | 0.2% | 0% | | 4.1% | 0.9% | 38.8% | 3% | 0.1% | | 42.8% | 2.1% | 6.7% | 5.8% | 0% | | 14.7% | 4.3% | 31.4% | 2.8% | 0% | | 38.5% | **-** |
| **PHF** | 0.67 | 0.78 | 0.63 | 0 | | 0.79 | 0.75 | 0.98 | 0.87 | 0.75 | | 0.98 | 0.81 | 0.88 | 0.95 | 0 | | 0.96 | 0.71 | 0.98 | 0.8 | 0 | | 0.96 | **-** |
| **Heavy** | 0 | 2 | 0 | 0 | | 2 | 1 | 92 | 0 | 0 | | 93 | 1 | 1 | 6 | 0 | | 8 | 4 | 154 | 1 | 0 | | 159 | **-** |
| **Heavy %** | 0% | 2.8% | 0% | 0% | | 2% | 4.8% | 9.6% | 0% | 0% | | 8.8% | 1.9% | 0.6% | 4.2% | 0% | | 2.2% | 3.8% | 19.9% | 1.4% | 0% | | 16.8% | **-** |
| **Lights** | 24 | 70 | 5 | 0 | | 99 | 20 | 865 | 73 | 3 | | 961 | 51 | 165 | 138 | 0 | | 354 | 101 | 619 | 69 | 0 | | 789 | **-** |
| **Lights %** | 100% | 97.2% | 100% | 0% | | 98% | 95.2% | 90.4% | 100% | 100% | | 91.2% | 98.1% | 99.4% | 95.8% | 0% | | 97.8% | 96.2% | 80.1% | 98.6% | 0% | | 83.2% | **-** |
| **Single-Unit Trucks** | 0 | 1 | 0 | 0 | | 1 | 0 | 56 | 0 | 0 | | 56 | 0 | 0 | 4 | 0 | | 4 | 4 | 75 | 1 | 0 | | 80 | **-** |
| **Single-Unit Trucks %** | 0% | 1.4% | 0% | 0% | | 1% | 0% | 5.9% | 0% | 0% | | 5.3% | 0% | 0% | 2.8% | 0% | | 1.1% | 3.8% | 9.7% | 1.4% | 0% | | 8.4% | **-** |
| **Buses** | 0 | 0 | 0 | 0 | | 0 | 1 | 2 | 0 | 0 | | 3 | 1 | 0 | 2 | 0 | | 3 | 0 | 11 | 0 | 0 | | 11 | **-** |
| **Buses %** | 0% | 0% | 0% | 0% | | 0% | 4.8% | 0.2% | 0% | 0% | | 0.3% | 1.9% | 0% | 1.4% | 0% | | 0.8% | 0% | 1.4% | 0% | 0% | | 1.2% | **-** |
| **Articulated Trucks** | 0 | 1 | 0 | 0 | | 1 | 0 | 34 | 0 | 0 | | 34 | 0 | 1 | 0 | 0 | | 1 | 0 | 68 | 0 | 0 | | 68 | **-** |
| **Articulated Trucks %** | 0% | 1.4% | 0% | 0% | | 1% | 0% | 3.6% | 0% | 0% | | 3.2% | 0% | 0.6% | 0% | 0% | | 0.3% | 0% | 8.8% | 0% | 0% | | 7.2% | **-** |
| **Pedestrians** | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | **-** |
| **Pedestrians%** | - | - | - | - | 0% | | - | - | - | - | 0% | | - | - | - | - | 0% | | - | - | - | - | 0% | | **-** |

**Peak Hour: 07:30 AM - 08:30 AM** **Weather: Clear Sky (11.13 °C)**



**Peak Hour: 04:30 PM - 05:30 PM Weather: Clear Sky (23.75 °C)**



BA Group
300 45 ST. CLAIR AVE W
TORONTO ONTARIO, M4V 1K9
CANADA

## Turning Movement Count (6 . TORBRAM RD & GOLF CLUB MAINTENANCE ACCESS)

| Start Time | N Approach TORBRAM RD | | | | | S Approach TORBRAM RD | | | | | W Approach GOLF CLUB MAINTENANCE ACCESS | | | | | Int. Total (15 min) | Int. Total (1 hr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right N:W | Thru N:S | UTurn N:N | Peds N: | Approach Total | Thru S:N | Left S:W | UTurn S:S | Peds S: | Approach Total | Right W:S | Left W:N | UTurn W:W | Peds W: | Approach Total | | |
| 07:00:00 | 0 | 21 | 0 | 0 | 21 | 11 | 0 | 0 | 0 | 11 | 1 | 0 | 0 | 0 | 1 | 33 | |
| 07:15:00 | 0 | 29 | 0 | 0 | 29 | 26 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 55 | |
| 07:30:00 | 0 | 44 | 0 | 0 | 44 | 15 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 59 | |
| 07:45:00 | 0 | 36 | 0 | 0 | 36 | 16 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 52 | 199 |
| 08:00:00 | 0 | 46 | 0 | 0 | 46 | 15 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 61 | 227 |
| 08:15:00 | 0 | 45 | 0 | 0 | 45 | 16 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 61 | 233 |
| 08:30:00 | 0 | 29 | 0 | 0 | 29 | 18 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 47 | 221 |
| 08:45:00 | 0 | 20 | 0 | 0 | 20 | 27 | 0 | 0 | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 47 | 216 |
| ***BREAK*** | | | | | | | | | | | | | | | | | |
| 16:00:00 | 0 | 20 | 0 | 0 | 20 | 64 | 0 | 0 | 0 | 64 | 1 | 0 | 0 | 0 | 1 | 85 | |
| 16:15:00 | 0 | 22 | 0 | 0 | 22 | 61 | 0 | 0 | 0 | 61 | 0 | 0 | 0 | 0 | 0 | 83 | |
| 16:30:00 | 0 | 26 | 0 | 0 | 26 | 60 | 1 | 0 | 0 | 61 | 1 | 0 | 0 | 0 | 1 | 88 | |
| 16:45:00 | 0 | 22 | 0 | 0 | 22 | 56 | 0 | 0 | 0 | 56 | 0 | 0 | 0 | 0 | 0 | 78 | 334 |
| 17:00:00 | 0 | 18 | 0 | 0 | 18 | 51 | 0 | 0 | 0 | 51 | 0 | 0 | 0 | 0 | 0 | 69 | 318 |
| 17:15:00 | 0 | 28 | 0 | 0 | 28 | 61 | 0 | 0 | 0 | 61 | 0 | 0 | 0 | 0 | 0 | 89 | 324 |
| 17:30:00 | 0 | 24 | 0 | 0 | 24 | 53 | 0 | 0 | 0 | 53 | 0 | 0 | 0 | 0 | 0 | 77 | 313 |
| 17:45:00 | 0 | 22 | 0 | 0 | 22 | 47 | 0 | 0 | 0 | 47 | 0 | 0 | 0 | 0 | 0 | 69 | 304 |
| **Grand Total** | 0 | 452 | 0 | 0 | 452 | 597 | 1 | 0 | 0 | 598 | 3 | 0 | 0 | 0 | 3 | **1053** | - |
| **Approach%** | 0% | 100% | 0% | | - | 99.8% | 0.2% | 0% | | - | 100% | 0% | 0% | | - | **-** | - |
| **Totals %** | 0% | 42.9% | 0% | | 42.9% | 56.7% | 0.1% | 0% | | 56.8% | 0.3% | 0% | 0% | | 0.3% | **-** | - |
| **Heavy** | 0 | 12 | 0 | | - | 11 | 0 | 0 | | - | 0 | 0 | 0 | | - | **-** | - |
| **Heavy %** | 0% | 2.7% | 0% | | - | 1.8% | 0% | 0% | | - | 0% | 0% | 0% | | - | **-** | - |
| **Bicycles** | - | - | - | | - | - | - | - | | - | - | - | - | | - | **-** | - |
| **Bicycle %** | - | - | - | | - | - | - | - | | - | - | - | - | | - | **-** | - |

BA Group
300 45 ST. CLAIR AVE W
TORONTO ONTARIO, M4V 1K9
CANADA

**Peak Hour: 07:30 AM - 08:30 AM Weather: Clear Sky (11.13 °C)**

| Start Time | N Approach TORBRAM RD | | | | | S Approach TORBRAM RD | | | | | W Approach GOLF CLUB MAINTENANCE ACCESS | | | | | Int. Total (15 min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right | Thru | UTurn | Peds | Approach Total | Thru | Left | UTurn | Peds | Approach Total | Right | Left | UTurn | Peds | Approach Total | |
| 07:30:00 | 0 | 44 | 0 | 0 | 44 | 15 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 59 |
| 07:45:00 | 0 | 36 | 0 | 0 | 36 | 16 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 52 |
| 08:00:00 | 0 | 46 | 0 | 0 | 46 | 15 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 61 |
| 08:15:00 | 0 | 45 | 0 | 0 | 45 | 16 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 61 |
| **Grand Total** | 0 | 171 | 0 | 0 | 171 | 62 | 0 | 0 | 0 | 62 | 0 | 0 | 0 | 0 | 0 | **233** |
| **Approach%** | 0% | 100% | 0% | | - | 100% | 0% | 0% | | - | 0% | 0% | 0% | | - | **-** |
| **Totals %** | 0% | 73.4% | 0% | | 73.4% | 26.6% | 0% | 0% | | 26.6% | 0% | 0% | 0% | | 0% | **-** |
| **PHF** | 0 | 0.93 | 0 | | 0.93 | 0.97 | 0 | 0 | | 0.97 | 0 | 0 | 0 | | 0 | **-** |
| **Heavy** | 0 | 1 | 0 | | 1 | 3 | 0 | 0 | | 3 | 0 | 0 | 0 | | 0 | **-** |
| **Heavy %** | 0% | 0.6% | 0% | | 0.6% | 4.8% | 0% | 0% | | 4.8% | 0% | 0% | 0% | | 0% | **-** |
| **Lights** | 0 | 170 | 0 | | 170 | 59 | 0 | 0 | | 59 | 0 | 0 | 0 | | 0 | **-** |
| **Lights %** | 0% | 99.4% | 0% | | 99.4% | 95.2% | 0% | 0% | | 95.2% | 0% | 0% | 0% | | 0% | **-** |
| **Single-Unit Trucks** | 0 | 1 | 0 | | 1 | 1 | 0 | 0 | | 1 | 0 | 0 | 0 | | 0 | **-** |
| **Single-Unit Trucks %** | 0% | 0.6% | 0% | | 0.6% | 1.6% | 0% | 0% | | 1.6% | 0% | 0% | 0% | | 0% | **-** |
| **Buses** | 0 | 0 | 0 | | 0 | 2 | 0 | 0 | | 2 | 0 | 0 | 0 | | 0 | **-** |
| **Buses %** | 0% | 0% | 0% | | 0% | 3.2% | 0% | 0% | | 3.2% | 0% | 0% | 0% | | 0% | **-** |
| **Articulated Trucks** | 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% | **-** |

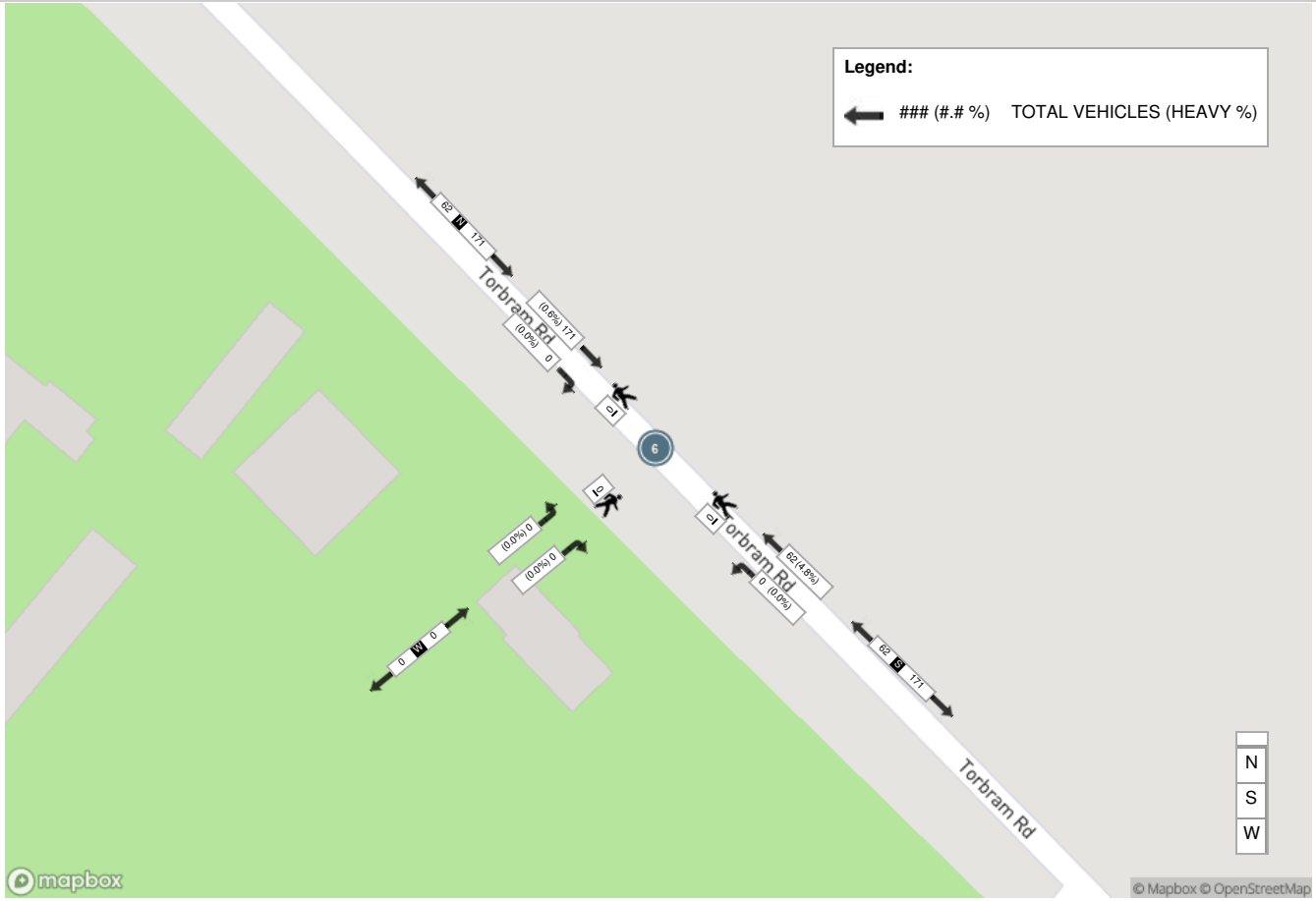
BA Group
300 45 ST. CLAIR AVE W
TORONTO ONTARIO, M4V 1K9
CANADA

**Peak Hour: 04:00 PM - 05:00 PM Weather: Clear Sky (23.75 °C)**

| Start Time | N Approach TORBRAM RD | | | | | S Approach TORBRAM RD | | | | | W Approach GOLF CLUB MAINTENANCE ACCESS | | | | | Int. Total (15 min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right | Thru | UTurn | Peds | Approach Total | Thru | Left | UTurn | Peds | Approach Total | Right | Left | UTurn | Peds | Approach Total | |
| 16:00:00 | 0 | 20 | 0 | 0 | 20 | 64 | 0 | 0 | 0 | 64 | 1 | 0 | 0 | 0 | 1 | 85 |
| 16:15:00 | 0 | 22 | 0 | 0 | 22 | 61 | 0 | 0 | 0 | 61 | 0 | 0 | 0 | 0 | 0 | 83 |
| 16:30:00 | 0 | 26 | 0 | 0 | 26 | 60 | 1 | 0 | 0 | 61 | 1 | 0 | 0 | 0 | 1 | 88 |
| 16:45:00 | 0 | 22 | 0 | 0 | 22 | 56 | 0 | 0 | 0 | 56 | 0 | 0 | 0 | 0 | 0 | 78 |
| **Grand Total** | 0 | 90 | 0 | 0 | 90 | 241 | 1 | 0 | 0 | 242 | 2 | 0 | 0 | 0 | 2 | **334** |
| **Approach%** | 0% | 100% | 0% | | - | 99.6% | 0.4% | 0% | | - | 100% | 0% | 0% | | - | **-** |
| **Totals %** | 0% | 26.9% | 0% | | 26.9% | 72.2% | 0.3% | 0% | | 72.5% | 0.6% | 0% | 0% | | 0.6% | **-** |
| **PHF** | 0 | 0.87 | 0 | | 0.87 | 0.94 | 0.25 | 0 | | 0.95 | 0.5 | 0 | 0 | | 0.5 | **-** |
| **Heavy** | 0 | 5 | 0 | | 5 | 4 | 0 | 0 | | 4 | 0 | 0 | 0 | | 0 | **-** |
| **Heavy %** | 0% | 5.6% | 0% | | 5.6% | 1.7% | 0% | 0% | | 1.7% | 0% | 0% | 0% | | 0% | **-** |
| **Lights** | 0 | 85 | 0 | | 85 | 237 | 1 | 0 | | 238 | 2 | 0 | 0 | | 2 | **-** |
| **Lights %** | 0% | 94.4% | 0% | | 94.4% | 98.3% | 100% | 0% | | 98.3% | 100% | 0% | 0% | | 100% | **-** |
| **Single-Unit Trucks** | 0 | 1 | 0 | | 1 | 1 | 0 | 0 | | 1 | 0 | 0 | 0 | | 0 | **-** |
| **Single-Unit Trucks %** | 0% | 1.1% | 0% | | 1.1% | 0.4% | 0% | 0% | | 0.4% | 0% | 0% | 0% | | 0% | **-** |
| **Buses** | 0 | 2 | 0 | | 2 | 3 | 0 | 0 | | 3 | 0 | 0 | 0 | | 0 | **-** |
| **Buses %** | 0% | 2.2% | 0% | | 2.2% | 1.2% | 0% | 0% | | 1.2% | 0% | 0% | 0% | | 0% | **-** |
| **Articulated Trucks** | 0 | 2 | 0 | | 2 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | **-** |
| **Articulated Trucks %** | 0% | 2.2% | 0% | | 2.2% | 0% | 0% | 0% | | 0% | 0% | 0% | 0% | | 0% | **-** |

BA Group
300 45 ST. CLAIR AVE W
TORONTO ONTARIO, M4V 1K9
CANADA

**Peak Hour: 07:30 AM - 08:30 AM Weather: Clear Sky (11.13 °C)**



BA Group
300 45 ST. CLAIR AVE W
TORONTO ONTARIO, M4V 1K9
CANADA

**Peak Hour: 04:00 PM - 05:00 PM Weather: Clear Sky (23.75 °C)**

BA Group
300 45 ST. CLAIR AVE W
TORONTO ONTARIO, M4V 1K9
CANADA

## Turning Movement Count (5 . TORBRAM RD & MAYFIELD GOLF CLUB MAIN ENTRANCE)

| Start Time | N Approach TORBRAM RD | | | | | S Approach TORBRAM RD | | | | | W Approach MAYFIELD GOLF CLUB MAIN ENTRANCE | | | | | Int. Total (15 min) | Int. Total (1 hr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right N:W | Thru N:S | UTurn N:N | Peds N: | Approach Total | Thru S:N | Left S:W | UTurn S:S | Peds S: | Approach Total | Right W:S | Left W:N | UTurn W:W | Peds W: | Approach Total | | |
| 07:00:00 | 1 | 22 | 0 | 0 | 23 | 14 | 1 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 38 | |
| 07:15:00 | 0 | 28 | 0 | 0 | 28 | 23 | 4 | 0 | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 55 | |
| 07:30:00 | 1 | 43 | 0 | 0 | 44 | 16 | 3 | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 63 | |
| 07:45:00 | 0 | 36 | 0 | 0 | 36 | 15 | 3 | 0 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 54 | 210 |
| 08:00:00 | 0 | 46 | 0 | 0 | 46 | 15 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 61 | 233 |
| 08:15:00 | 1 | 44 | 0 | 0 | 45 | 16 | 1 | 0 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 62 | 240 |
| 08:30:00 | 1 | 28 | 0 | 0 | 29 | 20 | 0 | 0 | 0 | 20 | 2 | 0 | 0 | 0 | 2 | 51 | 228 |
| 08:45:00 | 0 | 21 | 0 | 0 | 21 | 27 | 4 | 0 | 0 | 31 | 2 | 0 | 0 | 0 | 2 | 54 | 228 |
| ***BREAK*** | | | | | | | | | | | | | | | | | |
| 16:00:00 | 0 | 21 | 0 | 0 | 21 | 65 | 2 | 0 | 0 | 67 | 4 | 0 | 0 | 0 | 4 | 92 | |
| 16:15:00 | 1 | 21 | 0 | 0 | 22 | 60 | 1 | 0 | 0 | 61 | 4 | 0 | 0 | 0 | 4 | 87 | |
| 16:30:00 | 1 | 27 | 0 | 0 | 28 | 61 | 9 | 0 | 0 | 70 | 1 | 0 | 0 | 0 | 1 | 99 | |
| 16:45:00 | 0 | 21 | 0 | 0 | 21 | 59 | 5 | 0 | 0 | 64 | 0 | 0 | 0 | 0 | 0 | 85 | 363 |
| 17:00:00 | 1 | 17 | 0 | 0 | 18 | 49 | 5 | 0 | 0 | 54 | 0 | 0 | 0 | 0 | 0 | 72 | 343 |
| 17:15:00 | 1 | 27 | 0 | 0 | 28 | 60 | 2 | 0 | 0 | 62 | 2 | 1 | 0 | 0 | 3 | 93 | 349 |
| 17:30:00 | 1 | 23 | 0 | 0 | 24 | 53 | 0 | 0 | 0 | 53 | 0 | 0 | 0 | 0 | 0 | 77 | 327 |
| 17:45:00 | 1 | 21 | 0 | 0 | 22 | 45 | 3 | 0 | 0 | 48 | 4 | 0 | 0 | 0 | 4 | 74 | 316 |
| **Grand Total** | 10 | 446 | 0 | 0 | 456 | 598 | 43 | 0 | 0 | 641 | 19 | 1 | 0 | 0 | 20 | **1117** | - |
| **Approach%** | 2.2% | 97.8% | 0% | | - | 93.3% | 6.7% | 0% | | - | 95% | 5% | 0% | | - | **-** | - |
| **Totals %** | 0.9% | 39.9% | 0% | | 40.8% | 53.5% | 3.8% | 0% | | 57.4% | 1.7% | 0.1% | 0% | | 1.8% | **-** | - |
| **Heavy** | 0 | 12 | 0 | | - | 11 | 0 | 0 | | - | 0 | 0 | 0 | | - | **-** | - |
| **Heavy %** | 0% | 2.7% | 0% | | - | 1.8% | 0% | 0% | | - | 0% | 0% | 0% | | - | **-** | - |
| **Bicycles** | - | - | - | | - | - | - | - | | - | - | - | - | | - | **-** | - |
| **Bicycle %** | - | - | - | | - | - | - | - | | - | - | - | - | | - | **-** | - |

BA Group
300 45 ST. CLAIR AVE W
TORONTO ONTARIO, M4V 1K9
CANADA

**Peak Hour: 07:30 AM - 08:30 AM Weather: Clear Sky (11.13 °C)**

| Start Time | N Approach TORBRAM RD | | | | | S Approach TORBRAM RD | | | | | W Approach MAYFIELD GOLF CLUB MAIN ENTRANCE | | | | | Int. Total (15 min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right | Thru | UTurn | Peds | Approach Total | Thru | Left | UTurn | Peds | Approach Total | Right | Left | UTurn | Peds | Approach Total | |
| 07:30:00 | 1 | 43 | 0 | 0 | 44 | 16 | 3 | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 63 |
| 07:45:00 | 0 | 36 | 0 | 0 | 36 | 15 | 3 | 0 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 54 |
| 08:00:00 | 0 | 46 | 0 | 0 | 46 | 15 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 61 |
| 08:15:00 | 1 | 44 | 0 | 0 | 45 | 16 | 1 | 0 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 62 |
| **Grand Total** | 2 | 169 | 0 | 0 | 171 | 62 | 7 | 0 | 0 | 69 | 0 | 0 | 0 | 0 | 0 | **240** |
| **Approach%** | 1.2% | 98.8% | 0% | | - | 89.9% | 10.1% | 0% | | - | 0% | 0% | 0% | | - | **-** |
| **Totals %** | 0.8% | 70.4% | 0% | | 71.3% | 25.8% | 2.9% | 0% | | 28.8% | 0% | 0% | 0% | | 0% | **-** |
| **PHF** | 0.5 | 0.92 | 0 | | 0.93 | 0.97 | 0.58 | 0 | | 0.91 | 0 | 0 | 0 | | 0 | **-** |
| **Heavy** | 0 | 1 | 0 | | 1 | 3 | 0 | 0 | | 3 | 0 | 0 | 0 | | 0 | **-** |
| **Heavy %** | 0% | 0.6% | 0% | | 0.6% | 4.8% | 0% | 0% | | 4.3% | 0% | 0% | 0% | | 0% | **-** |
| **Lights** | 2 | 168 | 0 | | 170 | 59 | 7 | 0 | | 66 | 0 | 0 | 0 | | 0 | **-** |
| **Lights %** | 100% | 99.4% | 0% | | 99.4% | 95.2% | 100% | 0% | | 95.7% | 0% | 0% | 0% | | 0% | **-** |
| **Single-Unit Trucks** | 0 | 1 | 0 | | 1 | 1 | 0 | 0 | | 1 | 0 | 0 | 0 | | 0 | **-** |
| **Single-Unit Trucks %** | 0% | 0.6% | 0% | | 0.6% | 1.6% | 0% | 0% | | 1.4% | 0% | 0% | 0% | | 0% | **-** |
| **Buses** | 0 | 0 | 0 | | 0 | 2 | 0 | 0 | | 2 | 0 | 0 | 0 | | 0 | **-** |
| **Buses %** | 0% | 0% | 0% | | 0% | 3.2% | 0% | 0% | | 2.9% | 0% | 0% | 0% | | 0% | **-** |
| **Articulated Trucks** | 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% | **-** |

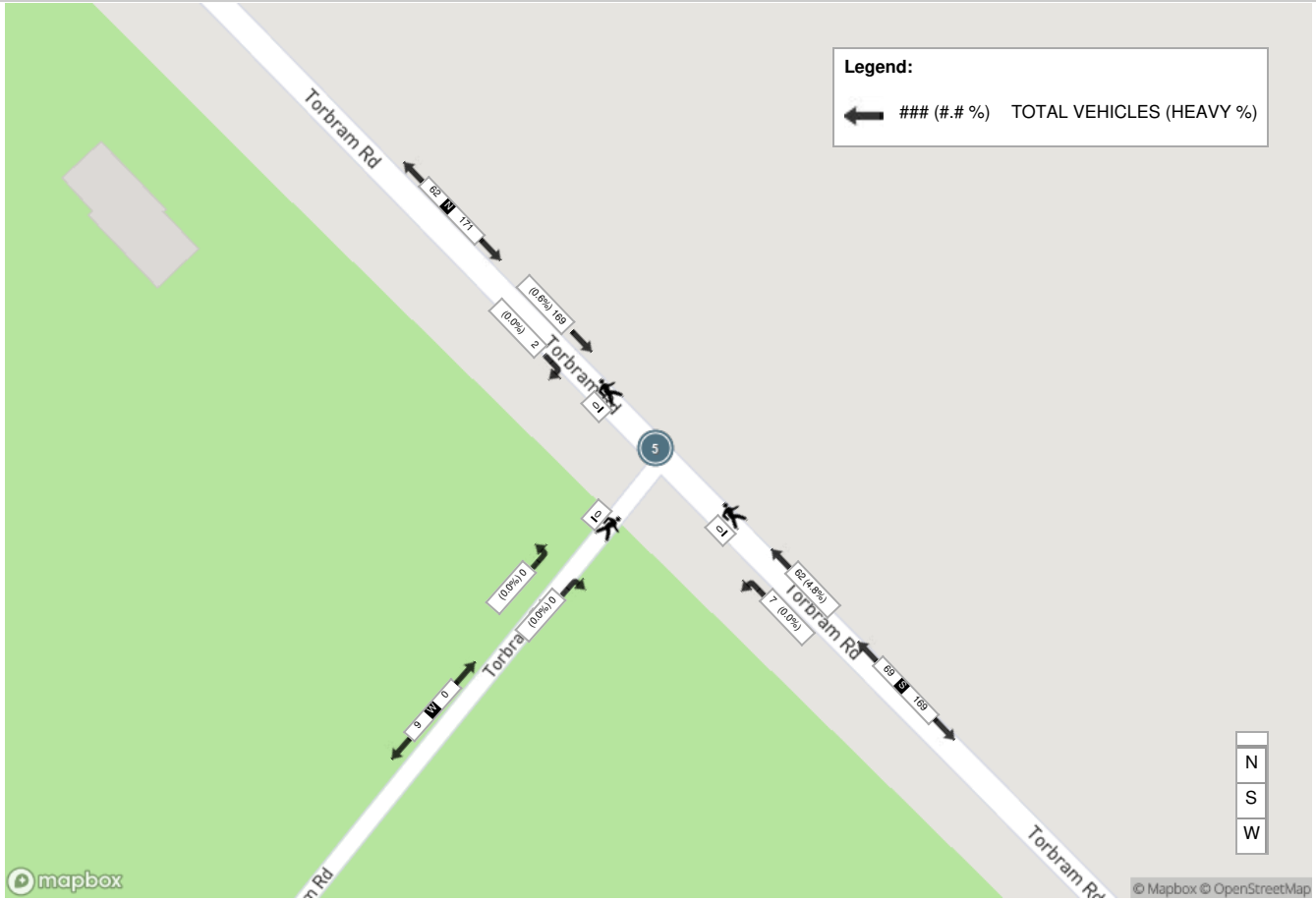
BA Group
300 45 ST. CLAIR AVE W
TORONTO ONTARIO, M4V 1K9
CANADA

**Peak Hour: 04:00 PM - 05:00 PM Weather: Clear Sky (23.75 °C)**

| Start Time | N Approach TORBRAM RD | | | | | S Approach TORBRAM RD | | | | | W Approach MAYFIELD GOLF CLUB MAIN ENTRANCE | | | | | Int. Total (15 min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right | Thru | UTurn | Peds | Approach Total | Thru | Left | UTurn | Peds | Approach Total | Right | Left | UTurn | Peds | Approach Total | |
| 16:00:00 | 0 | 21 | 0 | 0 | 21 | 65 | 2 | 0 | 0 | 67 | 4 | 0 | 0 | 0 | 4 | 92 |
| 16:15:00 | 1 | 21 | 0 | 0 | 22 | 60 | 1 | 0 | 0 | 61 | 4 | 0 | 0 | 0 | 4 | 87 |
| 16:30:00 | 1 | 27 | 0 | 0 | 28 | 61 | 9 | 0 | 0 | 70 | 1 | 0 | 0 | 0 | 1 | 99 |
| 16:45:00 | 0 | 21 | 0 | 0 | 21 | 59 | 5 | 0 | 0 | 64 | 0 | 0 | 0 | 0 | 0 | 85 |
| **Grand Total** | 2 | 90 | 0 | 0 | 92 | 245 | 17 | 0 | 0 | 262 | 9 | 0 | 0 | 0 | 9 | **363** |
| **Approach%** | 2.2% | 97.8% | 0% | | - | 93.5% | 6.5% | 0% | | - | 100% | 0% | 0% | | - | **-** |
| **Totals %** | 0.6% | 24.8% | 0% | | 25.3% | 67.5% | 4.7% | 0% | | 72.2% | 2.5% | 0% | 0% | | 2.5% | **-** |
| **PHF** | 0.5 | 0.83 | 0 | | 0.82 | 0.94 | 0.47 | 0 | | 0.94 | 0.56 | 0 | 0 | | 0.56 | **-** |
| **Heavy** | 0 | 5 | 0 | | 5 | 4 | 0 | 0 | | 4 | 0 | 0 | 0 | | 0 | **-** |
| **Heavy %** | 0% | 5.6% | 0% | | 5.4% | 1.6% | 0% | 0% | | 1.5% | 0% | 0% | 0% | | 0% | **-** |
| **Lights** | 2 | 85 | 0 | | 87 | 241 | 17 | 0 | | 258 | 9 | 0 | 0 | | 9 | **-** |
| **Lights %** | 100% | 94.4% | 0% | | 94.6% | 98.4% | 100% | 0% | | 98.5% | 100% | 0% | 0% | | 100% | **-** |
| **Single-Unit Trucks** | 0 | 1 | 0 | | 1 | 1 | 0 | 0 | | 1 | 0 | 0 | 0 | | 0 | **-** |
| **Single-Unit Trucks %** | 0% | 1.1% | 0% | | 1.1% | 0.4% | 0% | 0% | | 0.4% | 0% | 0% | 0% | | 0% | **-** |
| **Buses** | 0 | 2 | 0 | | 2 | 3 | 0 | 0 | | 3 | 0 | 0 | 0 | | 0 | **-** |
| **Buses %** | 0% | 2.2% | 0% | | 2.2% | 1.2% | 0% | 0% | | 1.1% | 0% | 0% | 0% | | 0% | **-** |
| **Articulated Trucks** | 0 | 2 | 0 | | 2 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | **-** |
| **Articulated Trucks %** | 0% | 2.2% | 0% | | 2.2% | 0% | 0% | 0% | | 0% | 0% | 0% | 0% | | 0% | **-** |

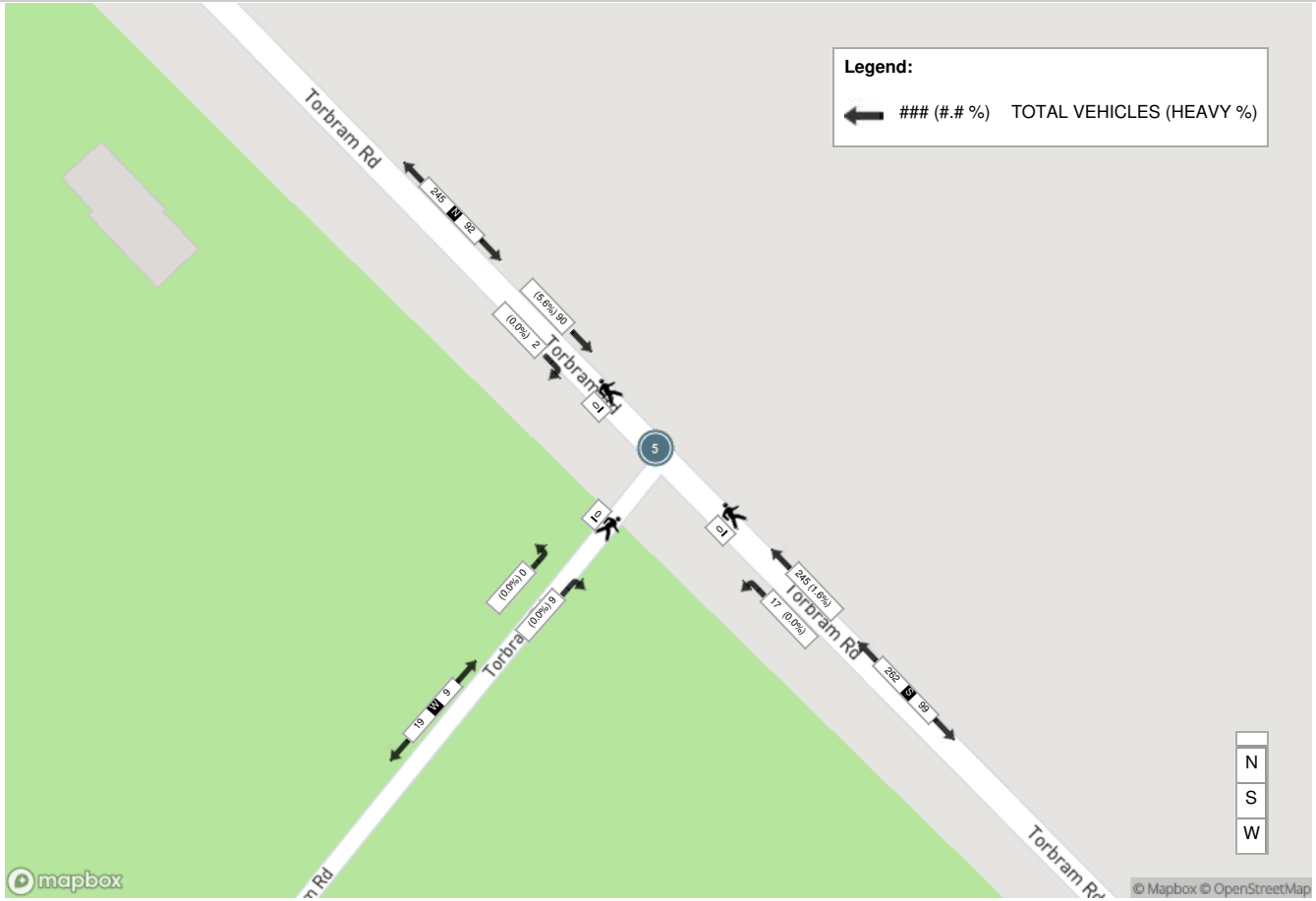
BA Group
300 45 ST. CLAIR AVE W
TORONTO ONTARIO, M4V 1K9
CANADA

**Peak Hour: 07:30 AM - 08:30 AM Weather: Clear Sky (11.13 °C)**



BA Group
300 45 ST. CLAIR AVE W
TORONTO ONTARIO, M4V 1K9
CANADA

**Peak Hour: 04:00 PM - 05:00 PM Weather: Clear Sky (23.75 °C)**



Spectrum

Turning Movement Count
Location Name: TORBRAM RD & OLD SCHOOL RD
Date: Tue, Jun 28, 2022 Deployment Lead: Tasos Issaaakidis

BA Group
300 45 ST. CLAIR AVE W
TORONTO ONTARIO, M4V 1K9
CANADA

## Turning Movement Count (1 . TORBRAM RD & OLD SCHOOL RD)

| Start Time | N Approach TORBRAM RD | | | | | | E Approach OLD SCHOOL RD | | | | | | S Approach TORBRAM RD | | | | | | W Approach OLD SCHOOL RD | | | | | | Int. Total (15 min) | Int. Total (1 hr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right N:W | Thru N:S | Left N:E | UTurn N:N | Peds N: | Approach Total | Right E:N | Thru E:W | Left E:S | UTurn E:E | Peds E: | Approach Total | Right S:E | Thru S:N | Left S:W | UTurn S:S | Peds S: | Approach Total | Right W:S | Thru W:E | Left W:N | UTurn W:W | Peds W: | Approach Total | | |
| 07:00:00 | 1 | 19 | 1 | 0 | 0 | 21 | 0 | 6 | 1 | 0 | 0 | 7 | 3 | 8 | 0 | 0 | 0 | 11 | 0 | 28 | 0 | 0 | 0 | 28 | 67 | |
| 07:15:00 | 0 | 25 | 1 | 0 | 0 | 26 | 0 | 12 | 2 | 0 | 0 | 14 | 3 | 22 | 0 | 0 | 0 | 25 | 3 | 26 | 2 | 0 | 0 | 31 | 96 | |
| 07:30:00 | 2 | 39 | 1 | 0 | 0 | 42 | 0 | 33 | 2 | 0 | 0 | 35 | 3 | 12 | 1 | 0 | 0 | 16 | 0 | 34 | 0 | 0 | 0 | 34 | 127 | |
| 07:45:00 | 0 | 34 | 2 | 0 | 0 | 36 | 0 | 17 | 1 | 0 | 0 | 18 | 4 | 9 | 0 | 0 | 0 | 13 | 2 | 39 | 2 | 0 | 0 | 43 | 110 | 400 |
| 08:00:00 | 2 | 40 | 2 | 0 | 0 | 44 | 0 | 9 | 3 | 0 | 0 | 12 | 7 | 9 | 0 | 0 | 0 | 16 | 2 | 24 | 3 | 0 | 0 | 29 | 101 | 434 |
| 08:15:00 | 0 | 44 | 2 | 0 | 0 | 46 | 0 | 7 | 4 | 0 | 0 | 11 | 5 | 13 | 0 | 0 | 0 | 18 | 1 | 28 | 2 | 0 | 0 | 31 | 106 | 444 |
| 08:30:00 | 0 | 23 | 1 | 0 | 0 | 24 | 2 | 10 | 1 | 0 | 0 | 13 | 4 | 11 | 3 | 0 | 0 | 18 | 0 | 22 | 3 | 0 | 0 | 25 | 80 | 397 |
| 08:45:00 | 3 | 18 | 4 | 0 | 0 | 25 | 0 | 11 | 1 | 0 | 0 | 12 | 6 | 17 | 2 | 0 | 0 | 25 | 1 | 21 | 1 | 0 | 0 | 23 | 85 | 372 |
| 09:00:00 | 1 | 18 | 1 | 0 | 0 | 20 | 0 | 13 | 0 | 0 | 0 | 13 | 2 | 10 | 1 | 0 | 0 | 13 | 2 | 25 | 0 | 0 | 0 | 27 | 73 | 344 |
| 09:15:00 | 0 | 13 | 0 | 0 | 0 | 13 | 0 | 10 | 1 | 0 | 0 | 11 | 2 | 16 | 2 | 0 | 0 | 20 | 1 | 8 | 0 | 0 | 0 | 9 | 53 | 291 |
| 09:30:00 | 2 | 8 | 3 | 0 | 0 | 13 | 0 | 7 | 0 | 0 | 0 | 7 | 0 | 8 | 0 | 0 | 0 | 8 | 3 | 6 | 1 | 0 | 0 | 10 | 38 | 249 |
| 09:45:00 | 2 | 23 | 0 | 0 | 0 | 25 | 2 | 12 | 0 | 0 | 0 | 14 | 2 | 10 | 0 | 0 | 0 | 12 | 0 | 9 | 0 | 0 | 0 | 9 | 60 | 224 |
| 10:00:00 | 0 | 11 | 1 | 0 | 0 | 12 | 1 | 2 | 0 | 0 | 0 | 3 | 3 | 12 | 0 | 0 | 0 | 15 | 1 | 11 | 0 | 0 | 0 | 12 | 42 | 193 |
| 10:15:00 | 0 | 13 | 0 | 0 | 0 | 13 | 1 | 12 | 2 | 0 | 0 | 15 | 3 | 6 | 2 | 0 | 0 | 11 | 1 | 4 | 0 | 0 | 0 | 5 | 44 | 184 |
| 10:30:00 | 3 | 7 | 1 | 0 | 0 | 11 | 1 | 11 | 0 | 0 | 0 | 12 | 1 | 13 | 1 | 1 | 0 | 16 | 0 | 11 | 1 | 0 | 0 | 12 | 51 | 197 |
| 10:45:00 | 2 | 13 | 0 | 0 | 0 | 15 | 0 | 6 | 2 | 0 | 0 | 8 | 1 | 16 | 1 | 0 | 0 | 18 | 1 | 6 | 0 | 0 | 0 | 7 | 48 | 185 |
| 11:00:00 | 2 | 15 | 0 | 0 | 0 | 17 | 0 | 5 | 0 | 0 | 0 | 5 | 0 | 12 | 0 | 0 | 0 | 12 | 3 | 10 | 0 | 0 | 0 | 13 | 47 | 190 |
| 11:15:00 | 0 | 15 | 1 | 0 | 0 | 16 | 0 | 7 | 1 | 0 | 0 | 8 | 1 | 10 | 1 | 0 | 0 | 12 | 0 | 7 | 3 | 0 | 0 | 10 | 46 | 192 |
| 11:30:00 | 1 | 12 | 2 | 0 | 0 | 15 | 0 | 9 | 0 | 0 | 0 | 9 | 1 | 10 | 2 | 0 | 0 | 13 | 0 | 6 | 0 | 0 | 0 | 6 | 43 | 184 |
| 11:45:00 | 2 | 8 | 1 | 0 | 0 | 11 | 1 | 7 | 1 | 0 | 0 | 9 | 0 | 7 | 3 | 0 | 0 | 10 | 0 | 9 | 2 | 0 | 0 | 11 | 41 | 177 |
| 12:00:00 | 2 | 6 | 0 | 0 | 0 | 8 | 0 | 13 | 1 | 0 | 0 | 14 | 8 | 11 | 0 | 0 | 0 | 19 | 0 | 7 | 1 | 0 | 0 | 8 | 49 | 179 |
| 12:15:00 | 0 | 5 | 0 | 0 | 0 | 5 | 1 | 7 | 1 | 0 | 0 | 9 | 1 | 18 | 3 | 0 | 0 | 22 | 1 | 14 | 3 | 0 | 0 | 18 | 54 | 187 |
| 12:30:00 | 1 | 6 | 0 | 0 | 0 | 7 | 1 | 6 | 1 | 0 | 0 | 8 | 3 | 13 | 1 | 0 | 0 | 17 | 3 | 8 | 1 | 0 | 0 | 12 | 44 | 188 |
| 12:45:00 | 0 | 9 | 1 | 0 | 0 | 10 | 0 | 3 | 1 | 0 | 0 | 4 | 2 | 10 | 1 | 0 | 0 | 13 | 0 | 11 | 0 | 0 | 0 | 11 | 38 | 185 |
| 13:00:00 | 0 | 10 | 2 | 0 | 0 | 12 | 0 | 10 | 0 | 0 | 0 | 10 | 1 | 17 | 1 | 0 | 0 | 19 | 1 | 10 | 2 | 0 | 0 | 13 | 54 | 190 |
| 13:15:00 | 0 | 9 | 0 | 0 | 0 | 9 | 0 | 7 | 0 | 0 | 0 | 7 | 2 | 16 | 1 | 0 | 0 | 19 | 3 | 7 | 2 | 0 | 0 | 12 | 47 | 183 |
| 13:30:00 | 0 | 11 | 0 | 0 | 0 | 11 | 0 | 10 | 2 | 0 | 0 | 12 | 2 | 17 | 0 | 0 | 0 | 19 | 0 | 7 | 0 | 0 | 0 | 7 | 49 | 188 |
| 13:45:00 | 0 | 12 | 1 | 0 | 0 | 13 | 0 | 6 | 3 | 0 | 0 | 9 | 1 | 16 | 2 | 0 | 0 | 19 | 2 | 14 | 2 | 0 | 0 | 18 | 59 | 209 |
| 14:00:00 | 0 | 8 | 1 | 0 | 0 | 9 | 1 | 3 | 0 | 0 | 0 | 4 | 1 | 17 | 6 | 0 | 0 | 24 | 0 | 4 | 3 | 0 | 0 | 7 | 44 | 199 |
| 14:15:00 | 2 | 21 | 3 | 0 | 0 | 26 | 0 | 17 | 0 | 0 | 0 | 17 | 5 | 25 | 2 | 0 | 0 | 32 | 1 | 11 | 1 | 0 | 0 | 13 | 88 | 240 |
| 14:30:00 | 1 | 25 | 3 | 0 | 0 | 29 | 1 | 14 | 1 | 0 | 0 | 16 | 5 | 26 | 4 | 0 | 0 | 35 | 1 | 16 | 0 | 0 | 0 | 17 | 97 | 288 |
| 14:45:00 | 1 | 13 | 0 | 0 | 0 | 14 | 0 | 19 | 5 | 0 | 0 | 24 | 3 | 38 | 3 | 0 | 0 | 44 | 4 | 8 | 0 | 0 | 0 | 12 | 94 | 323 |
| 15:00:00 | 1 | 14 | 2 | 0 | 0 | 17 | 0 | 13 | 1 | 0 | 0 | 14 | 1 | 42 | 3 | 0 | 0 | 46 | 1 | 22 | 2 | 0 | 0 | 25 | 102 | 381 |
| 15:15:00 | 0 | 16 | 0 | 0 | 0 | 16 | 1 | 24 | 3 | 0 | 0 | 28 | 5 | 54 | 6 | 0 | 0 | 65 | 0 | 20 | 2 | 0 | 0 | 22 | 131 | 424 |
| 15:30:00 | 0 | 17 | 0 | 0 | 0 | 17 | 2 | 28 | 0 | 0 | 0 | 30 | 9 | 41 | 1 | 0 | 0 | 51 | 2 | 18 | 4 | 0 | 0 | 24 | 122 | 449 |
| 15:45:00 | 1 | 14 | 0 | 0 | 0 | 15 | 1 | 42 | 3 | 0 | 0 | 46 | 5 | 33 | 0 | 0 | 0 | 38 | 2 | 12 | 3 | 0 | 0 | 17 | 116 | 471 |
| 16:00:00 | 0 | 17 | 0 | 0 | 0 | 17 | 1 | 30 | 1 | 0 | 0 | 32 | 9 | 58 | 1 | 0 | 0 | 68 | 0 | 14 | 3 | 0 | 0 | 17 | 134 | 503 |
| 16:15:00 | 2 | 14 | 1 | 0 | 0 | 17 | 3 | 67 | 7 | 0 | 0 | 77 | 1 | 52 | 3 | 0 | 0 | 56 | 2 | 16 | 2 | 0 | 0 | 20 | 170 | 542 |
| 16:30:00 | 1 | 20 | 2 | 0 | 0 | 23 | 0 | 57 | 4 | 0 | 0 | 61 | 5 | 51 | 3 | 0 | 0 | 59 | 3 | 21 | 4 | 1 | 0 | 29 | 172 | 592 |
| 16:45:00 | 1 | 17 | 1 | 0 | 0 | 19 | 0 | 48 | 2 | 0 | 0 | 50 | 5 | 51 | 5 | 0 | 0 | 61 | 3 | 20 | 1 | 0 | 0 | 24 | 154 | 630 |
| 17:00:00 | 3 | 15 | 1 | 0 | 0 | 19 | 0 | 40 | 2 | 0 | 0 | 42 | 5 | 44 | 4 | 0 | 0 | 53 | 1 | 13 | 2 | 0 | 0 | 16 | 130 | 626 |
| 17:15:00 | 3 | 18 | 0 | 0 | 0 | 21 | 2 | 55 | 4 | 0 | 0 | 61 | 13 | 35 | 5 | 0 | 0 | 53 | 6 | 16 | 2 | 0 | 0 | 24 | 159 | 615 |
| 17:30:00 | 1 | 16 | 1 | 0 | 0 | 18 | 2 | 51 | 2 | 0 | 0 | 55 | 5 | 43 | 9 | 0 | 0 | 57 | 3 | 23 | 4 | 0 | 0 | 30 | 160 | 603 |
| 17:45:00 | 1 | 17 | 0 | 0 | 0 | 18 | 0 | 61 | 4 | 0 | 0 | 65 | 6 | 39 | 5 | 0 | 0 | 50 | 2 | 27 | 2 | 0 | 0 | 31 | 164 | 613 |
| 18:00:00 | 1 | 11 | 0 | 0 | 0 | 12 | 0 | 48 | 3 | 0 | 0 | 51 | 6 | 27 | 5 | 0 | 0 | 38 | 1 | 26 | 1 | 0 | 0 | 28 | 129 | 612 |

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18:15:00 | 1 | 12 | 0 | 0 | 0 | 13 | 0 | 39 | 3 | 0 | 0 | 42 | 5 | 21 | 2 | 0 | 0 | 28 | 3 | 18 | 1 | 0 | 0 | 22 | 105 | 558 |
| 18:30:00 | 1 | 16 | 1 | 0 | 0 | 18 | 1 | 37 | 3 | 0 | 0 | 41 | 4 | 25 | 4 | 0 | 0 | 33 | 0 | 14 | 1 | 0 | 0 | 15 | 107 | 505 |
| 18:45:00 | 2 | 10 | 0 | 0 | 0 | 12 | 0 | 25 | 2 | 0 | 0 | 27 | 6 | 27 | 2 | 0 | 0 | 35 | 0 | 11 | 1 | 0 | 0 | 12 | 86 | 427 |
| **Grand Total** | 49 | 777 | 44 | 0 | 0 | 870 | 25 | 986 | 81 | 0 | 0 | 1092 | 175 | 1098 | 101 | 1 | 0 | 1375 | 66 | 742 | 70 | 1 | 0 | 879 | **4216** | - |
| **Approach%** | 5.6% | 89.3% | 5.1% | 0% | | - | 2.3% | 90.3% | 7.4% | 0% | | - | 12.7% | 79.9% | 7.3% | 0.1% | | - | 7.5% | 84.4% | 8% | 0.1% | | - | **-** | - |
| **Totals %** | 1.2% | 18.4% | 1% | 0% | | 20.6% | 0.6% | 23.4% | 1.9% | 0% | | 25.9% | 4.2% | 26% | 2.4% | 0% | | 32.6% | 1.6% | 17.6% | 1.7% | 0% | | 20.8% | **-** | - |
| **Heavy** | 4 | 19 | 6 | 0 | | - | 1 | 22 | 3 | 0 | | - | 4 | 21 | 5 | 0 | | - | 4 | 25 | 4 | 0 | | - | **-** | - |
| **Heavy %** | 8.2% | 2.4% | 13.6% | 0% | | - | 4% | 2.2% | 3.7% | 0% | | - | 2.3% | 1.9% | 5% | 0% | | - | 6.1% | 3.4% | 5.7% | 0% | | - | **-** | - |
| **Bicycles** | 2 | 1 | 3 | 0 | | - | 2 | 6 | 0 | 0 | | - | 0 | 2 | 0 | 0 | | - | 0 | 1 | 1 | 0 | | - | **-** | - |
| **Bicycle %** | 4.1% | 0.1% | 6.8% | 0% | | - | 8% | 0.6% | 0% | 0% | | - | 0% | 0.2% | 0% | 0% | | - | 0% | 0.1% | 1.4% | 0% | | - | **-** | - |

Spectrum

Turning Movement Count
Location Name: TORBRAM RD & OLD SCHOOL RD
Date: Tue, Jun 28, 2022 Deployment Lead: Tasos Issaaakidis

BA Group
300 45 ST. CLAIR AVE W
TORONTO ONTARIO, M4V 1K9
CANADA

**Peak Hour: 04:00 PM - 05:00 PM Weather: Clear Sky (11.13 °C)**

| Start Time | N Approach TORBRAM RD | | | | | | E Approach OLD SCHOOL RD | | | | | | S Approach TORBRAM RD | | | | | | W Approach OLD SCHOOL RD | | | | | | Int. Total (15 min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right | Thru | Left | UTurn | Peds | Approach Total | Right | Thru | Left | UTurn | Peds | Approach Total | Right | Thru | Left | UTurn | Peds | Approach Total | Right | Thru | Left | UTurn | Peds | Approach Total | |
| 16:00:00 | 0 | 17 | 0 | 0 | 0 | 17 | 1 | 30 | 1 | 0 | 0 | 32 | 9 | 58 | 1 | 0 | 0 | 68 | 0 | 14 | 3 | 0 | 0 | 17 | 134 |
| 16:15:00 | 2 | 14 | 1 | 0 | 0 | 17 | 3 | 67 | 7 | 0 | 0 | 77 | 1 | 52 | 3 | 0 | 0 | 56 | 2 | 16 | 2 | 0 | 0 | 20 | 170 |
| 16:30:00 | 1 | 20 | 2 | 0 | 0 | 23 | 0 | 57 | 4 | 0 | 0 | 61 | 5 | 51 | 3 | 0 | 0 | 59 | 3 | 21 | 4 | 1 | 0 | 29 | 172 |
| 16:45:00 | 1 | 17 | 1 | 0 | 0 | 19 | 0 | 48 | 2 | 0 | 0 | 50 | 5 | 51 | 5 | 0 | 0 | 61 | 3 | 20 | 1 | 0 | 0 | 24 | 154 |
| **Grand Total** | 4 | 68 | 4 | 0 | 0 | 76 | 4 | 202 | 14 | 0 | 0 | 220 | 20 | 212 | 12 | 0 | 0 | 244 | 8 | 71 | 10 | 1 | 0 | 90 | **630** |
| **Approach%** | 5.3% | 89.5% | 5.3% | 0% | | - | 1.8% | 91.8% | 6.4% | 0% | | - | 8.2% | 86.9% | 4.9% | 0% | | - | 8.9% | 78.9% | 11.1% | 1.1% | | - | **-** |
| **Totals %** | 0.6% | 10.8% | 0.6% | 0% | | 12.1% | 0.6% | 32.1% | 2.2% | 0% | | 34.9% | 3.2% | 33.7% | 1.9% | 0% | | 38.7% | 1.3% | 11.3% | 1.6% | 0.2% | | 14.3% | **-** |
| **PHF** | 0.5 | 0.85 | 0.5 | 0 | | 0.83 | 0.33 | 0.75 | 0.5 | 0 | | 0.71 | 0.56 | 0.91 | 0.6 | 0 | | 0.9 | 0.67 | 0.85 | 0.63 | 0.25 | | 0.78 | **-** |
| **Heavy** | 0 | 5 | 2 | 0 | | 7 | 1 | 2 | 0 | 0 | | 3 | 0 | 4 | 0 | 0 | | 4 | 0 | 3 | 0 | 0 | | 3 | **-** |
| **Heavy %** | 0% | 7.4% | 50% | 0% | | 9.2% | 25% | 1% | 0% | 0% | | 1.4% | 0% | 1.9% | 0% | 0% | | 1.6% | 0% | 4.2% | 0% | 0% | | 3.3% | **-** |
| **Lights** | 4 | 63 | 2 | 0 | | 69 | 3 | 200 | 14 | 0 | | 217 | 20 | 208 | 12 | 0 | | 240 | 8 | 68 | 10 | 1 | | 87 | **-** |
| **Lights %** | 100% | 92.6% | 50% | 0% | | 90.8% | 75% | 99% | 100% | 0% | | 98.6% | 100% | 98.1% | 100% | 0% | | 98.4% | 100% | 95.8% | 100% | 100% | | 96.7% | **-** |
| **Single-Unit Trucks** | 0 | 1 | 0 | 0 | | 1 | 1 | 1 | 0 | 0 | | 2 | 0 | 1 | 0 | 0 | | 1 | 0 | 1 | 0 | 0 | | 1 | **-** |
| **Single-Unit Trucks %** | 0% | 1.5% | 0% | 0% | | 1.3% | 25% | 0.5% | 0% | 0% | | 0.9% | 0% | 0.5% | 0% | 0% | | 0.4% | 0% | 1.4% | 0% | 0% | | 1.1% | **-** |
| **Buses** | 0 | 2 | 2 | 0 | | 4 | 0 | 1 | 0 | 0 | | 1 | 0 | 3 | 0 | 0 | | 3 | 0 | 2 | 0 | 0 | | 2 | **-** |
| **Buses %** | 0% | 2.9% | 50% | 0% | | 5.3% | 0% | 0.5% | 0% | 0% | | 0.5% | 0% | 1.4% | 0% | 0% | | 1.2% | 0% | 2.8% | 0% | 0% | | 2.2% | **-** |
| **Articulated Trucks** | 0 | 2 | 0 | 0 | | 2 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | **-** |
| **Articulated Trucks %** | 0% | 2.9% | 0% | 0% | | 2.6% | 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 | - | **-** |
| **Bicycles on Road%** | - | - | - | - | % | | - | - | - | - | % | | - | - | - | - | % | | - | - | - | - | % | | **-** |

Spectrum

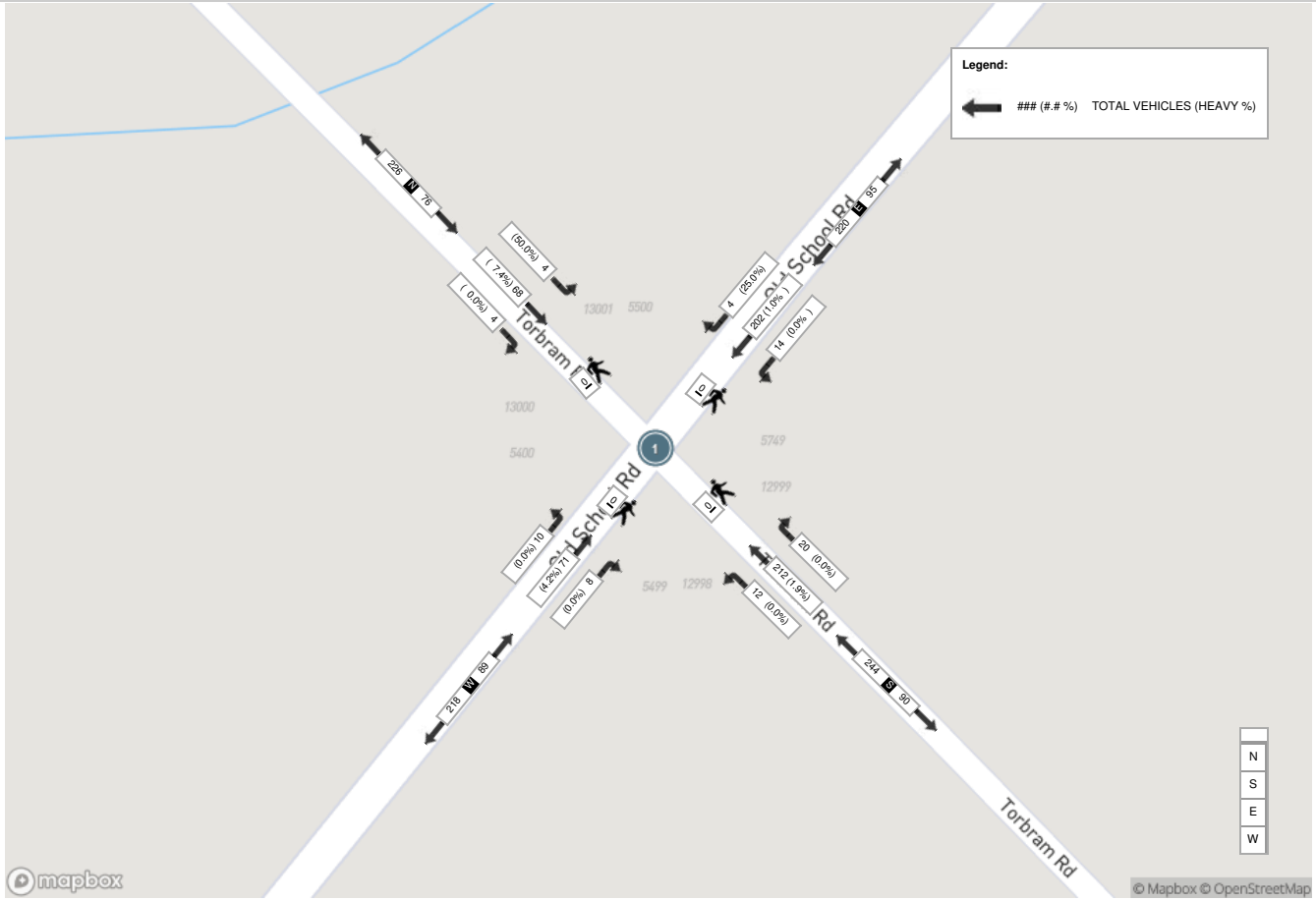
Turning Movement Count
Location Name: TORBRAM RD & OLD SCHOOL RD
Date: Tue, Jun 28, 2022 Deployment Lead: Tasos Issaaakidis

BA Group
300 45 ST. CLAIR AVE W
TORONTO ONTARIO, M4V 1K9
CANADA

**Selected Hour: 07:30 AM - 08:30 AM Weather:**

| Start Time | N Approach TORBRAM RD | | | | | | E Approach OLD SCHOOL RD | | | | | | S Approach TORBRAM RD | | | | | | W Approach OLD SCHOOL RD | | | | | | Int. Total (15 min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Right | Thru | Left | UTurn | Peds | Approach Total | Right | Thru | Left | UTurn | Peds | Approach Total | Right | Thru | Left | UTurn | Peds | Approach Total | Right | Thru | Left | UTurn | Peds | Approach Total | |
| 07:30:00 | 2 | 39 | 1 | 0 | 0 | 42 | 0 | 33 | 2 | 0 | 0 | 35 | 3 | 12 | 1 | 0 | 0 | 16 | 0 | 34 | 0 | 0 | 0 | 34 | 127 |
| 07:45:00 | 0 | 34 | 2 | 0 | 0 | 36 | 0 | 17 | 1 | 0 | 0 | 18 | 4 | 9 | 0 | 0 | 0 | 13 | 2 | 39 | 2 | 0 | 0 | 43 | 110 |
| 08:00:00 | 2 | 40 | 2 | 0 | 0 | 44 | 0 | 9 | 3 | 0 | 0 | 12 | 7 | 9 | 0 | 0 | 0 | 16 | 2 | 24 | 3 | 0 | 0 | 29 | 101 |
| 08:15:00 | 0 | 44 | 2 | 0 | 0 | 46 | 0 | 7 | 4 | 0 | 0 | 11 | 5 | 13 | 0 | 0 | 0 | 18 | 1 | 28 | 2 | 0 | 0 | 31 | 106 |
| **Grand Total** | 4 | 157 | 7 | 0 | 0 | 168 | 0 | 66 | 10 | 0 | 0 | 76 | 19 | 43 | 1 | 0 | 0 | 63 | 5 | 125 | 7 | 0 | 0 | 137 | **444** |
| **Approach%** | 2.4% | 93.5% | 4.2% | 0% | | - | 0% | 86.8% | 13.2% | 0% | | - | 30.2% | 68.3% | 1.6% | 0% | | - | 3.6% | 91.2% | 5.1% | 0% | | - | **-** |
| **Totals %** | 0.9% | 35.4% | 1.6% | 0% | | 37.8% | 0% | 14.9% | 2.3% | 0% | | 17.1% | 4.3% | 9.7% | 0.2% | 0% | | 14.2% | 1.1% | 28.2% | 1.6% | 0% | | 30.9% | **-** |
| **PHF** | 0.5 | 0.89 | 0.88 | 0 | | 0.91 | 0 | 0.5 | 0.63 | 0 | | 0.54 | 0.68 | 0.83 | 0.25 | 0 | | 0.88 | 0.63 | 0.8 | 0.58 | 0 | | 0.8 | **-** |
| **Heavy** | 2 | 1 | 1 | 0 | | 4 | 0 | 4 | 0 | 0 | | 4 | 0 | 3 | 0 | 0 | | 3 | 0 | 3 | 2 | 0 | | 5 | **-** |
| **Heavy %** | 50% | 0.6% | 14.3% | 0% | | 2.4% | 0% | 6.1% | 0% | 0% | | 5.3% | 0% | 7% | 0% | 0% | | 4.8% | 0% | 2.4% | 28.6% | 0% | | 3.6% | **-** |
| **Lights** | 2 | 156 | 6 | 0 | | 164 | 0 | 62 | 10 | 0 | | 72 | 19 | 40 | 1 | 0 | | 60 | 5 | 122 | 5 | 0 | | 132 | **-** |
| **Lights %** | 50% | 99.4% | 85.7% | 0% | | 97.6% | 0% | 93.9% | 100% | 0% | | 94.7% | 100% | 93% | 100% | 0% | | 95.2% | 100% | 97.6% | 71.4% | 0% | | 96.4% | **-** |
| **Single-Unit Trucks** | 2 | 1 | 0 | 0 | | 3 | 0 | 3 | 0 | 0 | | 3 | 0 | 1 | 0 | 0 | | 1 | 0 | 2 | 0 | 0 | | 2 | **-** |
| **Single-Unit Trucks %** | 50% | 0.6% | 0% | 0% | | 1.8% | 0% | 4.5% | 0% | 0% | | 3.9% | 0% | 2.3% | 0% | 0% | | 1.6% | 0% | 1.6% | 0% | 0% | | 1.5% | **-** |
| **Buses** | 0 | 0 | 1 | 0 | | 1 | 0 | 1 | 0 | 0 | | 1 | 0 | 2 | 0 | 0 | | 2 | 0 | 1 | 2 | 0 | | 3 | **-** |
| **Buses %** | 0% | 0% | 14.3% | 0% | | 0.6% | 0% | 1.5% | 0% | 0% | | 1.3% | 0% | 4.7% | 0% | 0% | | 3.2% | 0% | 0.8% | 28.6% | 0% | | 2.2% | **-** |
| **Articulated Trucks** | 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% | **-** |
| **Bicycles on Road** | 0 | 0 | 0 | 0 | 0 | - | 0 | 5 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | **-** |
| **Bicycles on Road%** | - | - | - | - | % | | - | - | - | - | % | | - | - | - | - | % | | - | - | - | - | % | | **-** |

**Peak Hour: 04:00 PM - 05:00 PM Weather: Clear Sky (11.13 °C)**

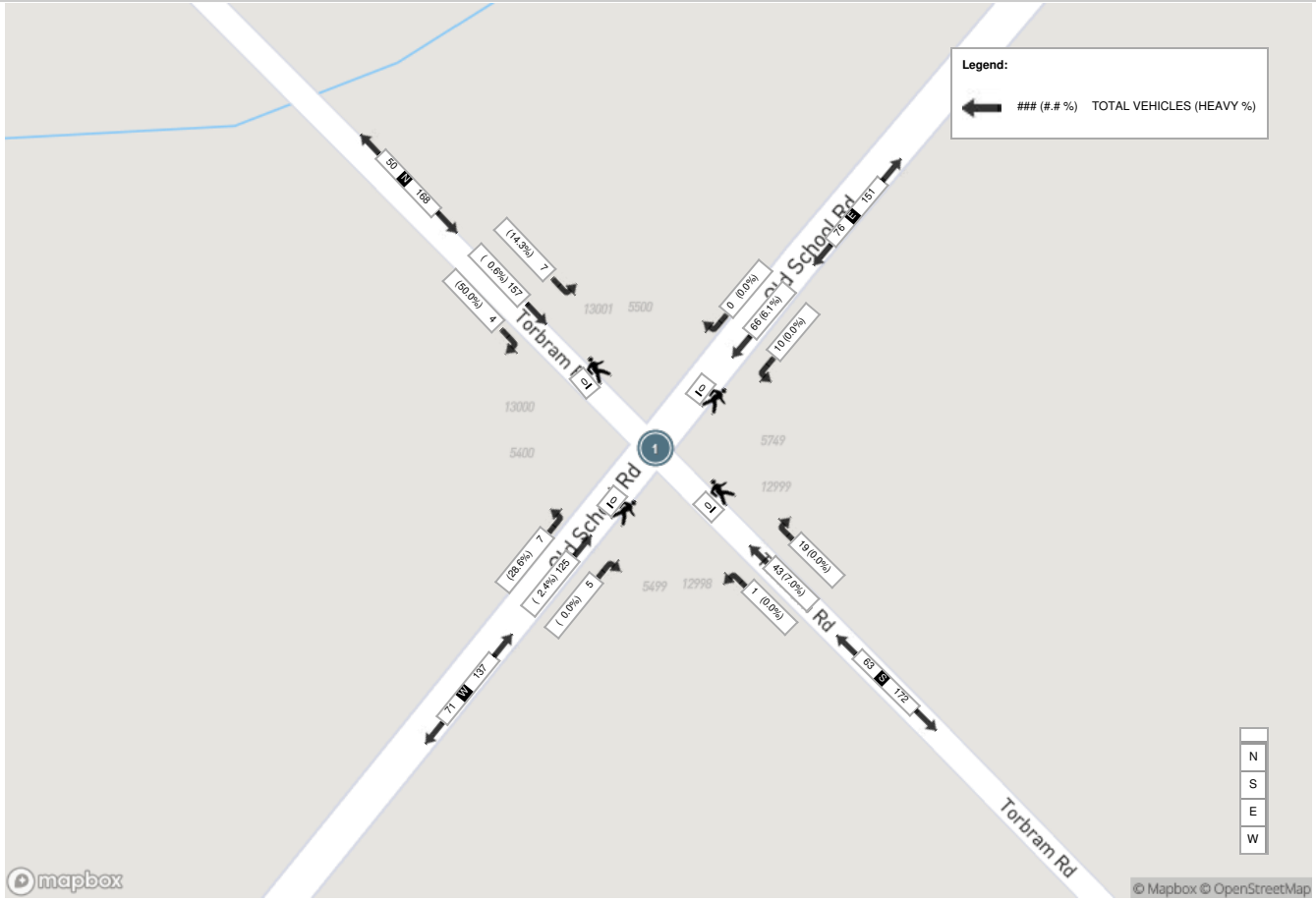


Spectrum

Turning Movement Count
Location Name: TORBRAM RD & OLD SCHOOL RD
Date: Tue, Jun 28, 2022 Deployment Lead: Tasos Issaakidis

BA Group
300 45 ST. CLAIR AVE W
TORONTO ONTARIO, M4V 1K9
CANADA

**Selected Hour: 07:30 AM - 08:30 AM** **Weather:**



# APPENDIX D:
# Synchro Summary Tables & Outputs

**Signalized Intersection Operations**

Torbram Road & Mayfield Road

| | Existing | | Future Background 413 | | Future Background no 413 | | Future Total 413 | | Future Total no 413 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | v/c | LOS | v/c | LOS | v/c | LOS | v/c | LOS | v/c | LOS |
| EBL | 0.04 (0.22) | B (B) | 0.41 (0.36) | C (C) | 0.44 (0.63) | C (D) | 0.76 (0.89) | D (E) | 0.79 (0.97) | D (F) |
| EBT | 0.42 (0.35) | C (C) | 0.83 (0.70) | C (C) | 0.84 (0.81) | C (D) | 0.92 (0.76) | D (C) | 0.95 (0.76) | D (C) |
| EBR | 0.08 (0.07) | B (B) | 0.13 (0.14) | C (B) | 0.13 (0.15) | C (C) | 0.15 (0.15) | C (B) | 0.15 (0.14) | C (B) |
| WBL | 0.15 (0.19) | B (B) | 1.01 (0.73) | F (D) | 1.01 (0.50) | F (C) | 0.97 (0.81) | F (D) | 0.97 (0.80) | F (D) |
| WBTR | 0.31 (0.41) | C (C) | 0.64 (0.87) | C (D) | 0.65 (0.76) | C (C) | 0.70 (0.96) | D (D) | 0.73 (0.98) | C (D) |
| NBL | 0.09 (0.36) | C (D) | 0.62 (0.76) | D (D) | 0.67 (0.76) | D (D) | 0.90 (0.90) | E (E) | 0.83 (0.97) | E (F) |
| NBT | 0.06 (0.28) | C (D) | 0.15 (0.35) | C (D) | 0.15 (0.35) | C (D) | 0.25 (0.54) | C (D) | 0.24 (0.64) | C (D) |
| NBR | 0.03 (0.03) | C (C) | 0.10 (0.17) | C (C) | 0.09 (0.11) | C (C) | 0.10 (0.17) | C (C) | 0.10 (0.17) | C (C) |
| SBL | 0.02 (0.01) | C (C) | 0.13 (0.15) | C (C) | 0.13 (0.15) | C (C) | 0.17 (0.28) | C (D) | 0.17 (0.41) | C (D) |
| SBT | 0.22 (0.12) | C (C) | 0.27 (0.17) | C (C) | 0.27 (0.17) | C (C) | 0.48 (0.31) | C (D) | 0.46 (0.35) | C (D) |
| SBR | 0.01 (0.02) | C (C) | 0.04 (0.08) | C (C) | 0.04 (0.08) | C (C) | 0.21 (0.15) | C (C) | 0.20 (0.18) | C (C) |
| **Overall** | **0.32 (0.38)** | **C (C)** | **0.87 (0.79)** | **C (C)** | **0.89 (0.76)** | **C (C)** | **0.96 (0.93)** | **D (D)** | **0.93 (0.99)** | **D (D)** |

**Unsignalized Intersection Operations**

Torbram Road & Old School Road

| Lane Group | Existing | | Future Background 413 | | Future Background no 413 | | Future Total 413 | | Future Total no 413 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | LOS | Delay (s) | LOS | Delay (s) | LOS | Delay (s) | LOS | Delay (s) | LOS | Delay (s) |
| EBTLR | A (A) | 8.9 (9.0) | B (B) | 11.4 (11.3) | B (B) | 11.8 (11.6) | B (C) | 13.9 (19.6) | C (B) | 16.4 (14.4) |
| WBTLR | A (B) | 8.5 (10.4) | A (C) | 9.7 (16.4) | A (C) | 9.8 (17.5) | B (E) | 11.7 (47.5) | B (D) | 12.4 (27.5) |
| NBTLR | A (B) | 8.1 (10.7) | A (B) | 9.1 (13.8) | A (B) | 9.3 (14.1) | B (E) | 12.6 (49.4) | B (D) | 12.8 (26.4) |
| SBTLR | A (A) | 9.2 (9.1) | B (B) | 10.6 (10.7) | B (B) | 10.7 (10.9) | B (C) | 12.8 (15.3) | B (B) | 14.8 (13.2) |

Torbram Road & Street A / Tullamore Driveway

| Lane Group | Existing | | Future Background 413 | | Future Background no 413 | | Future Total 413 | | Future Total no 413 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | LOS | Delay (s) | LOS | Delay (s) | LOS | Delay (s) | LOS | Delay (s) | LOS | Delay (s) |
| EBL | | | | | | | C (D) | 19.0 (28.1) | C (C) | 16.9 (23.0) |
| EBTR | | | | | | | B (A) | 11.0 (10.0) | B (A) | 11.0 (9.5) |
| WBTLR | | | | | | | D (E) | 26.6 (49.3) | D (E) | 29.4 (49.5) |
| NBL | | | -- | | | | A (A) | 8.1 (8.1) | A (A) | 8.0 (7.9) |
| NBTR | | | | | | | A (A) | 0.0 (0.0) | A (A) | 0.0 (0.0) |
| SBL | | | | | | | A (A) | 7.8 (8.1) | A (A) | 7.8 (8.1) |
| SBTR | | | | | | | A (A) | 0.0 (0.0) | A (A) | 0.0 (0.0) |

Torbram Road & Street O

| Lane Group | Existing | | Future Background 413 | | Future Background no 413 | | Future Total 413 | | Future Total no 413 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | LOS | Delay (s) | LOS | Delay (s) | LOS | Delay (s) | LOS | Delay (s) | LOS | Delay (s) |
| EBLR | -- | | | | | | C (B) | 15.2 (14.5) | C (B) | 15.8 (13.6) |
| NBL | | | | | | | A (A) | 8.5 (8.4) | A (A) | 8.8 (8.4) |
| NBR | | | | | | | A (A) | 0.0 (0.0) | A (A) | 0.0 (0.0) |
| SBTR | | | | | | | A (A) | 0.0 (0.0) | A (A) | 0.0 (0.0) |

Torbram Road & Street B

| Lane Group | Existing | | Future Background 413 | | Future Background no 413 | | Future Total 413 | | Future Total no 413 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | LOS | Delay (s) | LOS | Delay (s) | LOS | Delay (s) | LOS | Delay (s) | LOS | Delay (s) |
| EBLR | -- | | | | | | C (C) | 17.3 (20.8) | C (C) | 18.2 (18.1) |
| NBL | | | | | | | A (A) | 8.6 (8.7) | A (A) | 8.9 (8.8) |
| NBR | | | | | | | A (A) | 0.0 (0.0) | A (A) | 0.0 (0.0) |
| SBTR | | | | | | | A (A) | 0.0 (0.0) | A (A) | 0.0 (0.0) |

**Sensitivity Scenario: Site with Central Parcel**

**Driveway Operations**

Torbram Road & Street A / Tullamore Driveway

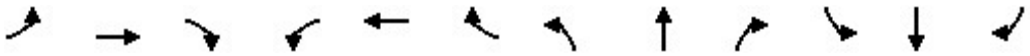
| Lane Group | Existing | | Future Background 413 | | Future Background no 413 | | Future Total 413 | | Future Total no 413 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | LOS | Delay (s) | LOS | Delay (s) | LOS | Delay (s) | LOS | Delay (s) | LOS | Delay (s) |
| EBL | | | | | | | C (D) | 20.2 (30.6) | C (C) | 16.8 (23.5) |
| EBTR | | | | | | | B (B) | 10.8 (10.0) | B (A) | 11.0 (9.6) |
| WBTLR | | | | | | | C (E) | 25.0 (47.5) | D (E) | 28.9 (49.0) |
| NBL | | | -- | | | | A (A) | 8.1 (8.2) | A (A) | 8.0 (7.9) |
| NBTR | | | | | | | A (A) | 0.0 (0.0) | A (A) | 0.0 (0.0) |
| SBTL | | | | | | | A (A) | 7.9 (8.1) | A (A) | 7.8 (8.1) |
| SBR | | | | | | | A (A) | 0.0 (0.0) | A (A) | 0.0 (0.0) |

Torbram Road & Street O

| Lane Group | Existing | | Future Background 413 | | Future Background no 413 | | Future Total 413 | | Future Total no 413 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | LOS | Delay (s) | LOS | Delay (s) | LOS | Delay (s) | LOS | Delay (s) | LOS | Delay (s) |
| EBLR | | | | | | | C (C) | 16.6 (17.3) | C (B) | 17.0 (15.0) |
| NBL | | | | | | | A (A) | 8.4 (8.3) | A (A) | 8.7 (8.3) |
| NBR | | | -- | | | | A (A) | 0.0 (0.0) | A (A) | 0.0 (0.0) |
| SBTR | | | | | | | A (A) | 0.0 (0.0) | A (A) | 0.0 (0.0) |

Torbram Road & Street B

| Lane Group | Existing | | Future Background 413 | | Future Background no 413 | | Future Total 413 | | Future Total no 413 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | LOS | Delay (s) | LOS | Delay (s) | LOS | Delay (s) | LOS | Delay (s) | LOS | Delay (s) |
| EBLR | -- | | | | | | C (C) | 18.2 (19.7) | C (C) | 22.7 (19.4) |
| NBL | | | | | | | A (A) | 8.8 (9.0) | A (A) | 9.3 (9.5) |
| NBR | | | | | | | A (A) | 0.0 (0.0) | A (A) | 0.0 (0.0) |
| SBTR | | | | | | | A (A) | 0.0 (0.0) | A (A) | 0.0 (0.0) |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 5 | 125 | 5 | 10 | 65 | 0 | 0 | 45 | 20 | 5 | 160 | 5 |
| Future Volume (vph) | 5 | 125 | 5 | 10 | 65 | 0 | 0 | 45 | 20 | 5 | 160 | 5 |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 6 | 144 | 6 | 11 | 75 | 0 | 0 | 52 | 23 | 6 | 184 | 6 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 156 | 86 | 75 | 196 |
| Volume Left (vph) | 6 | 11 | 0 | 6 |
| Volume Right (vph) | 6 | 0 | 23 | 6 |
| Hadj (s) | 0.03 | 0.11 | -0.10 | 0.04 |
| Departure Headway (s) | 4.7 | 4.9 | 4.6 | 4.6 |
| Degree Utilization, x | 0.20 | 0.12 | 0.10 | 0.25 |
| Capacity (veh/h) | 715 | 685 | 721 | 733 |
| Control Delay (s) | 8.9 | 8.5 | 8.1 | 9.2 |
| Approach Delay (s) | 8.9 | 8.5 | 8.1 | 9.2 |
| Approach LOS | A | A | A | A |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | | 8.8 | | |
| Level of Service | | A | | |
| Intersection Capacity Utilization | | 27.2% | ICU Level of Service | A |
| Analysis Period (min) | | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 65 | 175 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 65 | 175 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 69 | 186 | 0 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 255 | 186 | 186 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 255 | 186 | 186 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 738 | 861 | 1401 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 0 | 69 | 186 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1700 | 1401 | 1700 |
| Volume to Capacity | 0.00 | 0.00 | 0.11 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 12.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 65 | 175 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 65 | 175 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 68 | 184 | 0 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 252 | 184 | 184 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 252 | 184 | 184 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 741 | 864 | 1403 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 0 | 68 | 184 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1700 | 1403 | 1700 |
| Volume to Capacity | 0.00 | 0.00 | 0.11 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 12.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

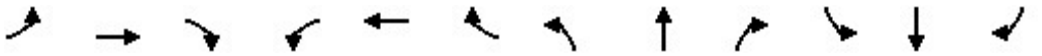
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 5 | 65 | 175 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 5 | 65 | 175 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 0 | 0 | 5 | 68 | 184 | 0 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 262 | 184 | 184 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 262 | 184 | 184 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 729 | 864 | 1403 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 0 | 73 | 184 |
| Volume Left | 0 | 5 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1700 | 1403 | 1700 |
| Volume to Capacity | 0.00 | 0.00 | 0.11 |
| Queue Length 95th (m) | 0.0 | 0.1 | 0.0 |
| Control Delay (s) | 0.0 | 0.5 | 0.0 |
| Lane LOS | A | A | |
| Approach Delay (s) | 0.0 | 0.5 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.2 | | |
| Intersection Capacity Utilization | 12.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

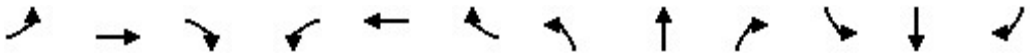
| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 20 | 870 | 120 | 45 | 570 | 40 | 40 | 40 | 10 | 150 | 15 |
| v/c Ratio | 0.04 | 0.42 | 0.16 | 0.14 | 0.31 | 0.09 | 0.06 | 0.07 | 0.02 | 0.22 | 0.03 |
| Control Delay | 12.2 | 24.0 | 4.0 | 13.1 | 22.3 | 26.5 | 25.8 | 2.5 | 25.3 | 28.0 | 0.1 |
| 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 | 12.2 | 24.0 | 4.0 | 13.1 | 22.3 | 26.5 | 25.8 | 2.5 | 25.3 | 28.0 | 0.1 |
| Queue Length 50th (m) | 2.1 | 53.2 | 0.0 | 4.8 | 32.8 | 6.6 | 6.5 | 0.0 | 1.6 | 25.7 | 0.0 |
| Queue Length 95th (m) | 5.8 | 65.2 | 11.1 | 10.5 | 42.3 | 14.8 | 14.4 | 3.4 | 5.5 | 42.1 | 0.0 |
| Internal Link Dist (m) | | 1364.5 | | | 1343.2 | | 280.7 | | | 1670.4 | |
| Turn Bay Length (m) | | | | | | | | | 30.0 | | 56.0 |
| Base Capacity (vph) | 474 | 2056 | 750 | 323 | 1828 | 431 | 654 | 561 | 490 | 686 | 543 |
| 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 | 0.04 | 0.42 | 0.16 | 0.14 | 0.31 | 0.09 | 0.06 | 0.07 | 0.02 | 0.22 | 0.03 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 20 | 870 | 120 | 45 | 560 | 10 | 40 | 40 | 40 | 10 | 150 | 15 |
| Future Volume (vph) | 20 | 870 | 120 | 45 | 560 | 10 | 40 | 40 | 40 | 10 | 150 | 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 | 3.5 | 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) | 1785 | 4683 | 1555 | 1668 | 4161 | | 1733 | 1830 | 1452 | 1785 | 1921 | 1401 |
| Flt Permitted | 0.41 | 1.00 | 1.00 | 0.27 | 1.00 | | 0.66 | 1.00 | 1.00 | 0.73 | 1.00 | 1.00 |
| Satd. Flow (perm) | 779 | 4683 | 1555 | 476 | 4161 | | 1207 | 1830 | 1452 | 1373 | 1921 | 1401 |
| 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) | 20 | 870 | 120 | 45 | 560 | 10 | 40 | 40 | 40 | 10 | 150 | 15 |
| RTOR Reduction (vph) | 0 | 0 | 67 | 0 | 2 | 0 | 0 | 0 | 26 | 0 | 0 | 10 |
| Lane Group Flow (vph) | 20 | 870 | 53 | 45 | 568 | 0 | 40 | 40 | 14 | 10 | 150 | 5 |
| Heavy Vehicles (%) | 0% | 12% | 5% | 7% | 26% | 10% | 3% | 5% | 10% | 0% | 0% | 14% |
| 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) | 59.7 | 52.7 | 52.7 | 59.7 | 52.7 | | 42.9 | 42.9 | 42.9 | 42.9 | 42.9 | 42.9 |
| Effective Green, g (s) | 59.7 | 52.7 | 52.7 | 59.7 | 52.7 | | 42.9 | 42.9 | 42.9 | 42.9 | 42.9 | 42.9 |
| Actuated g/C Ratio | 0.50 | 0.44 | 0.44 | 0.50 | 0.44 | | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 |
| 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 |
| Lane Grp Cap (vph) | 446 | 2056 | 682 | 306 | 1827 | | 431 | 654 | 519 | 490 | 686 | 500 |
| v/s Ratio Prot | 0.00 | c0.19 | | c0.01 | 0.14 | | | 0.02 | | | c0.08 | |
| v/s Ratio Perm | 0.02 | | 0.03 | 0.06 | | | 0.03 | | 0.01 | 0.01 | | 0.00 |
| v/c Ratio | 0.04 | 0.42 | 0.08 | 0.15 | 0.31 | | 0.09 | 0.06 | 0.03 | 0.02 | 0.22 | 0.01 |
| Uniform Delay, d1 | 15.3 | 23.2 | 19.5 | 15.8 | 21.9 | | 25.6 | 25.3 | 25.0 | 25.0 | 26.9 | 24.9 |
| 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 | 0.2 | 0.6 | 0.2 | 1.0 | 0.4 | | 0.4 | 0.2 | 0.1 | 0.1 | 0.7 | 0.0 |
| Delay (s) | 15.5 | 23.8 | 19.8 | 16.8 | 22.3 | | 26.0 | 25.5 | 25.1 | 25.0 | 27.6 | 24.9 |
| Level of Service | B | C | B | B | C | | C | C | C | C | C | C |
| Approach Delay (s) | | 23.2 | | | 21.9 | | | 25.6 | | | 27.2 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 23.3 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.32 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 17.4 |
| Intersection Capacity Utilization | 62.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 10 | 70 | 10 | 15 | 200 | 5 | 10 | 215 | 20 | 5 | 75 | 5 |
| Future Volume (vph) | 10 | 70 | 10 | 15 | 200 | 5 | 10 | 215 | 20 | 5 | 75 | 5 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 11 | 76 | 11 | 16 | 217 | 5 | 11 | 234 | 22 | 5 | 82 | 5 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 98 | 238 | 267 | 92 |
| Volume Left (vph) | 11 | 16 | 11 | 5 |
| Volume Right (vph) | 11 | 5 | 22 | 5 |
| Hadj (s) | 0.01 | 0.03 | -0.01 | 0.13 |
| Departure Headway (s) | 5.2 | 5.0 | 4.9 | 5.3 |
| Degree Utilization, x | 0.14 | 0.33 | 0.36 | 0.14 |
| Capacity (veh/h) | 627 | 673 | 694 | 618 |
| Control Delay (s) | 9.0 | 10.4 | 10.7 | 9.1 |
| Approach Delay (s) | 9.0 | 10.4 | 10.7 | 9.1 |
| Approach LOS | A | B | B | A |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | | 10.2 | | |
| Level of Service | | B | | |
| Intersection Capacity Utilization | | 36.1% | ICU Level of Service | A |
| Analysis Period (min) | | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 245 | 100 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 245 | 100 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 255 | 104 | 0 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 359 | 104 | 104 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 359 | 104 | 104 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 644 | 956 | 1500 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 0 | 255 | 104 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1700 | 1500 | 1700 |
| Volume to Capacity | 0.00 | 0.00 | 0.06 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 16.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 245 | 100 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 245 | 100 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 258 | 105 | 0 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 363 | 105 | 105 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 363 | 105 | 105 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 640 | 955 | 1499 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 0 | 258 | 105 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1700 | 1499 | 1700 |
| Volume to Capacity | 0.00 | 0.00 | 0.06 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 16.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

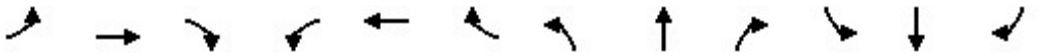
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 15 | 245 | 100 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 15 | 245 | 100 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 16 | 266 | 109 | 0 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 407 | 109 | 109 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 407 | 109 | 109 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 99 | | | |
| cM capacity (veh/h) | 598 | 950 | 1494 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 0 | 282 | 109 |
| Volume Left | 0 | 16 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1700 | 1494 | 1700 |
| Volume to Capacity | 0.00 | 0.01 | 0.06 |
| Queue Length 95th (m) | 0.0 | 0.3 | 0.0 |
| Control Delay (s) | 0.0 | 0.5 | 0.0 |
| Lane LOS | A | A | |
| Approach Delay (s) | 0.0 | 0.5 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.4 | | |
| Intersection Capacity Utilization | 23.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

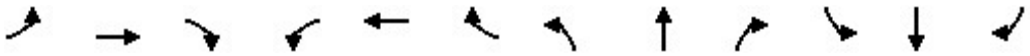
| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 70 | 775 | 105 | 75 | 975 | 145 | 170 | 50 | 5 | 70 | 25 |
| v/c Ratio | 0.21 | 0.35 | 0.13 | 0.18 | 0.41 | 0.36 | 0.28 | 0.09 | 0.01 | 0.12 | 0.05 |
| Control Delay | 12.4 | 21.0 | 3.5 | 12.0 | 21.7 | 38.5 | 36.1 | 6.5 | 32.0 | 33.4 | 0.2 |
| 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 | 12.4 | 21.0 | 3.5 | 12.0 | 21.7 | 38.5 | 36.1 | 6.5 | 32.0 | 33.4 | 0.2 |
| Queue Length 50th (m) | 7.6 | 47.0 | 0.0 | 8.2 | 60.9 | 31.3 | 35.7 | 0.0 | 1.0 | 13.9 | 0.0 |
| Queue Length 95th (m) | 14.3 | 57.3 | 9.7 | 15.2 | 72.5 | 51.4 | 55.9 | 7.9 | 4.3 | 26.1 | 0.2 |
| Internal Link Dist (m) | | 1364.5 | | | 1343.2 | | 280.7 | | | 1670.4 | |
| Turn Bay Length (m) | | | | | | | | | 30.0 | | 56.0 |
| Base Capacity (vph) | 332 | 2191 | 839 | 412 | 2387 | 408 | 604 | 537 | 365 | 592 | 547 |
| 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 | 0.21 | 0.35 | 0.13 | 0.18 | 0.41 | 0.36 | 0.28 | 0.09 | 0.01 | 0.12 | 0.05 |

Intersection Summary



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 70 | 775 | 105 | 75 | 955 | 20 | 145 | 170 | 50 | 5 | 70 | 25 |
| Future Volume (vph) | 70 | 775 | 105 | 75 | 955 | 20 | 145 | 170 | 50 | 5 | 70 | 25 |
| 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 | 3.5 | 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) | 1767 | 4371 | 1570 | 1785 | 4758 | | 1716 | 1902 | 1566 | 1785 | 1865 | 1597 |
| Flt Permitted | 0.24 | 1.00 | 1.00 | 0.32 | 1.00 | | 0.71 | 1.00 | 1.00 | 0.61 | 1.00 | 1.00 |
| Satd. Flow (perm) | 451 | 4371 | 1570 | 600 | 4758 | | 1285 | 1902 | 1566 | 1149 | 1865 | 1597 |
| 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) | 70 | 775 | 105 | 75 | 955 | 20 | 145 | 170 | 50 | 5 | 70 | 25 |
| RTOR Reduction (vph) | 0 | 0 | 52 | 0 | 1 | 0 | 0 | 0 | 34 | 0 | 0 | 17 |
| Lane Group Flow (vph) | 70 | 775 | 53 | 75 | 974 | 0 | 145 | 170 | 16 | 5 | 70 | 8 |
| Heavy Vehicles (%) | 1% | 20% | 4% | 0% | 10% | 5% | 4% | 1% | 2% | 0% | 3% | 0% |
| 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) | 74.7 | 67.7 | 67.7 | 74.7 | 67.7 | | 42.9 | 42.9 | 42.9 | 42.9 | 42.9 | 42.9 |
| Effective Green, g (s) | 74.7 | 67.7 | 67.7 | 74.7 | 67.7 | | 42.9 | 42.9 | 42.9 | 42.9 | 42.9 | 42.9 |
| Actuated g/C Ratio | 0.55 | 0.50 | 0.50 | 0.55 | 0.50 | | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 |
| 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 |
| Lane Grp Cap (vph) | 317 | 2191 | 787 | 393 | 2386 | | 408 | 604 | 497 | 365 | 592 | 507 |
| v/s Ratio Prot | c0.01 | 0.18 | | 0.01 | c0.20 | | | 0.09 | | | 0.04 | |
| v/s Ratio Perm | 0.11 | | 0.03 | 0.10 | | | c0.11 | | 0.01 | 0.00 | | 0.00 |
| v/c Ratio | 0.22 | 0.35 | 0.07 | 0.19 | 0.41 | | 0.36 | 0.28 | 0.03 | 0.01 | 0.12 | 0.02 |
| Uniform Delay, d1 | 14.4 | 20.4 | 17.4 | 14.2 | 21.1 | | 35.4 | 34.5 | 31.7 | 31.6 | 32.6 | 31.6 |
| 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 | 1.6 | 0.4 | 0.2 | 1.1 | 0.5 | | 2.4 | 1.2 | 0.1 | 0.1 | 0.4 | 0.1 |
| Delay (s) | 16.0 | 20.8 | 17.5 | 15.3 | 21.6 | | 37.8 | 35.7 | 31.9 | 31.6 | 33.1 | 31.6 |
| Level of Service | B | C | B | B | C | | D | D | C | C | C | C |
| Approach Delay (s) | | 20.1 | | | 21.2 | | | 36.0 | | | 32.6 | |
| Approach LOS | | C | | | C | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 23.4 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.38 | | |
| Actuated Cycle Length (s) | 135.0 | Sum of lost time (s) | 17.4 |
| Intersection Capacity Utilization | 56.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 5 | 245 | 5 | 10 | 120 | 0 | 0 | 55 | 20 | 5 | 175 | 5 |
| Future Volume (vph) | 5 | 245 | 5 | 10 | 120 | 0 | 0 | 55 | 20 | 5 | 175 | 5 |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 6 | 282 | 6 | 11 | 138 | 0 | 0 | 63 | 23 | 6 | 201 | 6 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 294 | 149 | 86 | 213 |
| Volume Left (vph) | 6 | 11 | 0 | 6 |
| Volume Right (vph) | 6 | 0 | 23 | 6 |
| Hadj (s) | 0.03 | 0.11 | -0.07 | 0.04 |
| Departure Headway (s) | 5.0 | 5.3 | 5.3 | 5.2 |
| Degree Utilization, x | 0.41 | 0.22 | 0.13 | 0.31 |
| Capacity (veh/h) | 684 | 633 | 594 | 635 |
| Control Delay (s) | 11.4 | 9.7 | 9.1 | 10.6 |
| Approach Delay (s) | 11.4 | 9.7 | 9.1 | 10.6 |
| Approach LOS | B | A | A | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 10.5 | | | |
| Level of Service | B | | | |
| Intersection Capacity Utilization | 34.7% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 75 | 195 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 75 | 195 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 80 | 207 | 0 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 287 | 207 | 207 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 287 | 207 | 207 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 708 | 839 | 1376 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 0 | 80 | 207 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1700 | 1376 | 1700 |
| Volume to Capacity | 0.00 | 0.00 | 0.12 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 13.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 75 | 195 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 75 | 195 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 79 | 205 | 0 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 284 | 205 | 205 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 284 | 205 | 205 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 710 | 841 | 1378 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 0 | 79 | 205 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1700 | 1378 | 1700 |
| Volume to Capacity | 0.00 | 0.00 | 0.12 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 13.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 5 | 75 | 195 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 5 | 75 | 195 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 0 | 0 | 5 | 79 | 205 | 0 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 294 | 205 | 205 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 294 | 205 | 205 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 699 | 841 | 1378 | | | |

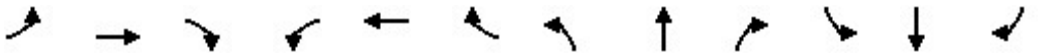
| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 0 | 84 | 205 |
| Volume Left | 0 | 5 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1700 | 1378 | 1700 |
| Volume to Capacity | 0.00 | 0.00 | 0.12 |
| Queue Length 95th (m) | 0.0 | 0.1 | 0.0 |
| Control Delay (s) | 0.0 | 0.5 | 0.0 |
| Lane LOS | A | A | |
| Approach Delay (s) | 0.0 | 0.5 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.1 | | |
| Intersection Capacity Utilization | 13.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 40 | 1765 | 305 | 180 | 1095 | 220 | 45 | 155 | 10 | 165 | 15 |
| v/c Ratio | 0.13 | 0.81 | 0.37 | 0.96 | 0.55 | 0.53 | 0.07 | 0.26 | 0.02 | 0.24 | 0.03 |
| Control Delay | 13.1 | 34.2 | 4.1 | 83.0 | 26.0 | 36.1 | 25.9 | 7.3 | 25.3 | 28.3 | 0.1 |
| 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 | 13.1 | 34.2 | 4.1 | 83.0 | 26.0 | 36.1 | 25.9 | 7.3 | 25.3 | 28.3 | 0.1 |
| Queue Length 50th (m) | 4.3 | 125.9 | 1.3 | 28.2 | 65.2 | 42.8 | 7.3 | 3.2 | 1.6 | 28.5 | 0.0 |
| Queue Length 95th (m) | 9.6 | 144.7 | 18.3 | #75.1 | 78.3 | 69.3 | 15.9 | 17.9 | 5.5 | 46.0 | 0.0 |
| Internal Link Dist (m) | | 1364.5 | | | 1343.2 | | 280.7 | | | 1670.4 | |
| Turn Bay Length (m) | | | | | | | | | 30.0 | | 56.0 |
| Base Capacity (vph) | 304 | 2174 | 827 | 188 | 2009 | 418 | 654 | 605 | 489 | 686 | 543 |
| 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 | 0.13 | 0.81 | 0.37 | 0.96 | 0.55 | 0.53 | 0.07 | 0.26 | 0.02 | 0.24 | 0.03 |

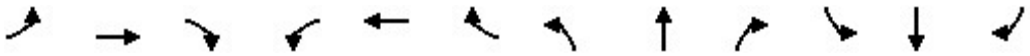
Intersection Summary

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



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 40 | 1765 | 305 | 180 | 1080 | 15 | 220 | 45 | 155 | 10 | 165 | 15 |
| Future Volume (vph) | 40 | 1765 | 305 | 180 | 1080 | 15 | 220 | 45 | 155 | 10 | 165 | 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 | 3.5 | 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 | *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 | | 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) | 1785 | 5146 | 1555 | 1668 | 4573 | | 1733 | 1830 | 1452 | 1785 | 1921 | 1401 |
| Flt Permitted | 0.23 | 1.00 | 1.00 | 0.08 | 1.00 | | 0.64 | 1.00 | 1.00 | 0.73 | 1.00 | 1.00 |
| Satd. Flow (perm) | 438 | 5146 | 1555 | 133 | 4573 | | 1172 | 1830 | 1452 | 1367 | 1921 | 1401 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 40 | 1765 | 305 | 180 | 1080 | 15 | 220 | 45 | 155 | 10 | 165 | 15 |
| RTOR Reduction (vph) | 0 | 0 | 171 | 0 | 1 | 0 | 0 | 0 | 87 | 0 | 0 | 10 |
| Lane Group Flow (vph) | 40 | 1765 | 134 | 180 | 1094 | 0 | 220 | 45 | 68 | 10 | 165 | 5 |
| Heavy Vehicles (%) | 0% | 12% | 5% | 7% | 26% | 10% | 3% | 5% | 10% | 0% | 0% | 14% |
| 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) | 57.7 | 50.7 | 50.7 | 61.7 | 52.7 | | 42.9 | 42.9 | 42.9 | 42.9 | 42.9 | 42.9 |
| Effective Green, g (s) | 57.7 | 50.7 | 50.7 | 61.7 | 52.7 | | 42.9 | 42.9 | 42.9 | 42.9 | 42.9 | 42.9 |
| Actuated g/C Ratio | 0.48 | 0.42 | 0.42 | 0.51 | 0.44 | | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 |
| 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 |
| Lane Grp Cap (vph) | 289 | 2174 | 656 | 183 | 2008 | | 418 | 654 | 519 | 488 | 686 | 500 |
| v/s Ratio Prot | 0.01 | 0.34 | | c0.07 | 0.24 | | | 0.02 | | | 0.09 | |
| v/s Ratio Perm | 0.06 | | 0.09 | c0.43 | | | c0.19 | | 0.05 | 0.01 | | 0.00 |
| v/c Ratio | 0.14 | 0.81 | 0.20 | 0.98 | 0.54 | | 0.53 | 0.07 | 0.13 | 0.02 | 0.24 | 0.01 |
| Uniform Delay, d1 | 16.8 | 30.5 | 21.9 | 31.0 | 24.8 | | 30.5 | 25.4 | 26.0 | 25.0 | 27.1 | 24.9 |
| 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 | 1.0 | 3.4 | 0.7 | 62.4 | 1.1 | | 4.7 | 0.2 | 0.5 | 0.1 | 0.8 | 0.0 |
| Delay (s) | 17.8 | 33.9 | 22.6 | 93.4 | 25.9 | | 35.2 | 25.6 | 26.5 | 25.0 | 27.9 | 24.9 |
| Level of Service | B | C | C | F | C | | D | C | C | C | C | C |
| Approach Delay (s) | | 32.0 | | | 35.4 | | | 31.0 | | | 27.5 | |
| Approach LOS | | C | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 32.7 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 17.4 |
| Intersection Capacity Utilization | 87.5% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 10 | 145 | 10 | 20 | 345 | 5 | 10 | 240 | 20 | 5 | 90 | 5 |
| Future Volume (vph) | 10 | 145 | 10 | 20 | 345 | 5 | 10 | 240 | 20 | 5 | 90 | 5 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 11 | 158 | 11 | 22 | 375 | 5 | 11 | 261 | 22 | 5 | 98 | 5 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 180 | 402 | 294 | 108 |
| Volume Left (vph) | 11 | 22 | 11 | 5 |
| Volume Right (vph) | 11 | 5 | 22 | 5 |
| Hadj (s) | 0.04 | 0.02 | -0.01 | 0.13 |
| Departure Headway (s) | 5.9 | 5.5 | 5.8 | 6.3 |
| Degree Utilization, x | 0.29 | 0.61 | 0.47 | 0.19 |
| Capacity (veh/h) | 551 | 625 | 575 | 483 |
| Control Delay (s) | 11.3 | 16.8 | 13.8 | 10.8 |
| Approach Delay (s) | 11.3 | 16.8 | 13.8 | 10.8 |
| Approach LOS | B | C | B | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 14.2 | | | |
| Level of Service | B | | | |
| Intersection Capacity Utilization | 48.4% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 275 | 115 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 275 | 115 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 286 | 120 | 0 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 406 | 120 | 120 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 406 | 120 | 120 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 605 | 937 | 1480 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 0 | 286 | 120 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1700 | 1480 | 1700 |
| Volume to Capacity | 0.00 | 0.00 | 0.07 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 17.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 275 | 115 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 275 | 115 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 289 | 121 | 0 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 410 | 121 | 121 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 410 | 121 | 121 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 602 | 936 | 1479 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 0 | 289 | 121 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1700 | 1479 | 1700 |
| Volume to Capacity | 0.00 | 0.00 | 0.07 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 17.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 15 | 275 | 115 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 15 | 275 | 115 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 16 | 299 | 125 | 0 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 456 | 125 | 125 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 456 | 125 | 125 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 99 | | | |
| cM capacity (veh/h) | 560 | 931 | 1474 | | | |

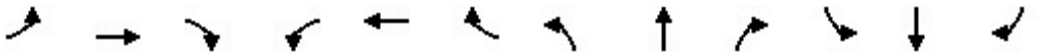
| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 0 | 315 | 125 |
| Volume Left | 0 | 16 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1700 | 1474 | 1700 |
| Volume to Capacity | 0.00 | 0.01 | 0.07 |
| Queue Length 95th (m) | 0.0 | 0.3 | 0.0 |
| Control Delay (s) | 0.0 | 0.5 | 0.0 |
| Lane LOS | A | A | |
| Approach Delay (s) | 0.0 | 0.5 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.3 | | |
| Intersection Capacity Utilization | 25.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 120 | 1500 | 255 | 185 | 1950 | 340 | 190 | 155 | 5 | 75 | 35 |
| v/c Ratio | 0.45 | 0.63 | 0.28 | 0.82 | 0.87 | 0.82 | 0.31 | 0.26 | 0.01 | 0.12 | 0.06 |
| Control Delay | 24.4 | 26.6 | 2.9 | 44.4 | 40.6 | 59.2 | 35.9 | 9.9 | 31.2 | 32.8 | 0.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 24.4 | 26.6 | 2.9 | 44.4 | 40.6 | 59.2 | 35.9 | 9.9 | 31.2 | 32.8 | 0.2 |
| Queue Length 50th (m) | 13.8 | 100.7 | 0.0 | 22.0 | 164.0 | 87.6 | 39.9 | 6.0 | 1.0 | 14.8 | 0.0 |
| Queue Length 95th (m) | 34.2 | 115.6 | 14.3 | #48.2 | 184.1 | #139.2 | 61.1 | 22.8 | 4.3 | 27.3 | 0.0 |
| Internal Link Dist (m) | | 1364.5 | | | 1343.2 | | 280.7 | | | 1670.4 | |
| Turn Bay Length (m) | | | | | | | | | 30.0 | | 56.0 |
| Base Capacity (vph) | 268 | 2373 | 904 | 226 | 2236 | 415 | 618 | 592 | 357 | 606 | 575 |
| 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 | 0.45 | 0.63 | 0.28 | 0.82 | 0.87 | 0.82 | 0.31 | 0.26 | 0.01 | 0.12 | 0.06 |

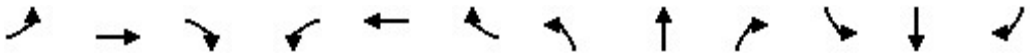
Intersection Summary

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



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 120 | 1500 | 255 | 185 | 1915 | 35 | 340 | 190 | 155 | 5 | 75 | 35 |
| Future Volume (vph) | 120 | 1500 | 255 | 185 | 1915 | 35 | 340 | 190 | 155 | 5 | 75 | 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 | 3.5 | 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 | *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 | | 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) | 1767 | 4803 | 1570 | 1785 | 5230 | | 1716 | 1902 | 1566 | 1785 | 1865 | 1597 |
| Flt Permitted | 0.07 | 1.00 | 1.00 | 0.15 | 1.00 | | 0.71 | 1.00 | 1.00 | 0.58 | 1.00 | 1.00 |
| Satd. Flow (perm) | 123 | 4803 | 1570 | 291 | 5230 | | 1279 | 1902 | 1566 | 1099 | 1865 | 1597 |
| 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 | 1500 | 255 | 185 | 1915 | 35 | 340 | 190 | 155 | 5 | 75 | 35 |
| RTOR Reduction (vph) | 0 | 0 | 129 | 0 | 2 | 0 | 0 | 0 | 84 | 0 | 0 | 24 |
| Lane Group Flow (vph) | 120 | 1500 | 126 | 185 | 1948 | 0 | 340 | 190 | 71 | 5 | 75 | 11 |
| Heavy Vehicles (%) | 1% | 20% | 4% | 0% | 10% | 5% | 4% | 1% | 2% | 0% | 3% | 0% |
| 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) | 76.7 | 66.7 | 66.7 | 64.7 | 57.7 | | 43.9 | 43.9 | 43.9 | 43.9 | 43.9 | 43.9 |
| Effective Green, g (s) | 76.7 | 66.7 | 66.7 | 64.7 | 57.7 | | 43.9 | 43.9 | 43.9 | 43.9 | 43.9 | 43.9 |
| Actuated g/C Ratio | 0.57 | 0.49 | 0.49 | 0.48 | 0.43 | | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 |
| 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 |
| Lane Grp Cap (vph) | 264 | 2373 | 775 | 216 | 2235 | | 415 | 618 | 509 | 357 | 606 | 519 |
| v/s Ratio Prot | 0.05 | c0.31 | | c0.04 | c0.37 | | | 0.10 | | | 0.04 | |
| v/s Ratio Perm | 0.20 | | 0.08 | 0.36 | | | c0.27 | | 0.05 | 0.00 | | 0.01 |
| v/c Ratio | 0.45 | 0.63 | 0.16 | 0.86 | 0.87 | | 0.82 | 0.31 | 0.14 | 0.01 | 0.12 | 0.02 |
| Uniform Delay, d1 | 22.3 | 25.1 | 18.8 | 23.1 | 35.3 | | 41.9 | 34.2 | 32.2 | 30.9 | 32.0 | 31.0 |
| 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 | 5.6 | 1.3 | 0.5 | 32.9 | 5.0 | | 16.4 | 1.3 | 0.6 | 0.1 | 0.4 | 0.1 |
| Delay (s) | 27.8 | 26.4 | 19.2 | 56.0 | 40.3 | | 58.3 | 35.4 | 32.8 | 31.0 | 32.4 | 31.0 |
| Level of Service | C | C | B | E | D | | E | D | C | C | C | C |
| Approach Delay (s) | | 25.5 | | | 41.7 | | | 46.2 | | | 32.0 | |
| Approach LOS | | C | | | D | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 35.8 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.82 | | |
| Actuated Cycle Length (s) | 135.0 | Sum of lost time (s) | 17.4 |
| Intersection Capacity Utilization | 85.3% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 5 | 260 | 5 | 10 | 120 | 0 | 0 | 60 | 20 | 5 | 175 | 5 |
| Future Volume (vph) | 5 | 260 | 5 | 10 | 120 | 0 | 0 | 60 | 20 | 5 | 175 | 5 |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 6 | 299 | 6 | 11 | 138 | 0 | 0 | 69 | 23 | 6 | 201 | 6 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 311 | 149 | 92 | 213 |
| Volume Left (vph) | 6 | 11 | 0 | 6 |
| Volume Right (vph) | 6 | 0 | 23 | 6 |
| Hadj (s) | 0.03 | 0.11 | -0.06 | 0.04 |
| Departure Headway (s) | 5.0 | 5.3 | 5.4 | 5.3 |
| Degree Utilization, x | 0.43 | 0.22 | 0.14 | 0.31 |
| Capacity (veh/h) | 681 | 624 | 585 | 626 |
| Control Delay (s) | 11.8 | 9.8 | 9.3 | 10.7 |
| Approach Delay (s) | 11.8 | 9.8 | 9.3 | 10.7 |
| Approach LOS | B | A | A | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 10.8 | | | |
| Level of Service | B | | | |
| Intersection Capacity Utilization | 35.4% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 80 | 195 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 80 | 195 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 85 | 207 | 0 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 292 | 207 | 207 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 292 | 207 | 207 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 703 | 839 | 1376 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 0 | 85 | 207 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1700 | 1376 | 1700 |
| Volume to Capacity | 0.00 | 0.00 | 0.12 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 13.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 80 | 195 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 80 | 195 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 84 | 205 | 0 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 289 | 205 | 205 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 289 | 205 | 205 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 706 | 841 | 1378 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 0 | 84 | 205 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1700 | 1378 | 1700 |
| Volume to Capacity | 0.00 | 0.00 | 0.12 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 13.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 5 | 80 | 195 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 5 | 80 | 195 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 0 | 0 | 5 | 84 | 205 | 0 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 299 | 205 | 205 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 299 | 205 | 205 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 694 | 841 | 1378 | | | |

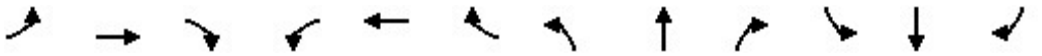
| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 0 | 89 | 205 |
| Volume Left | 0 | 5 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1700 | 1378 | 1700 |
| Volume to Capacity | 0.00 | 0.00 | 0.12 |
| Queue Length 95th (m) | 0.0 | 0.1 | 0.0 |
| Control Delay (s) | 0.0 | 0.5 | 0.0 |
| Lane LOS | A | A | |
| Approach Delay (s) | 0.0 | 0.5 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.1 | | |
| Intersection Capacity Utilization | 13.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 45 | 1775 | 305 | 180 | 1100 | 240 | 45 | 155 | 10 | 165 | 15 |
| v/c Ratio | 0.15 | 0.82 | 0.37 | 0.96 | 0.55 | 0.57 | 0.07 | 0.26 | 0.02 | 0.24 | 0.03 |
| Control Delay | 13.3 | 34.4 | 4.2 | 83.0 | 26.1 | 37.8 | 25.9 | 7.3 | 25.3 | 28.3 | 0.1 |
| 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 | 13.3 | 34.4 | 4.2 | 83.0 | 26.1 | 37.8 | 25.9 | 7.3 | 25.3 | 28.3 | 0.1 |
| Queue Length 50th (m) | 4.8 | 127.0 | 1.6 | 28.2 | 65.6 | 47.7 | 7.3 | 3.2 | 1.6 | 28.5 | 0.0 |
| Queue Length 95th (m) | 10.5 | 146.0 | 18.6 | #75.1 | 78.7 | 76.4 | 15.9 | 17.9 | 5.5 | 46.0 | 0.0 |
| Internal Link Dist (m) | | 1364.5 | | | 1343.2 | | 280.7 | | | 1670.4 | |
| Turn Bay Length (m) | | | | | | | | | 30.0 | | 56.0 |
| Base Capacity (vph) | 303 | 2174 | 826 | 188 | 2009 | 418 | 654 | 605 | 489 | 686 | 543 |
| 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 | 0.15 | 0.82 | 0.37 | 0.96 | 0.55 | 0.57 | 0.07 | 0.26 | 0.02 | 0.24 | 0.03 |

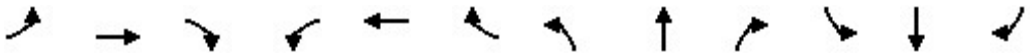
Intersection Summary

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



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 45 | 1775 | 305 | 180 | 1085 | 15 | 240 | 45 | 155 | 10 | 165 | 15 |
| Future Volume (vph) | 45 | 1775 | 305 | 180 | 1085 | 15 | 240 | 45 | 155 | 10 | 165 | 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 | 3.5 | 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 | *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 | | 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) | 1785 | 5146 | 1555 | 1668 | 4573 | | 1733 | 1830 | 1452 | 1785 | 1921 | 1401 |
| Flt Permitted | 0.23 | 1.00 | 1.00 | 0.08 | 1.00 | | 0.64 | 1.00 | 1.00 | 0.73 | 1.00 | 1.00 |
| Satd. Flow (perm) | 435 | 5146 | 1555 | 133 | 4573 | | 1172 | 1830 | 1452 | 1367 | 1921 | 1401 |
| 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) | 45 | 1775 | 305 | 180 | 1085 | 15 | 240 | 45 | 155 | 10 | 165 | 15 |
| RTOR Reduction (vph) | 0 | 0 | 170 | 0 | 1 | 0 | 0 | 0 | 87 | 0 | 0 | 10 |
| Lane Group Flow (vph) | 45 | 1775 | 135 | 180 | 1099 | 0 | 240 | 45 | 68 | 10 | 165 | 5 |
| Heavy Vehicles (%) | 0% | 12% | 5% | 7% | 26% | 10% | 3% | 5% | 10% | 0% | 0% | 14% |
| 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) | 57.7 | 50.7 | 50.7 | 61.7 | 52.7 | | 42.9 | 42.9 | 42.9 | 42.9 | 42.9 | 42.9 |
| Effective Green, g (s) | 57.7 | 50.7 | 50.7 | 61.7 | 52.7 | | 42.9 | 42.9 | 42.9 | 42.9 | 42.9 | 42.9 |
| Actuated g/C Ratio | 0.48 | 0.42 | 0.42 | 0.51 | 0.44 | | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 |
| 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 |
| Lane Grp Cap (vph) | 287 | 2174 | 656 | 183 | 2008 | | 418 | 654 | 519 | 488 | 686 | 500 |
| v/s Ratio Prot | 0.01 | 0.34 | | c0.07 | 0.24 | | | 0.02 | | | 0.09 | |
| v/s Ratio Perm | 0.07 | | 0.09 | c0.43 | | | c0.20 | | 0.05 | 0.01 | | 0.00 |
| v/c Ratio | 0.16 | 0.82 | 0.21 | 0.98 | 0.55 | | 0.57 | 0.07 | 0.13 | 0.02 | 0.24 | 0.01 |
| Uniform Delay, d1 | 16.9 | 30.5 | 21.9 | 31.1 | 24.8 | | 31.2 | 25.4 | 26.0 | 25.0 | 27.1 | 24.9 |
| 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 | 1.2 | 3.5 | 0.7 | 62.4 | 1.1 | | 5.6 | 0.2 | 0.5 | 0.1 | 0.8 | 0.0 |
| Delay (s) | 18.0 | 34.1 | 22.6 | 93.5 | 25.9 | | 36.8 | 25.6 | 26.5 | 25.0 | 27.9 | 24.9 |
| Level of Service | B | C | C | F | C | | D | C | C | C | C | C |
| Approach Delay (s) | | 32.1 | | | 35.4 | | | 32.0 | | | 27.5 | |
| Approach LOS | | C | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 32.9 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 17.4 |
| Intersection Capacity Utilization | 88.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 10 | 155 | 10 | 20 | 360 | 5 | 10 | 240 | 20 | 5 | 90 | 5 |
| Future Volume (vph) | 10 | 155 | 10 | 20 | 360 | 5 | 10 | 240 | 20 | 5 | 90 | 5 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 11 | 168 | 11 | 22 | 391 | 5 | 11 | 261 | 22 | 5 | 98 | 5 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 190 | 418 | 294 | 108 |
| Volume Left (vph) | 11 | 22 | 11 | 5 |
| Volume Right (vph) | 11 | 5 | 22 | 5 |
| Hadj (s) | 0.04 | 0.02 | -0.01 | 0.13 |
| Departure Headway (s) | 5.9 | 5.5 | 5.9 | 6.4 |
| Degree Utilization, x | 0.31 | 0.64 | 0.48 | 0.19 |
| Capacity (veh/h) | 546 | 622 | 563 | 472 |
| Control Delay (s) | 11.6 | 17.9 | 14.1 | 10.9 |
| Approach Delay (s) | 11.6 | 17.9 | 14.1 | 10.9 |
| Approach LOS | B | C | B | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | | 14.9 | | |
| Level of Service | | B | | |
| Intersection Capacity Utilization | | 49.4% | ICU Level of Service | A |
| Analysis Period (min) | | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 275 | 115 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 275 | 115 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 286 | 120 | 0 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 406 | 120 | 120 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 406 | 120 | 120 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 605 | 937 | 1480 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 0 | 286 | 120 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1700 | 1480 | 1700 |
| Volume to Capacity | 0.00 | 0.00 | 0.07 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 17.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 275 | 115 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 275 | 115 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 289 | 121 | 0 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 410 | 121 | 121 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 410 | 121 | 121 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 602 | 936 | 1479 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 0 | 289 | 121 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1700 | 1479 | 1700 |
| Volume to Capacity | 0.00 | 0.00 | 0.07 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 17.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 15 | 275 | 115 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 15 | 275 | 115 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 0 | 16 | 299 | 125 | 0 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 456 | 125 | 125 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 456 | 125 | 125 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 99 | | | |
| cM capacity (veh/h) | 560 | 931 | 1474 | | | |

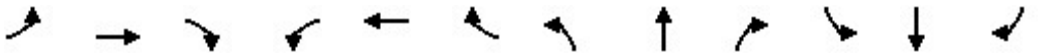
| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 0 | 315 | 125 |
| Volume Left | 0 | 16 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1700 | 1474 | 1700 |
| Volume to Capacity | 0.00 | 0.01 | 0.07 |
| Queue Length 95th (m) | 0.0 | 0.3 | 0.0 |
| Control Delay (s) | 0.0 | 0.5 | 0.0 |
| Lane LOS | A | A | |
| Approach Delay (s) | 0.0 | 0.5 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.3 | | |
| Intersection Capacity Utilization | 25.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 120 | 1540 | 255 | 185 | 1970 | 340 | 190 | 155 | 5 | 75 | 35 |
| v/c Ratio | 0.79 | 0.75 | 0.31 | 0.61 | 0.76 | 0.82 | 0.31 | 0.25 | 0.01 | 0.12 | 0.06 |
| Control Delay | 58.0 | 35.4 | 3.8 | 27.0 | 30.1 | 59.2 | 35.9 | 5.8 | 31.2 | 32.8 | 0.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 58.0 | 35.4 | 3.8 | 27.0 | 30.1 | 59.2 | 35.9 | 5.8 | 31.2 | 32.8 | 0.2 |
| Queue Length 50th (m) | 15.2 | 119.7 | 0.0 | 22.0 | 145.7 | 87.6 | 39.9 | 0.0 | 1.0 | 14.8 | 0.0 |
| Queue Length 95th (m) | #49.7 | 137.3 | 16.4 | 47.9 | 163.2 | #139.2 | 61.1 | 15.9 | 4.3 | 27.3 | 0.0 |
| Internal Link Dist (m) | | 1364.5 | | | 1343.2 | | 280.7 | | | 1670.4 | |
| Turn Bay Length (m) | | | | | | | | | 30.0 | | 56.0 |
| Base Capacity (vph) | 152 | 2052 | 817 | 303 | 2584 | 415 | 618 | 613 | 357 | 606 | 575 |
| 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 | 0.79 | 0.75 | 0.31 | 0.61 | 0.76 | 0.82 | 0.31 | 0.25 | 0.01 | 0.12 | 0.06 |

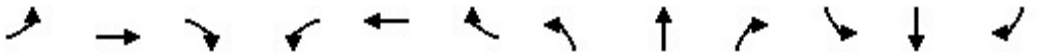
Intersection Summary

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



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 120 | 1540 | 255 | 185 | 1935 | 35 | 340 | 190 | 155 | 5 | 75 | 35 |
| Future Volume (vph) | 120 | 1540 | 255 | 185 | 1935 | 35 | 340 | 190 | 155 | 5 | 75 | 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 | 3.5 | 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 | *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 | | 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) | 1767 | 4803 | 1570 | 1785 | 5230 | | 1716 | 1902 | 1566 | 1785 | 1865 | 1597 |
| Flt Permitted | 0.07 | 1.00 | 1.00 | 0.10 | 1.00 | | 0.71 | 1.00 | 1.00 | 0.58 | 1.00 | 1.00 |
| Satd. Flow (perm) | 133 | 4803 | 1570 | 190 | 5230 | | 1279 | 1902 | 1566 | 1099 | 1865 | 1597 |
| 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 | 1540 | 255 | 185 | 1935 | 35 | 340 | 190 | 155 | 5 | 75 | 35 |
| RTOR Reduction (vph) | 0 | 0 | 146 | 0 | 2 | 0 | 0 | 0 | 105 | 0 | 0 | 24 |
| Lane Group Flow (vph) | 120 | 1540 | 109 | 185 | 1968 | 0 | 340 | 190 | 50 | 5 | 75 | 11 |
| Heavy Vehicles (%) | 1% | 20% | 4% | 0% | 10% | 5% | 4% | 1% | 2% | 0% | 3% | 0% |
| 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) | 64.7 | 57.7 | 57.7 | 76.7 | 66.7 | | 43.9 | 43.9 | 43.9 | 43.9 | 43.9 | 43.9 |
| Effective Green, g (s) | 64.7 | 57.7 | 57.7 | 76.7 | 66.7 | | 43.9 | 43.9 | 43.9 | 43.9 | 43.9 | 43.9 |
| Actuated g/C Ratio | 0.48 | 0.43 | 0.43 | 0.57 | 0.49 | | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 |
| 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 |
| Lane Grp Cap (vph) | 148 | 2052 | 671 | 296 | 2584 | | 415 | 618 | 509 | 357 | 606 | 519 |
| v/s Ratio Prot | c0.04 | 0.32 | | c0.07 | 0.38 | | | 0.10 | | | 0.04 | |
| v/s Ratio Perm | c0.35 | | 0.07 | 0.28 | | | c0.27 | | 0.03 | 0.00 | | 0.01 |
| v/c Ratio | 0.81 | 0.75 | 0.16 | 0.62 | 0.76 | | 0.82 | 0.31 | 0.10 | 0.01 | 0.12 | 0.02 |
| Uniform Delay, d1 | 23.9 | 32.6 | 23.8 | 19.8 | 27.7 | | 41.9 | 34.2 | 31.8 | 30.9 | 32.0 | 31.0 |
| 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 | 36.5 | 2.6 | 0.5 | 9.6 | 2.2 | | 16.4 | 1.3 | 0.4 | 0.1 | 0.4 | 0.1 |
| Delay (s) | 60.4 | 35.2 | 24.3 | 29.4 | 29.9 | | 58.3 | 35.4 | 32.1 | 31.0 | 32.4 | 31.0 |
| Level of Service | E | D | C | C | C | | E | D | C | C | C | C |
| Approach Delay (s) | | 35.3 | | | 29.8 | | | 46.0 | | | 32.0 | |
| Approach LOS | | D | | | C | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 34.3 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 135.0 | Sum of lost time (s) | 17.4 |
| Intersection Capacity Utilization | 85.6% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 5 | 250 | 55 | 55 | 120 | 0 | 85 | 95 | 70 | 5 | 240 | 5 |
| Future Volume (vph) | 5 | 250 | 55 | 55 | 120 | 0 | 85 | 95 | 70 | 5 | 240 | 5 |
| 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) | 5 | 250 | 55 | 55 | 120 | 0 | 85 | 95 | 70 | 5 | 240 | 5 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 310 | 175 | 250 | 250 |
| Volume Left (vph) | 5 | 55 | 85 | 5 |
| Volume Right (vph) | 55 | 0 | 70 | 5 |
| Hadj (s) | -0.07 | 0.13 | -0.05 | 0.03 |
| Departure Headway (s) | 5.7 | 6.1 | 5.8 | 5.9 |
| Degree Utilization, x | 0.49 | 0.30 | 0.40 | 0.41 |
| Capacity (veh/h) | 587 | 521 | 563 | 560 |
| Control Delay (s) | 13.9 | 11.7 | 12.6 | 12.8 |
| Approach Delay (s) | 13.9 | 11.7 | 12.6 | 12.8 |
| Approach LOS | B | B | B | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 12.9 | | | |
| Level of Service | B | | | |
| Intersection Capacity Utilization | 66.6% | ICU Level of Service | C | |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 250 | 350 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 250 | 350 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 250 | 350 | 0 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 600 | 350 | 350 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 600 | 350 | 350 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 467 | 698 | 1220 | | | |

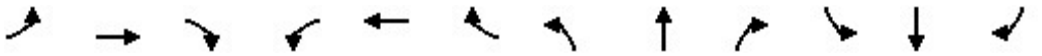
| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 0 | 250 | 350 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1700 | 1220 | 1700 |
| Volume to Capacity | 0.00 | 0.00 | 0.21 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 21.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 170 | 1810 | 190 | 185 | 1290 | 250 | 165 | 140 | 75 | 330 | 205 |
| v/c Ratio | 0.73 | 0.92 | 0.25 | 0.95 | 0.70 | 0.90 | 0.25 | 0.23 | 0.17 | 0.48 | 0.34 |
| Control Delay | 33.5 | 41.1 | 5.7 | 77.0 | 43.5 | 70.8 | 28.5 | 5.8 | 27.8 | 32.8 | 9.7 |
| 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 | 33.5 | 41.1 | 5.7 | 77.0 | 43.5 | 70.8 | 28.5 | 5.8 | 27.8 | 32.8 | 9.7 |
| Queue Length 50th (m) | 19.5 | 151.9 | 3.7 | 37.6 | 116.5 | 58.1 | 28.7 | 0.8 | 12.7 | 63.0 | 8.4 |
| Queue Length 95th (m) | #37.9 | 175.7 | 18.1 | m#73.3 | 134.9 | #110.1 | 46.4 | 14.6 | 24.6 | 91.5 | 27.0 |
| Internal Link Dist (m) | | 1370.7 | | | 1335.9 | | 280.7 | | | 753.6 | |
| Turn Bay Length (m) | | | | | | | | | 30.0 | | 56.0 |
| Base Capacity (vph) | 233 | 1978 | 751 | 194 | 1831 | 279 | 654 | 605 | 431 | 686 | 599 |
| 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 | 0.73 | 0.92 | 0.25 | 0.95 | 0.70 | 0.90 | 0.25 | 0.23 | 0.17 | 0.48 | 0.34 |

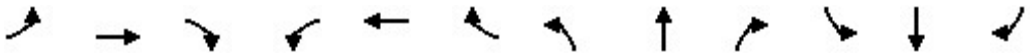
Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 170 | 1810 | 190 | 185 | 1220 | 70 | 250 | 165 | 140 | 75 | 330 | 205 |
| Future Volume (vph) | 170 | 1810 | 190 | 185 | 1220 | 70 | 250 | 165 | 140 | 75 | 330 | 205 |
| 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 | 3.5 | 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 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1879 | 4683 | 1555 | 1756 | 4157 | | 1733 | 1830 | 1452 | 1785 | 1921 | 1401 |
| Flt Permitted | 0.14 | 1.00 | 1.00 | 0.08 | 1.00 | | 0.43 | 1.00 | 1.00 | 0.64 | 1.00 | 1.00 |
| Satd. Flow (perm) | 270 | 4683 | 1555 | 133 | 4157 | | 780 | 1830 | 1452 | 1207 | 1921 | 1401 |
| Peak-hour factor, PHF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj. Flow (vph) | 170 | 1810 | 190 | 185 | 1220 | 70 | 250 | 165 | 140 | 75 | 330 | 205 |
| RTOR Reduction (vph) | 0 | 0 | 95 | 0 | 5 | 0 | 0 | 0 | 87 | 0 | 0 | 99 |
| Lane Group Flow (vph) | 170 | 1810 | 95 | 185 | 1285 | 0 | 250 | 165 | 53 | 75 | 330 | 106 |
| Heavy Vehicles (%) | 0% | 12% | 5% | 7% | 26% | 10% | 3% | 5% | 10% | 0% | 0% | 14% |
| 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) | 57.7 | 50.7 | 50.7 | 61.7 | 52.7 | | 42.9 | 42.9 | 42.9 | 42.9 | 42.9 | 42.9 |
| Effective Green, g (s) | 57.7 | 50.7 | 50.7 | 61.7 | 52.7 | | 42.9 | 42.9 | 42.9 | 42.9 | 42.9 | 42.9 |
| Actuated g/C Ratio | 0.48 | 0.42 | 0.42 | 0.51 | 0.44 | | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 |
| 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 |
| Lane Grp Cap (vph) | 223 | 1978 | 656 | 190 | 1825 | | 278 | 654 | 519 | 431 | 686 | 500 |
| v/s Ratio Prot | 0.04 | 0.39 | | c0.07 | 0.31 | | | 0.09 | | | 0.17 | |
| v/s Ratio Perm | 0.32 | | 0.06 | c0.43 | | | c0.32 | | 0.04 | 0.06 | | 0.08 |
| v/c Ratio | 0.76 | 0.92 | 0.15 | 0.97 | 0.70 | | 0.90 | 0.25 | 0.10 | 0.17 | 0.48 | 0.21 |
| Uniform Delay, d1 | 19.4 | 32.6 | 21.3 | 32.7 | 27.3 | | 36.5 | 27.2 | 25.7 | 26.4 | 29.9 | 26.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.02 | 1.52 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 21.5 | 8.1 | 0.5 | 53.5 | 1.9 | | 33.3 | 0.9 | 0.4 | 0.9 | 2.4 | 1.0 |
| Delay (s) | 40.9 | 40.7 | 21.8 | 86.9 | 43.3 | | 69.8 | 28.1 | 26.1 | 27.3 | 32.3 | 27.8 |
| Level of Service | D | D | C | F | D | | E | C | C | C | C | C |
| Approach Delay (s) | | 39.1 | | | 48.8 | | | 46.4 | | | 30.2 | |
| Approach LOS | | D | | | D | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 41.8 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.96 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 17.4 |
| Intersection Capacity Utilization | 97.7% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

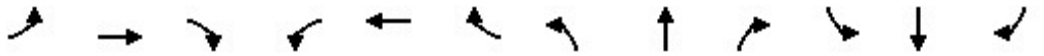


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 270 | 930 | 385 | 70 | 795 | 55 | 215 | 370 | 75 | 75 | 650 | 200 |
| v/c Ratio | 0.79 | 0.68 | 0.45 | 0.35 | 0.84 | 0.13 | 0.67 | 0.38 | 0.17 | 0.31 | 0.98 | 0.52 |
| Control Delay | 35.5 | 10.4 | 2.8 | 19.4 | 47.2 | 0.6 | 42.7 | 36.3 | 0.8 | 31.3 | 77.8 | 10.7 |
| 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 | 35.5 | 10.4 | 2.8 | 19.4 | 47.2 | 0.6 | 42.7 | 36.3 | 0.8 | 31.3 | 77.8 | 10.7 |
| Queue Length 50th (m) | 24.1 | 81.1 | 12.2 | 8.7 | 96.2 | 0.0 | 35.2 | 38.5 | 0.0 | 11.3 | 84.9 | 0.0 |
| Queue Length 95th (m) | m22.5 | m78.6 | m14.9 | 12.4 | 112.5 | 0.0 | #116.3 | 60.3 | 0.4 | 27.0 | #125.0 | 21.9 |
| Internal Link Dist (m) | | 1335.9 | | | 354.8 | | | 755.9 | | | 1515.6 | |
| Turn Bay Length (m) | 200.0 | | | 80.0 | | 80.0 | 140.0 | | 80.0 | 120.0 | | 115.0 |
| Base Capacity (vph) | 421 | 1479 | 903 | 301 | 1111 | 486 | 322 | 978 | 445 | 242 | 663 | 385 |
| 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 | 0.64 | 0.63 | 0.43 | 0.23 | 0.72 | 0.11 | 0.67 | 0.38 | 0.17 | 0.31 | 0.98 | 0.52 |

Intersection Summary

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

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



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 270 | 930 | 385 | 70 | 795 | 55 | 215 | 370 | 75 | 75 | 650 | 200 |
| Future Volume (vph) | 270 | 930 | 385 | 70 | 795 | 55 | 215 | 370 | 75 | 75 | 650 | 200 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 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 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1547 | 3230 | 1517 | 1351 | 3067 | 1102 | 1659 | 3042 | 1098 | 1296 | 3120 | 1072 |
| Flt Permitted | 0.15 | 1.00 | 1.00 | 0.24 | 1.00 | 1.00 | 0.14 | 1.00 | 1.00 | 0.53 | 1.00 | 1.00 |
| Satd. Flow (perm) | 236 | 3230 | 1517 | 338 | 3067 | 1102 | 239 | 3042 | 1098 | 725 | 3120 | 1072 |
| 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) | 270 | 930 | 385 | 70 | 795 | 55 | 215 | 370 | 75 | 75 | 650 | 200 |
| RTOR Reduction (vph) | 0 | 0 | 222 | 0 | 0 | 38 | 0 | 0 | 52 | 0 | 0 | 159 |
| Lane Group Flow (vph) | 270 | 930 | 163 | 70 | 795 | 17 | 215 | 370 | 23 | 75 | 650 | 41 |
| Confl. Peds. (#/hr) | 5 | | 10 | 10 | | 5 | 5 | | 10 | 10 | | 5 |
| Confl. Bikes (#/hr) | | | 5 | | | | | | | | | |
| Heavy Vehicles (%) | 18% | 13% | 4% | 35% | 19% | 45% | 10% | 20% | 44% | 40% | 17% | 49% |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | 62.6 | 50.7 | 50.7 | 45.3 | 37.9 | 37.9 | 48.4 | 36.9 | 36.9 | 31.7 | 24.7 | 24.7 |
| Effective Green, g (s) | 62.6 | 50.7 | 50.7 | 45.3 | 37.9 | 37.9 | 48.4 | 36.9 | 36.9 | 31.7 | 24.7 | 24.7 |
| Actuated g/C Ratio | 0.52 | 0.42 | 0.42 | 0.38 | 0.32 | 0.32 | 0.40 | 0.31 | 0.31 | 0.26 | 0.21 | 0.21 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| 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 | 3.0 |
| Lane Grp Cap (vph) | 343 | 1364 | 640 | 190 | 968 | 348 | 323 | 935 | 337 | 224 | 642 | 220 |
| v/s Ratio Prot | c0.13 | 0.29 | | 0.02 | 0.26 | | c0.11 | 0.12 | | 0.02 | c0.21 | |
| v/s Ratio Perm | c0.28 | | 0.11 | 0.12 | | 0.02 | 0.16 | | 0.02 | 0.07 | | 0.04 |
| v/c Ratio | 0.79 | 0.68 | 0.25 | 0.37 | 0.82 | 0.05 | 0.67 | 0.40 | 0.07 | 0.33 | 1.01 | 0.19 |
| Uniform Delay, d1 | 24.5 | 28.1 | 22.4 | 24.9 | 37.9 | 28.5 | 27.2 | 32.8 | 29.4 | 34.5 | 47.6 | 39.4 |
| Progression Factor | 1.16 | 0.32 | 1.11 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 6.1 | 0.7 | 0.1 | 1.2 | 5.7 | 0.1 | 5.1 | 1.3 | 0.4 | 0.9 | 38.7 | 1.9 |
| Delay (s) | 34.5 | 9.8 | 25.1 | 26.1 | 43.6 | 28.6 | 32.3 | 34.0 | 29.8 | 35.4 | 86.3 | 41.2 |
| Level of Service | C | A | C | C | D | C | C | C | C | D | F | D |
| Approach Delay (s) | | 17.7 | | | 41.4 | | | 33.0 | | | 72.4 | |
| Approach LOS | | B | | | D | | | C | | | E | |

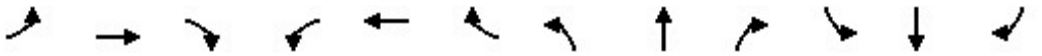
| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 37.9 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 18.0 |
| Intersection Capacity Utilization | 81.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 125 | 1970 | 305 | 105 | 1440 | 25 | 505 | 70 | 55 | 55 | 105 |
| v/c Ratio | 0.52 | 0.83 | 0.33 | 0.59 | 0.68 | 0.03 | 1.47 | 0.19 | 0.14 | 0.18 | 0.17 |
| Control Delay | 17.1 | 27.4 | 2.9 | 31.3 | 23.3 | 0.1 | 255.8 | 42.3 | 2.6 | 33.1 | 27.8 |
| 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 | 17.1 | 27.4 | 2.9 | 31.3 | 23.3 | 0.1 | 255.8 | 42.3 | 2.6 | 33.1 | 27.8 |
| Queue Length 50th (m) | 10.9 | 137.3 | 1.0 | 9.1 | 88.5 | 0.0 | ~171.5 | 14.4 | 0.0 | 9.8 | 7.0 |
| Queue Length 95th (m) | 19.6 | 161.0 | 14.6 | 27.9 | 112.2 | 0.0 | #246.9 | 29.1 | 3.1 | 21.2 | 15.7 |
| Internal Link Dist (m) | | 120.0 | | | 1370.7 | | | 212.7 | | | 532.9 |
| Turn Bay Length (m) | | | | | | | | | | | |
| Base Capacity (vph) | 312 | 2668 | 996 | 196 | 2298 | 930 | 344 | 377 | 389 | 320 | 619 |
| 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 | 0.40 | 0.74 | 0.31 | 0.54 | 0.63 | 0.03 | 1.47 | 0.19 | 0.14 | 0.17 | 0.17 |

Intersection Summary

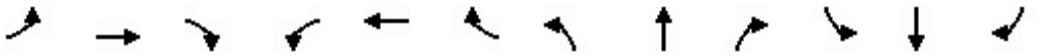
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 125 | 1970 | 305 | 105 | 1440 | 25 | 505 | 70 | 55 | 55 | 65 | 40 |
| Future Volume (vph) | 125 | 1970 | 305 | 105 | 1440 | 25 | 505 | 70 | 55 | 55 | 65 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.94 | |
| 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) | 1722 | 4683 | 1526 | 1601 | 4230 | 1633 | 1674 | 1731 | 1445 | 1615 | 3349 | |
| Flt Permitted | 0.11 | 1.00 | 1.00 | 0.07 | 1.00 | 1.00 | 0.58 | 1.00 | 1.00 | 0.71 | 1.00 | |
| Satd. Flow (perm) | 203 | 4683 | 1526 | 121 | 4230 | 1633 | 1016 | 1731 | 1445 | 1209 | 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) | 125 | 1970 | 305 | 105 | 1440 | 25 | 505 | 70 | 55 | 55 | 65 | 40 |
| RTOR Reduction (vph) | 0 | 0 | 148 | 0 | 0 | 13 | 0 | 0 | 43 | 0 | 33 | 0 |
| Lane Group Flow (vph) | 125 | 1970 | 157 | 105 | 1440 | 12 | 505 | 70 | 12 | 55 | 72 | 0 |
| Heavy Vehicles (%) | 6% | 12% | 7% | 14% | 24% | 0% | 9% | 11% | 13% | 13% | 2% | 4% |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | 2 | 6 | | |
| Actuated Green, G (s) | 65.6 | 56.6 | 56.6 | 64.2 | 55.9 | 55.9 | 34.1 | 24.5 | 24.5 | 26.3 | 20.6 | |
| Effective Green, g (s) | 65.6 | 56.6 | 56.6 | 64.2 | 55.9 | 55.9 | 34.1 | 24.5 | 24.5 | 26.3 | 20.6 | |
| Actuated g/C Ratio | 0.58 | 0.50 | 0.50 | 0.57 | 0.49 | 0.49 | 0.30 | 0.22 | 0.22 | 0.23 | 0.18 | |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| 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) | 238 | 2343 | 763 | 177 | 2090 | 807 | 362 | 374 | 313 | 301 | 609 | |
| v/s Ratio Prot | 0.04 | c0.42 | | c0.04 | 0.34 | | c0.12 | 0.04 | | 0.01 | 0.02 | |
| v/s Ratio Perm | 0.26 | | 0.10 | 0.29 | | 0.01 | c0.30 | | 0.01 | 0.03 | | |
| v/c Ratio | 0.53 | 0.84 | 0.21 | 0.59 | 0.69 | 0.02 | 1.40 | 0.19 | 0.04 | 0.18 | 0.12 | |
| Uniform Delay, d1 | 13.7 | 24.4 | 15.7 | 18.7 | 21.9 | 14.6 | 38.8 | 36.2 | 35.0 | 34.5 | 38.7 | |
| 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 | 2.1 | 2.9 | 0.1 | 5.2 | 1.0 | 0.0 | 193.9 | 1.1 | 0.2 | 0.3 | 0.4 | |
| Delay (s) | 15.8 | 27.3 | 15.9 | 23.9 | 22.9 | 14.6 | 232.6 | 37.3 | 35.2 | 34.8 | 39.1 | |
| Level of Service | B | C | B | C | C | B | F | D | D | C | D | |
| Approach Delay (s) | | 25.2 | | | 22.8 | | | 193.7 | | | 37.6 | |
| Approach LOS | | C | | | C | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 47.1 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 1.04 | | |
| Actuated Cycle Length (s) | 113.1 | Sum of lost time (s) | 18.0 |
| Intersection Capacity Utilization | 89.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 90 | 0 | 145 | 65 | 0 | 10 | 75 | 150 | 110 | 30 | 275 | 45 |
| Future Volume (Veh/h) | 90 | 0 | 145 | 65 | 0 | 10 | 75 | 150 | 110 | 30 | 275 | 45 |
| 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) | 90 | 0 | 145 | 65 | 0 | 10 | 75 | 150 | 110 | 30 | 275 | 45 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 668 | 768 | 298 | 835 | 735 | 205 | 320 | | | 260 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 668 | 768 | 298 | 835 | 735 | 205 | 320 | | | 260 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 74 | 100 | 81 | 70 | 100 | 99 | 94 | | | 98 | | |
| cM capacity (veh/h) | 347 | 305 | 747 | 217 | 319 | 836 | 1251 | | | 1304 | | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total | 90 | 145 | 75 | 75 | 260 | 30 | 320 |
| Volume Left | 90 | 0 | 65 | 75 | 0 | 30 | 0 |
| Volume Right | 0 | 145 | 10 | 0 | 110 | 0 | 45 |
| cSH | 347 | 747 | 241 | 1251 | 1700 | 1304 | 1700 |
| Volume to Capacity | 0.26 | 0.19 | 0.31 | 0.06 | 0.15 | 0.02 | 0.19 |
| Queue Length 95th (m) | 8.1 | 5.7 | 10.2 | 1.5 | 0.0 | 0.6 | 0.0 |
| Control Delay (s) | 19.0 | 11.0 | 26.6 | 8.1 | 0.0 | 7.8 | 0.0 |
| Lane LOS | C | B | D | A | | A | |
| Approach Delay (s) | 14.0 | | 26.6 | 1.8 | | 0.7 | |
| Approach LOS | B | | D | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 6.2 | | | |
| Intersection Capacity Utilization | 47.9% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 45 | 90 | 25 | 345 | 520 | 15 |
| Future Volume (Veh/h) | 45 | 90 | 25 | 345 | 520 | 15 |
| 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) | 45 | 90 | 25 | 345 | 520 | 15 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 922 | 528 | 535 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 922 | 528 | 535 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 85 | 84 | 98 | | | |
| cM capacity (veh/h) | 292 | 551 | 1033 | | | |

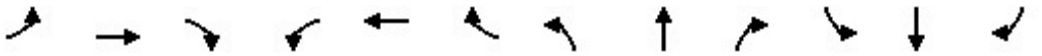
| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 135 | 25 | 345 | 535 |
| Volume Left | 45 | 25 | 0 | 0 |
| Volume Right | 90 | 0 | 0 | 15 |
| cSH | 425 | 1033 | 1700 | 1700 |
| Volume to Capacity | 0.32 | 0.02 | 0.20 | 0.31 |
| Queue Length 95th (m) | 10.8 | 0.6 | 0.0 | 0.0 |
| Control Delay (s) | 17.3 | 8.6 | 0.0 | 0.0 |
| Lane LOS | C | A | | |
| Approach Delay (s) | 17.3 | 0.6 | | 0.0 |
| Approach LOS | C | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.5 | | |
| Intersection Capacity Utilization | 43.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 30 | 70 | 55 | 305 | 465 | 25 |
| Future Volume (Veh/h) | 30 | 70 | 55 | 305 | 465 | 25 |
| 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) | 30 | 70 | 55 | 305 | 465 | 25 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 892 | 478 | 490 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 892 | 478 | 490 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 90 | 88 | 95 | | | |
| cM capacity (veh/h) | 296 | 588 | 1073 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 100 | 55 | 305 | 490 |
| Volume Left | 30 | 55 | 0 | 0 |
| Volume Right | 70 | 0 | 0 | 25 |
| cSH | 454 | 1073 | 1700 | 1700 |
| Volume to Capacity | 0.22 | 0.05 | 0.18 | 0.29 |
| Queue Length 95th (m) | 6.7 | 1.3 | 0.0 | 0.0 |
| Control Delay (s) | 15.2 | 8.5 | 0.0 | 0.0 |
| Lane LOS | C | A | | |
| Approach Delay (s) | 15.2 | 1.3 | | 0.0 |
| Approach LOS | C | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.1 | | |
| Intersection Capacity Utilization | 45.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 10 | 145 | 95 | 65 | 355 | 5 | 60 | 285 | 95 | 5 | 120 | 5 |
| Future Volume (vph) | 10 | 145 | 95 | 65 | 355 | 5 | 60 | 285 | 95 | 5 | 120 | 5 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 11 | 158 | 103 | 71 | 386 | 5 | 65 | 310 | 103 | 5 | 130 | 5 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 272 | 462 | 478 | 140 |
| Volume Left (vph) | 11 | 71 | 65 | 5 |
| Volume Right (vph) | 103 | 5 | 103 | 5 |
| Hadj (s) | -0.18 | 0.04 | -0.08 | 0.13 |
| Departure Headway (s) | 7.4 | 7.1 | 7.0 | 8.4 |
| Degree Utilization, x | 0.56 | 0.91 | 0.92 | 0.32 |
| Capacity (veh/h) | 458 | 462 | 507 | 392 |
| Control Delay (s) | 19.6 | 47.5 | 49.4 | 15.3 |
| Approach Delay (s) | 19.6 | 47.5 | 49.4 | 15.3 |
| Approach LOS | C | E | E | C |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | | 39.2 | | |
| Level of Service | | E | | |
| Intersection Capacity Utilization | | 80.9% | ICU Level of Service | D |
| Analysis Period (min) | | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 450 | 280 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 450 | 280 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 469 | 292 | 0 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 761 | 292 | 292 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 761 | 292 | 292 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 376 | 752 | 1281 | | | |

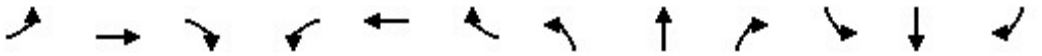
| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 0 | 469 | 292 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1700 | 1281 | 1700 |
| Volume to Capacity | 0.00 | 0.00 | 0.17 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 27.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 245 | 1650 | 220 | 140 | 1955 | 310 | 335 | 165 | 65 | 190 | 215 |
| v/c Ratio | 0.88 | 0.76 | 0.25 | 0.78 | 0.96 | 0.90 | 0.54 | 0.28 | 0.28 | 0.31 | 0.33 |
| Control Delay | 65.9 | 30.7 | 3.4 | 48.7 | 50.3 | 73.6 | 41.3 | 12.1 | 37.9 | 36.0 | 6.7 |
| 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 | 65.9 | 30.7 | 3.4 | 48.7 | 50.3 | 73.6 | 41.3 | 12.1 | 37.9 | 36.0 | 6.7 |
| Queue Length 50th (m) | 50.4 | 134.5 | 1.3 | 16.1 | 192.1 | 83.0 | 76.9 | 9.2 | 13.5 | 40.0 | 2.5 |
| Queue Length 95th (m) | #99.4 | 154.6 | 14.8 | #50.0 | #230.5 | #141.0 | 108.6 | 27.1 | 27.2 | 61.3 | 21.1 |
| Internal Link Dist (m) | | 1370.7 | | | 1335.9 | | 280.7 | | | 753.6 | |
| Turn Bay Length (m) | | | | | | | | | 30.0 | | 56.0 |
| Base Capacity (vph) | 279 | 2159 | 882 | 179 | 2033 | 343 | 618 | 588 | 234 | 606 | 655 |
| 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 | 0.88 | 0.76 | 0.25 | 0.78 | 0.96 | 0.90 | 0.54 | 0.28 | 0.28 | 0.31 | 0.33 |

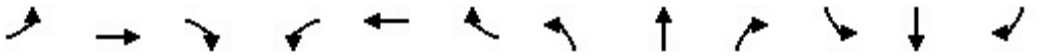
Intersection Summary

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



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 245 | 1650 | 220 | 140 | 1885 | 70 | 310 | 335 | 165 | 65 | 190 | 215 |
| Future Volume (vph) | 245 | 1650 | 220 | 140 | 1885 | 70 | 310 | 335 | 165 | 65 | 190 | 215 |
| 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 | 3.5 | 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 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1860 | 4371 | 1570 | 1879 | 4750 | | 1716 | 1902 | 1566 | 1785 | 1865 | 1597 |
| Flt Permitted | 0.07 | 1.00 | 1.00 | 0.09 | 1.00 | | 0.58 | 1.00 | 1.00 | 0.38 | 1.00 | 1.00 |
| Satd. Flow (perm) | 123 | 4371 | 1570 | 178 | 4750 | | 1057 | 1902 | 1566 | 722 | 1865 | 1597 |
| 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) | 245 | 1650 | 220 | 140 | 1885 | 70 | 310 | 335 | 165 | 65 | 190 | 215 |
| RTOR Reduction (vph) | 0 | 0 | 107 | 0 | 3 | 0 | 0 | 0 | 80 | 0 | 0 | 136 |
| Lane Group Flow (vph) | 245 | 1650 | 113 | 140 | 1952 | 0 | 310 | 335 | 85 | 65 | 190 | 79 |
| Heavy Vehicles (%) | 1% | 20% | 4% | 0% | 10% | 5% | 4% | 1% | 2% | 0% | 3% | 0% |
| 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) | 76.7 | 66.7 | 66.7 | 64.7 | 57.7 | | 43.9 | 43.9 | 43.9 | 43.9 | 43.9 | 43.9 |
| Effective Green, g (s) | 76.7 | 66.7 | 66.7 | 64.7 | 57.7 | | 43.9 | 43.9 | 43.9 | 43.9 | 43.9 | 43.9 |
| Actuated g/C Ratio | 0.57 | 0.49 | 0.49 | 0.48 | 0.43 | | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 |
| 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 |
| Lane Grp Cap (vph) | 275 | 2159 | 775 | 173 | 2030 | | 343 | 618 | 509 | 234 | 606 | 519 |
| v/s Ratio Prot | c0.11 | 0.38 | | 0.04 | c0.41 | | | 0.18 | | | 0.10 | |
| v/s Ratio Perm | 0.40 | | 0.07 | 0.35 | | | c0.29 | | 0.05 | 0.09 | | 0.05 |
| v/c Ratio | 0.89 | 0.76 | 0.15 | 0.81 | 0.96 | | 0.90 | 0.54 | 0.17 | 0.28 | 0.31 | 0.15 |
| Uniform Delay, d1 | 42.2 | 27.8 | 18.6 | 22.4 | 37.6 | | 43.5 | 37.3 | 32.5 | 33.8 | 34.2 | 32.3 |
| 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 | 32.3 | 2.6 | 0.4 | 32.1 | 12.8 | | 29.4 | 3.4 | 0.7 | 2.9 | 1.4 | 0.6 |
| Delay (s) | 74.4 | 30.4 | 19.0 | 54.6 | 50.3 | | 72.9 | 40.7 | 33.2 | 36.7 | 35.6 | 33.0 |
| Level of Service | E | C | B | D | D | | E | D | C | D | D | C |
| Approach Delay (s) | | 34.3 | | | 50.6 | | | 51.5 | | | 34.5 | |
| Approach LOS | | C | | | D | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 43.1 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.93 | | |
| Actuated Cycle Length (s) | 135.0 | Sum of lost time (s) | 17.4 |
| Intersection Capacity Utilization | 100.4% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

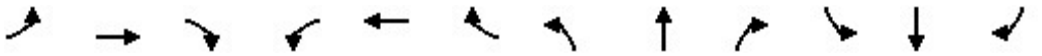


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 340 | 964 | 247 | 103 | 1098 | 82 | 356 | 613 | 93 | 108 | 454 | 304 |
| v/c Ratio | 1.20 | 0.62 | 0.28 | 0.39 | 0.91 | 0.17 | 1.57 | 0.89 | 0.28 | 0.86 | 0.74 | 0.59 |
| Control Delay | 150.2 | 23.3 | 2.8 | 15.5 | 45.8 | 1.4 | 305.3 | 60.7 | 4.2 | 87.8 | 53.0 | 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 | 0.0 |
| Total Delay | 150.2 | 23.3 | 2.8 | 15.5 | 45.8 | 1.4 | 305.3 | 60.7 | 4.2 | 87.8 | 53.0 | 9.9 |
| Queue Length 50th (m) | ~92.0 | 85.0 | 0.0 | 9.5 | 129.5 | 0.0 | ~101.3 | 78.8 | 0.0 | 20.4 | 56.6 | 0.0 |
| Queue Length 95th (m) | #152.3 | 112.2 | 13.4 | 17.1 | 160.0 | 1.8 | #164.1 | #113.3 | 5.3 | #47.7 | 76.1 | 26.5 |
| Internal Link Dist (m) | | 1335.9 | | | 354.8 | | | 755.9 | | | 1515.6 | |
| Turn Bay Length (m) | 200.0 | | | 80.0 | | 80.0 | 140.0 | | 80.0 | 120.0 | | 115.0 |
| Base Capacity (vph) | 284 | 1560 | 897 | 371 | 1321 | 500 | 227 | 691 | 332 | 125 | 615 | 514 |
| 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 | 1.20 | 0.62 | 0.28 | 0.28 | 0.83 | 0.16 | 1.57 | 0.89 | 0.28 | 0.86 | 0.74 | 0.59 |

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.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 330 | 935 | 240 | 100 | 1065 | 80 | 345 | 595 | 90 | 105 | 440 | 295 |
| Future Volume (vph) | 330 | 935 | 240 | 100 | 1065 | 80 | 345 | 595 | 90 | 105 | 440 | 295 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 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 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1193 | 3093 | 1536 | 1436 | 3230 | 1027 | 1754 | 3147 | 1031 | 1459 | 3174 | 1389 |
| Flt Permitted | 0.08 | 1.00 | 1.00 | 0.27 | 1.00 | 1.00 | 0.24 | 1.00 | 1.00 | 0.19 | 1.00 | 1.00 |
| Satd. Flow (perm) | 104 | 3093 | 1536 | 411 | 3230 | 1027 | 451 | 3147 | 1031 | 294 | 3174 | 1389 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 340 | 964 | 247 | 103 | 1098 | 82 | 356 | 613 | 93 | 108 | 454 | 304 |
| RTOR Reduction (vph) | 0 | 0 | 123 | 0 | 0 | 51 | 0 | 0 | 73 | 0 | 0 | 245 |
| Lane Group Flow (vph) | 340 | 964 | 124 | 103 | 1098 | 31 | 356 | 613 | 20 | 108 | 454 | 59 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 53% | 18% | 4% | 27% | 13% | 59% | 4% | 16% | 55% | 25% | 15% | 15% |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | 71.7 | 58.3 | 58.3 | 52.6 | 43.7 | 43.7 | 34.1 | 25.6 | 25.6 | 28.1 | 22.6 | 22.6 |
| Effective Green, g (s) | 71.7 | 58.3 | 58.3 | 52.6 | 43.7 | 43.7 | 34.1 | 25.6 | 25.6 | 28.1 | 22.6 | 22.6 |
| Actuated g/C Ratio | 0.62 | 0.50 | 0.50 | 0.45 | 0.38 | 0.38 | 0.29 | 0.22 | 0.22 | 0.24 | 0.19 | 0.19 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| 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 | 3.0 |
| Lane Grp Cap (vph) | 284 | 1550 | 769 | 264 | 1213 | 385 | 227 | 692 | 226 | 126 | 616 | 269 |
| v/s Ratio Prot | c0.24 | 0.31 | | 0.03 | 0.34 | | c0.11 | 0.19 | | 0.04 | 0.14 | |
| v/s Ratio Perm | c0.49 | | 0.08 | 0.15 | | 0.03 | c0.34 | | 0.02 | 0.17 | | 0.04 |
| v/c Ratio | 1.20 | 0.62 | 0.16 | 0.39 | 0.91 | 0.08 | 1.57 | 0.89 | 0.09 | 0.86 | 0.74 | 0.22 |
| Uniform Delay, d1 | 36.8 | 21.0 | 15.7 | 18.9 | 34.3 | 23.4 | 38.5 | 43.9 | 36.1 | 39.6 | 44.1 | 39.4 |
| Progression 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 |
| Incremental Delay, d2 | 117.7 | 0.8 | 0.1 | 1.0 | 9.7 | 0.1 | 276.0 | 15.5 | 0.8 | 40.1 | 7.7 | 1.9 |
| Delay (s) | 154.5 | 21.8 | 15.8 | 19.8 | 44.0 | 23.5 | 314.5 | 59.4 | 36.9 | 79.7 | 51.7 | 41.3 |
| Level of Service | F | C | B | B | D | C | F | E | D | E | D | D |
| Approach Delay (s) | | 49.9 | | | 40.8 | | | 143.0 | | | 51.6 | |
| Approach LOS | | D | | | D | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 68.5 | HCM 2000 Level of Service | E |
| HCM 2000 Volume to Capacity ratio | 1.39 | | |
| Actuated Cycle Length (s) | 116.3 | Sum of lost time (s) | 18.0 |
| Intersection Capacity Utilization | 96.8% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

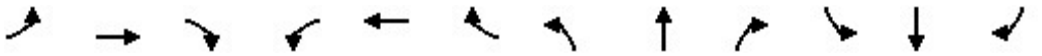
c Critical Lane Group

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 141 | 2365 | 323 | 156 | 2260 | 83 | 464 | 135 | 99 | 52 | 109 |
| v/c Ratio | 0.84 | 1.27 | 0.38 | 0.92 | 1.15 | 0.12 | 0.89 | 0.18 | 0.15 | 0.10 | 0.08 |
| Control Delay | 58.9 | 146.3 | 3.0 | 73.4 | 93.0 | 3.2 | 36.5 | 9.5 | 6.8 | 9.2 | 8.6 |
| 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 | 58.9 | 146.3 | 3.0 | 73.4 | 93.0 | 3.2 | 36.5 | 9.5 | 6.8 | 9.2 | 8.6 |
| Queue Length 50th (m) | 9.9 | ~96.0 | 0.0 | 11.5 | ~85.5 | 0.0 | 33.6 | 6.8 | 3.1 | 2.6 | 2.7 |
| Queue Length 95th (m) | #36.4 | #123.2 | 11.0 | #40.3 | #112.4 | 5.6 | #80.4 | 15.0 | 9.8 | 7.5 | 6.2 |
| Internal Link Dist (m) | | 120.0 | | | 1370.7 | | | 212.7 | | | 532.9 |
| Turn Bay Length (m) | | | | | | | | | | | |
| Base Capacity (vph) | 168 | 1856 | 840 | 170 | 1960 | 703 | 524 | 760 | 674 | 515 | 1390 |
| 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 | 0.84 | 1.27 | 0.38 | 0.92 | 1.15 | 0.12 | 0.89 | 0.18 | 0.15 | 0.10 | 0.08 |

Intersection Summary

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

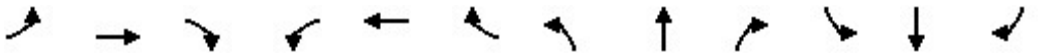
# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 135 | 2270 | 310 | 150 | 2170 | 80 | 445 | 130 | 95 | 50 | 80 | 25 |
| Future Volume (vph) | 135 | 2270 | 310 | 150 | 2170 | 80 | 445 | 130 | 95 | 50 | 80 | 25 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| 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) | 1807 | 4641 | 1617 | 1825 | 4902 | 1633 | 1825 | 1902 | 1633 | 1825 | 3478 | |
| Flt Permitted | 0.22 | 1.00 | 1.00 | 0.22 | 1.00 | 1.00 | 0.68 | 1.00 | 1.00 | 0.67 | 1.00 | |
| Satd. Flow (perm) | 423 | 4641 | 1617 | 427 | 4902 | 1633 | 1312 | 1902 | 1633 | 1288 | 3478 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 141 | 2365 | 323 | 156 | 2260 | 83 | 464 | 135 | 99 | 52 | 83 | 26 |
| RTOR Reduction (vph) | 0 | 0 | 194 | 0 | 0 | 50 | 0 | 0 | 22 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 141 | 2365 | 129 | 156 | 2260 | 33 | 464 | 135 | 77 | 52 | 109 | 0 |
| Heavy Vehicles (%) | 1% | 13% | 1% | 0% | 7% | 0% | 0% | 1% | 0% | 0% | 0% | 5% |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | 2 | 6 | | |
| Actuated Green, G (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | |
| Effective Green, g (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | |
| Actuated g/C Ratio | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| Lane Grp Cap (vph) | 169 | 1856 | 646 | 170 | 1960 | 653 | 524 | 760 | 653 | 515 | 1391 | |
| v/s Ratio Prot | | c0.51 | | | 0.46 | | | 0.07 | | | 0.03 | |
| v/s Ratio Perm | 0.33 | | 0.08 | 0.37 | | 0.02 | c0.35 | | 0.05 | 0.04 | | |
| v/c Ratio | 0.83 | 1.27 | 0.20 | 0.92 | 1.15 | 0.05 | 0.89 | 0.18 | 0.12 | 0.10 | 0.08 | |
| Uniform Delay, d1 | 12.2 | 13.5 | 8.8 | 12.8 | 13.5 | 8.3 | 12.5 | 8.7 | 8.5 | 8.4 | 8.4 | |
| 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 | 36.1 | 127.8 | 0.7 | 50.1 | 75.2 | 0.1 | 19.3 | 0.5 | 0.4 | 0.4 | 0.1 | |
| Delay (s) | 48.3 | 141.3 | 9.5 | 62.9 | 88.7 | 8.4 | 31.9 | 9.2 | 8.9 | 8.8 | 8.5 | |
| Level of Service | D | F | A | E | F | A | C | A | A | A | A | |
| Approach Delay (s) | | 121.6 | | | 84.4 | | | 24.2 | | | 8.6 | |
| Approach LOS | | F | | | F | | | C | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 92.7 | HCM 2000 Level of Service | F |
| HCM 2000 Volume to Capacity ratio | 1.08 | | |
| Actuated Cycle Length (s) | 45.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 96.0% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 55 | 0 | 95 | 110 | 0 | 45 | 145 | 345 | 50 | 10 | 180 | 90 |
| Future Volume (Veh/h) | 55 | 0 | 95 | 110 | 0 | 45 | 145 | 345 | 50 | 10 | 180 | 90 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 1.00 | 0.92 | 1.00 | 0.92 | 0.92 | 0.92 | 1.00 | 1.00 | 0.92 | 0.92 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 55 | 0 | 95 | 120 | 0 | 49 | 145 | 345 | 54 | 11 | 180 | 90 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 931 | 936 | 225 | 959 | 954 | 372 | 270 | | | 399 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 931 | 936 | 225 | 959 | 954 | 372 | 270 | | | 399 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 74 | 100 | 88 | 37 | 100 | 93 | 89 | | | 99 | | |
| cM capacity (veh/h) | 210 | 233 | 819 | 190 | 228 | 674 | 1305 | | | 1160 | | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total | 55 | 95 | 169 | 145 | 399 | 11 | 270 |
| Volume Left | 55 | 0 | 120 | 145 | 0 | 11 | 0 |
| Volume Right | 0 | 95 | 49 | 0 | 54 | 0 | 90 |
| cSH | 210 | 819 | 240 | 1305 | 1700 | 1160 | 1700 |
| Volume to Capacity | 0.26 | 0.12 | 0.70 | 0.11 | 0.23 | 0.01 | 0.16 |
| Queue Length 95th (m) | 8.1 | 3.1 | 37.4 | 3.0 | 0.0 | 0.2 | 0.0 |
| Control Delay (s) | 28.1 | 10.0 | 49.3 | 8.1 | 0.0 | 8.1 | 0.0 |
| Lane LOS | D | A | E | A | | A | |
| Approach Delay (s) | 16.6 | | 49.3 | 2.2 | | 0.3 | |
| Approach LOS | C | | E | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 10.6 | | | |
| Intersection Capacity Utilization | 50.0% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 30 | 55 | 95 | 550 | 390 | 50 |
| Future Volume (Veh/h) | 30 | 55 | 95 | 550 | 390 | 50 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 33 | 60 | 103 | 598 | 424 | 54 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1255 | 451 | 478 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1255 | 451 | 478 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 81 | 90 | 91 | | | |
| cM capacity (veh/h) | 171 | 608 | 1084 | | | |

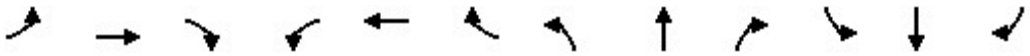
| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 93 | 103 | 598 | 478 |
| Volume Left | 33 | 103 | 0 | 0 |
| Volume Right | 60 | 0 | 0 | 54 |
| cSH | 319 | 1084 | 1700 | 1700 |
| Volume to Capacity | 0.29 | 0.09 | 0.35 | 0.28 |
| Queue Length 95th (m) | 9.5 | 2.5 | 0.0 | 0.0 |
| Control Delay (s) | 20.8 | 8.7 | 0.0 | 0.0 |
| Lane LOS | C | A | | |
| Approach Delay (s) | 20.8 | 1.3 | | 0.0 |
| Approach LOS | C | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.2 | | |
| Intersection Capacity Utilization | 43.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 15 | 55 | 65 | 530 | 360 | 25 |
| Future Volume (Veh/h) | 15 | 55 | 65 | 530 | 360 | 25 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 16 | 60 | 71 | 576 | 391 | 27 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1122 | 404 | 418 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1122 | 404 | 418 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 93 | 91 | 94 | | | |
| cM capacity (veh/h) | 213 | 646 | 1141 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 76 | 71 | 576 | 418 |
| Volume Left | 16 | 71 | 0 | 0 |
| Volume Right | 60 | 0 | 0 | 27 |
| cSH | 453 | 1141 | 1700 | 1700 |
| Volume to Capacity | 0.17 | 0.06 | 0.34 | 0.25 |
| Queue Length 95th (m) | 4.8 | 1.6 | 0.0 | 0.0 |
| Control Delay (s) | 14.5 | 8.4 | 0.0 | 0.0 |
| Lane LOS | B | A | | |
| Approach Delay (s) | 14.5 | 0.9 | | 0.0 |
| Approach LOS | B | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.5 | | |
| Intersection Capacity Utilization | 38.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 5 | 265 | 35 | 40 | 120 | 0 | 30 | 125 | 30 | 5 | 245 | 5 |
| Future Volume (vph) | 5 | 265 | 35 | 40 | 120 | 0 | 30 | 125 | 30 | 5 | 245 | 5 |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 6 | 305 | 40 | 46 | 138 | 0 | 34 | 144 | 34 | 6 | 282 | 6 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 351 | 184 | 212 | 294 |
| Volume Left (vph) | 6 | 46 | 34 | 6 |
| Volume Right (vph) | 40 | 0 | 34 | 6 |
| Hadj (s) | -0.03 | 0.13 | 0.02 | 0.03 |
| Departure Headway (s) | 5.9 | 6.4 | 6.2 | 6.0 |
| Degree Utilization, x | 0.57 | 0.32 | 0.37 | 0.49 |
| Capacity (veh/h) | 576 | 496 | 517 | 550 |
| Control Delay (s) | 16.4 | 12.4 | 12.8 | 14.8 |
| Approach Delay (s) | 16.4 | 12.4 | 12.8 | 14.8 |
| Approach LOS | C | B | B | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 14.5 | | | |
| Level of Service | B | | | |
| Intersection Capacity Utilization | 60.7% | ICU Level of Service | B | |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 185 | 320 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 185 | 320 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 197 | 340 | 0 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 537 | 340 | 340 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 537 | 340 | 340 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 508 | 707 | 1230 | | | |

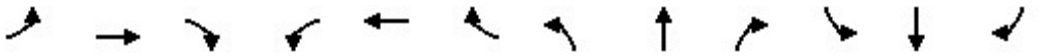
| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 0 | 197 | 340 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1700 | 1230 | 1700 |
| Volume to Capacity | 0.00 | 0.00 | 0.20 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 20.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 190 | 1820 | 190 | 185 | 1315 | 270 | 170 | 135 | 100 | 340 | 240 |
| v/c Ratio | 0.87 | 0.96 | 0.26 | 0.95 | 0.75 | 0.92 | 0.25 | 0.22 | 0.22 | 0.47 | 0.39 |
| Control Delay | 53.0 | 47.8 | 6.5 | 80.1 | 32.2 | 73.9 | 27.2 | 5.0 | 27.4 | 31.3 | 11.7 |
| 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 | 53.0 | 47.8 | 6.5 | 80.1 | 32.2 | 73.9 | 27.2 | 5.0 | 27.4 | 31.3 | 11.7 |
| Queue Length 50th (m) | 23.0 | 158.3 | 4.7 | 29.3 | 98.3 | 63.4 | 28.8 | 0.0 | 16.8 | 63.4 | 13.9 |
| Queue Length 95th (m) | #60.8 | #195.3 | 19.7 | #76.2 | 117.2 | #118.6 | 46.1 | 13.2 | 30.6 | 91.7 | 35.3 |
| Internal Link Dist (m) | | 1370.7 | | | 1335.9 | | 280.7 | | | 753.6 | |
| Turn Bay Length (m) | | | | | | | | | 30.0 | | 56.0 |
| Base Capacity (vph) | 219 | 1900 | 724 | 195 | 1762 | 292 | 684 | 627 | 449 | 718 | 621 |
| 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 | 0.87 | 0.96 | 0.26 | 0.95 | 0.75 | 0.92 | 0.25 | 0.22 | 0.22 | 0.47 | 0.39 |

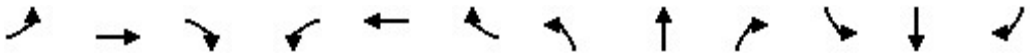
Intersection Summary

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



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 190 | 1820 | 190 | 185 | 1235 | 80 | 270 | 170 | 135 | 100 | 340 | 240 |
| Future Volume (vph) | 190 | 1820 | 190 | 185 | 1235 | 80 | 270 | 170 | 135 | 100 | 340 | 240 |
| 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 | 3.5 | 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 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1879 | 4683 | 1555 | 1756 | 4157 | | 1733 | 1830 | 1452 | 1785 | 1921 | 1401 |
| Flt Permitted | 0.13 | 1.00 | 1.00 | 0.08 | 1.00 | | 0.43 | 1.00 | 1.00 | 0.64 | 1.00 | 1.00 |
| Satd. Flow (perm) | 249 | 4683 | 1555 | 139 | 4157 | | 780 | 1830 | 1452 | 1201 | 1921 | 1401 |
| 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) | 190 | 1820 | 190 | 185 | 1235 | 80 | 270 | 170 | 135 | 100 | 340 | 240 |
| RTOR Reduction (vph) | 0 | 0 | 94 | 0 | 6 | 0 | 0 | 0 | 84 | 0 | 0 | 97 |
| Lane Group Flow (vph) | 190 | 1820 | 96 | 185 | 1309 | 0 | 270 | 170 | 51 | 100 | 340 | 143 |
| Heavy Vehicles (%) | 0% | 12% | 5% | 7% | 26% | 10% | 3% | 5% | 10% | 0% | 0% | 14% |
| 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) | 55.7 | 48.7 | 48.7 | 59.7 | 50.7 | | 44.9 | 44.9 | 44.9 | 44.9 | 44.9 | 44.9 |
| Effective Green, g (s) | 55.7 | 48.7 | 48.7 | 59.7 | 50.7 | | 44.9 | 44.9 | 44.9 | 44.9 | 44.9 | 44.9 |
| Actuated g/C Ratio | 0.46 | 0.41 | 0.41 | 0.50 | 0.42 | | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 |
| 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 |
| Lane Grp Cap (vph) | 210 | 1900 | 631 | 190 | 1756 | | 291 | 684 | 543 | 449 | 718 | 524 |
| v/s Ratio Prot | 0.05 | 0.39 | | c0.07 | 0.31 | | | 0.09 | | | 0.18 | |
| v/s Ratio Perm | 0.37 | | 0.06 | c0.41 | | | c0.35 | | 0.03 | 0.08 | | 0.10 |
| v/c Ratio | 0.90 | 0.96 | 0.15 | 0.97 | 0.75 | | 0.93 | 0.25 | 0.09 | 0.22 | 0.47 | 0.27 |
| Uniform Delay, d1 | 21.9 | 34.7 | 22.6 | 32.7 | 29.2 | | 36.0 | 25.9 | 24.3 | 25.6 | 28.6 | 26.2 |
| 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 | 41.4 | 12.8 | 0.5 | 58.8 | 2.9 | | 37.1 | 0.9 | 0.3 | 1.1 | 2.2 | 1.3 |
| Delay (s) | 63.4 | 47.5 | 23.1 | 91.4 | 32.1 | | 73.1 | 26.8 | 24.7 | 26.8 | 30.8 | 27.5 |
| Level of Service | E | D | C | F | C | | E | C | C | C | C | C |
| Approach Delay (s) | | 46.8 | | | 39.5 | | | 48.0 | | | 29.0 | |
| Approach LOS | | D | | | D | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 42.3 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.97 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 17.4 |
| Intersection Capacity Utilization | 99.5% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

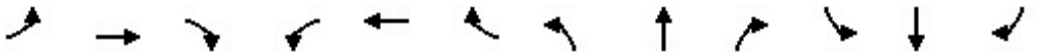


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 273 | 975 | 389 | 71 | 818 | 56 | 217 | 374 | 76 | 76 | 657 | 202 |
| v/c Ratio | 1.58 | 0.75 | 0.57 | 0.56 | 0.67 | 0.12 | 0.87 | 0.31 | 0.16 | 0.26 | 0.53 | 0.43 |
| Control Delay | 307.1 | 16.5 | 11.0 | 34.4 | 14.3 | 3.9 | 51.1 | 10.1 | 6.4 | 12.1 | 12.2 | 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 | 0.0 |
| Total Delay | 307.1 | 16.5 | 11.0 | 34.4 | 14.3 | 3.9 | 51.1 | 10.1 | 6.4 | 12.1 | 12.2 | 9.9 |
| Queue Length 50th (m) | ~34.0 | 34.3 | 15.3 | 4.3 | 27.5 | 0.0 | 15.6 | 10.4 | 1.9 | 4.0 | 20.4 | 7.1 |
| Queue Length 95th (m) | #57.8 | 52.7 | 35.5 | #20.6 | 43.1 | 4.8 | #48.5 | 18.1 | 7.9 | 11.6 | 32.6 | 20.0 |
| Internal Link Dist (m) | | 1335.9 | | | 354.8 | | | 755.9 | | | 1515.6 | |
| Turn Bay Length (m) | 200.0 | | | 80.0 | | 80.0 | 140.0 | | 80.0 | 120.0 | | 115.0 |
| Base Capacity (vph) | 173 | 1292 | 686 | 126 | 1226 | 477 | 250 | 1216 | 467 | 289 | 1248 | 473 |
| 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 | 1.58 | 0.75 | 0.57 | 0.56 | 0.67 | 0.12 | 0.87 | 0.31 | 0.16 | 0.26 | 0.53 | 0.43 |

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.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 270 | 965 | 385 | 70 | 810 | 55 | 215 | 370 | 75 | 75 | 650 | 200 |
| Future Volume (vph) | 270 | 965 | 385 | 70 | 810 | 55 | 215 | 370 | 75 | 75 | 650 | 200 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| 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 | 0.98 |
| 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 | 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 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1545 | 3230 | 1535 | 1350 | 3067 | 1109 | 1657 | 3042 | 1112 | 1298 | 3120 | 1079 |
| Flt Permitted | 0.27 | 1.00 | 1.00 | 0.22 | 1.00 | 1.00 | 0.36 | 1.00 | 1.00 | 0.53 | 1.00 | 1.00 |
| Satd. Flow (perm) | 435 | 3230 | 1535 | 316 | 3067 | 1109 | 626 | 3042 | 1112 | 723 | 3120 | 1079 |
| Peak-hour factor, PHF | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 273 | 975 | 389 | 71 | 818 | 56 | 217 | 374 | 76 | 76 | 657 | 202 |
| RTOR Reduction (vph) | 0 | 0 | 72 | 0 | 0 | 34 | 0 | 0 | 23 | 0 | 0 | 41 |
| Lane Group Flow (vph) | 273 | 975 | 317 | 71 | 818 | 22 | 217 | 374 | 53 | 76 | 657 | 161 |
| Confl. Peds. (#/hr) | 5 | | 10 | 10 | | 5 | 5 | | 10 | 10 | | 5 |
| Confl. Bikes (#/hr) | | | 5 | | | | | | | | | |
| Heavy Vehicles (%) | 18% | 13% | 4% | 35% | 19% | 45% | 10% | 20% | 44% | 40% | 17% | 49% |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | Perm | NA | Perm | Perm | NA | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 |
| Effective Green, g (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 |
| Actuated g/C Ratio | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Grp Cap (vph) | 174 | 1292 | 614 | 126 | 1226 | 443 | 250 | 1216 | 444 | 289 | 1248 | 431 |
| v/s Ratio Prot | | 0.30 | | | 0.27 | | | 0.12 | | | 0.21 | |
| v/s Ratio Perm | c0.63 | | 0.21 | 0.22 | | 0.02 | c0.35 | | 0.05 | 0.11 | | 0.15 |
| v/c Ratio | 1.57 | 0.75 | 0.52 | 0.56 | 0.67 | 0.05 | 0.87 | 0.31 | 0.12 | 0.26 | 0.53 | 0.37 |
| Uniform Delay, d1 | 13.5 | 11.6 | 10.2 | 10.5 | 11.0 | 8.3 | 12.4 | 9.2 | 8.5 | 9.1 | 10.3 | 9.5 |
| Progression 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 |
| Incremental Delay, d2 | 281.9 | 4.1 | 3.1 | 17.0 | 2.9 | 0.2 | 31.1 | 0.7 | 0.6 | 2.2 | 1.6 | 2.5 |
| Delay (s) | 295.4 | 15.7 | 13.3 | 27.4 | 13.9 | 8.5 | 43.5 | 9.9 | 9.1 | 11.3 | 11.9 | 12.0 |
| Level of Service | F | B | B | C | B | A | D | A | A | B | B | B |
| Approach Delay (s) | | 61.8 | | | 14.6 | | | 20.7 | | | 11.8 | |
| Approach LOS | | E | | | B | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 33.4 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 1.22 | | |
| Actuated Cycle Length (s) | 45.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 82.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

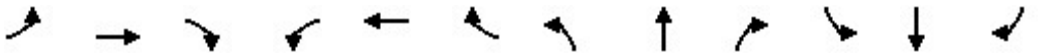
c Critical Lane Group

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 132 | 2121 | 321 | 111 | 1584 | 26 | 532 | 74 | 58 | 42 | 110 |
| v/c Ratio | 0.82 | 1.13 | 0.40 | 0.74 | 0.94 | 0.04 | 1.11 | 0.11 | 0.10 | 0.09 | 0.08 |
| Control Delay | 58.2 | 84.5 | 3.2 | 48.7 | 26.5 | 3.3 | 94.1 | 9.0 | 5.4 | 9.1 | 8.4 |
| 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 | 58.2 | 84.5 | 3.2 | 48.7 | 26.5 | 3.3 | 94.1 | 9.0 | 5.4 | 9.1 | 8.4 |
| Queue Length 50th (m) | 9.2 | ~79.1 | 0.0 | 7.4 | 43.4 | 0.0 | ~53.2 | 3.6 | 1.1 | 2.0 | 2.6 |
| Queue Length 95th (m) | #34.8 | #105.7 | 11.2 | #30.0 | #73.9 | 2.7 | #99.2 | 9.4 | 5.9 | 6.4 | 6.2 |
| Internal Link Dist (m) | | 120.0 | | | 1370.7 | | | 212.7 | | | 532.9 |
| Turn Bay Length (m) | | | | | | | | | | | |
| Base Capacity (vph) | 160 | 1873 | 803 | 149 | 1692 | 674 | 480 | 692 | 599 | 482 | 1342 |
| 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 | 0.82 | 1.13 | 0.40 | 0.74 | 0.94 | 0.04 | 1.11 | 0.11 | 0.10 | 0.09 | 0.08 |

Intersection Summary

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

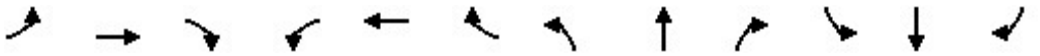
# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 125 | 2015 | 305 | 105 | 1505 | 25 | 505 | 70 | 55 | 40 | 65 | 40 |
| Future Volume (vph) | 125 | 2015 | 305 | 105 | 1505 | 25 | 505 | 70 | 55 | 40 | 65 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.94 | |
| 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) | 1722 | 4683 | 1526 | 1601 | 4230 | 1633 | 1674 | 1731 | 1445 | 1615 | 3349 | |
| Flt Permitted | 0.22 | 1.00 | 1.00 | 0.22 | 1.00 | 1.00 | 0.68 | 1.00 | 1.00 | 0.71 | 1.00 | |
| Satd. Flow (perm) | 403 | 4683 | 1526 | 374 | 4230 | 1633 | 1203 | 1731 | 1445 | 1205 | 3349 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 132 | 2121 | 321 | 111 | 1584 | 26 | 532 | 74 | 58 | 42 | 68 | 42 |
| RTOR Reduction (vph) | 0 | 0 | 193 | 0 | 0 | 16 | 0 | 0 | 22 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 132 | 2121 | 128 | 111 | 1584 | 10 | 532 | 74 | 36 | 42 | 108 | 0 |
| Heavy Vehicles (%) | 6% | 12% | 7% | 14% | 24% | 0% | 9% | 11% | 13% | 13% | 2% | 4% |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | 2 | 6 | | |
| Actuated Green, G (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | |
| Effective Green, g (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | |
| Actuated g/C Ratio | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| Lane Grp Cap (vph) | 161 | 1873 | 610 | 149 | 1692 | 653 | 481 | 692 | 578 | 482 | 1339 | |
| v/s Ratio Prot | | c0.45 | | | 0.37 | | | 0.04 | | | 0.03 | |
| v/s Ratio Perm | 0.33 | | 0.08 | 0.30 | | 0.01 | c0.44 | | 0.03 | 0.03 | | |
| v/c Ratio | 0.82 | 1.13 | 0.21 | 0.74 | 0.94 | 0.02 | 1.11 | 0.11 | 0.06 | 0.09 | 0.08 | |
| Uniform Delay, d1 | 12.1 | 13.5 | 8.8 | 11.5 | 12.9 | 8.2 | 13.5 | 8.5 | 8.3 | 8.4 | 8.4 | |
| 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 | 35.4 | 66.9 | 0.8 | 28.3 | 11.2 | 0.0 | 73.2 | 0.3 | 0.2 | 0.4 | 0.1 | |
| Delay (s) | 47.5 | 80.4 | 9.6 | 39.8 | 24.2 | 8.2 | 86.7 | 8.8 | 8.5 | 8.7 | 8.5 | |
| Level of Service | D | F | A | D | C | A | F | A | A | A | A | |
| Approach Delay (s) | | 69.9 | | | 24.9 | | | 71.2 | | | 8.6 | |
| Approach LOS | | E | | | C | | | E | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 53.1 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 1.12 | | |
| Actuated Cycle Length (s) | 45.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 90.6% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 55 | 0 | 170 | 65 | 0 | 10 | 85 | 120 | 110 | 30 | 260 | 30 |
| Future Volume (Veh/h) | 55 | 0 | 170 | 65 | 0 | 10 | 85 | 120 | 110 | 30 | 260 | 30 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 1.00 | 0.92 | 1.00 | 0.92 | 0.92 | 0.92 | 1.00 | 1.00 | 0.92 | 0.92 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 55 | 0 | 170 | 71 | 0 | 11 | 85 | 120 | 120 | 33 | 260 | 30 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 642 | 751 | 275 | 846 | 706 | 180 | 290 | | | 240 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 642 | 751 | 275 | 846 | 706 | 180 | 290 | | | 240 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 85 | 100 | 78 | 65 | 100 | 99 | 93 | | | 98 | | |
| cM capacity (veh/h) | 358 | 309 | 769 | 205 | 328 | 863 | 1283 | | | 1327 | | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total | 55 | 170 | 82 | 85 | 240 | 33 | 290 |
| Volume Left | 55 | 0 | 71 | 85 | 0 | 33 | 0 |
| Volume Right | 0 | 170 | 11 | 0 | 120 | 0 | 30 |
| cSH | 358 | 769 | 228 | 1283 | 1700 | 1327 | 1700 |
| Volume to Capacity | 0.15 | 0.22 | 0.36 | 0.07 | 0.14 | 0.02 | 0.17 |
| Queue Length 95th (m) | 4.3 | 6.7 | 12.4 | 1.7 | 0.0 | 0.6 | 0.0 |
| Control Delay (s) | 16.9 | 11.0 | 29.4 | 8.0 | 0.0 | 7.8 | 0.0 |
| Lane LOS | C | B | D | A | | A | |
| Approach Delay (s) | 12.4 | | 29.4 | 2.1 | | 0.8 | |
| Approach LOS | B | | D | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 6.4 | | | |
| Intersection Capacity Utilization | 48.3% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 20 | 115 | 35 | 370 | 565 | 5 |
| Future Volume (Veh/h) | 20 | 115 | 35 | 370 | 565 | 5 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 22 | 125 | 38 | 402 | 614 | 5 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1094 | 616 | 619 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1094 | 616 | 619 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 90 | 75 | 96 | | | |
| cM capacity (veh/h) | 227 | 490 | 961 | | | |

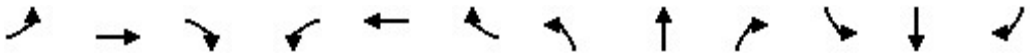
| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 147 | 38 | 402 | 619 |
| Volume Left | 22 | 38 | 0 | 0 |
| Volume Right | 125 | 0 | 0 | 5 |
| cSH | 418 | 961 | 1700 | 1700 |
| Volume to Capacity | 0.35 | 0.04 | 0.24 | 0.36 |
| Queue Length 95th (m) | 12.5 | 1.0 | 0.0 | 0.0 |
| Control Delay (s) | 18.2 | 8.9 | 0.0 | 0.0 |
| Lane LOS | C | A | | |
| Approach Delay (s) | 18.2 | 0.8 | | 0.0 |
| Approach LOS | C | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.5 | | |
| Intersection Capacity Utilization | 44.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 20 | 90 | 60 | 295 | 480 | 20 |
| Future Volume (Veh/h) | 20 | 90 | 60 | 295 | 480 | 20 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 22 | 98 | 65 | 321 | 522 | 22 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 984 | 533 | 544 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 984 | 533 | 544 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 91 | 82 | 94 | | | |
| cM capacity (veh/h) | 258 | 547 | 1025 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 120 | 65 | 321 | 544 |
| Volume Left | 22 | 65 | 0 | 0 |
| Volume Right | 98 | 0 | 0 | 22 |
| cSH | 454 | 1025 | 1700 | 1700 |
| Volume to Capacity | 0.26 | 0.06 | 0.19 | 0.32 |
| Queue Length 95th (m) | 8.4 | 1.6 | 0.0 | 0.0 |
| Control Delay (s) | 15.8 | 8.8 | 0.0 | 0.0 |
| Lane LOS | C | A | | |
| Approach Delay (s) | 15.8 | 1.5 | | 0.0 |
| Approach LOS | C | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.3 | | |
| Intersection Capacity Utilization | 46.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 10 | 155 | 30 | 25 | 370 | 5 | 35 | 290 | 70 | 5 | 120 | 5 |
| Future Volume (vph) | 10 | 155 | 30 | 25 | 370 | 5 | 35 | 290 | 70 | 5 | 120 | 5 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 11 | 168 | 33 | 27 | 402 | 5 | 38 | 315 | 76 | 5 | 130 | 5 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 212 | 434 | 429 | 140 |
| Volume Left (vph) | 11 | 27 | 38 | 5 |
| Volume Right (vph) | 33 | 5 | 76 | 5 |
| Hadj (s) | -0.03 | 0.03 | -0.06 | 0.13 |
| Departure Headway (s) | 6.9 | 6.4 | 6.3 | 7.3 |
| Degree Utilization, x | 0.40 | 0.77 | 0.76 | 0.28 |
| Capacity (veh/h) | 453 | 541 | 533 | 410 |
| Control Delay (s) | 14.4 | 27.5 | 26.4 | 13.2 |
| Approach Delay (s) | 14.4 | 27.5 | 26.4 | 13.2 |
| Approach LOS | B | D | D | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | | 23.2 | | |
| Level of Service | | C | | |
| Intersection Capacity Utilization | | 66.6% | ICU Level of Service | C |
| Analysis Period (min) | | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 400 | 175 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 400 | 175 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 417 | 182 | 0 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 599 | 182 | 182 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 599 | 182 | 182 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 468 | 866 | 1405 | | | |

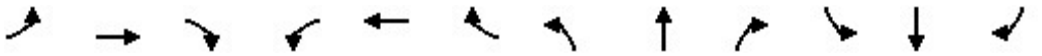
| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 0 | 417 | 182 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1700 | 1405 | 1700 |
| Volume to Capacity | 0.00 | 0.00 | 0.11 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 24.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 280 | 1660 | 220 | 140 | 1995 | 310 | 385 | 165 | 75 | 205 | 240 |
| v/c Ratio | 0.96 | 0.76 | 0.25 | 0.78 | 0.98 | 0.97 | 0.64 | 0.29 | 0.41 | 0.35 | 0.37 |
| Control Delay | 80.9 | 29.9 | 3.2 | 48.0 | 54.2 | 87.9 | 45.1 | 12.6 | 44.3 | 37.4 | 7.8 |
| 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 | 80.9 | 29.9 | 3.2 | 48.0 | 54.2 | 87.9 | 45.1 | 12.6 | 44.3 | 37.4 | 7.8 |
| Queue Length 50th (m) | 61.2 | 133.5 | 1.0 | 15.8 | 199.2 | 85.5 | 92.4 | 9.5 | 16.5 | 44.1 | 4.9 |
| Queue Length 95th (m) | #118.9 | 153.4 | 14.3 | #49.5 | #239.1 | #147.5 | 128.7 | 27.7 | 33.3 | 66.8 | 25.4 |
| Internal Link Dist (m) | | 1370.7 | | | 1335.9 | | 280.7 | | | 753.6 | |
| Turn Bay Length (m) | | | | | | | | | 30.0 | | 56.0 |
| Base Capacity (vph) | 293 | 2191 | 893 | 180 | 2031 | 321 | 604 | 577 | 184 | 592 | 654 |
| 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 | 0.96 | 0.76 | 0.25 | 0.78 | 0.98 | 0.97 | 0.64 | 0.29 | 0.41 | 0.35 | 0.37 |

Intersection Summary

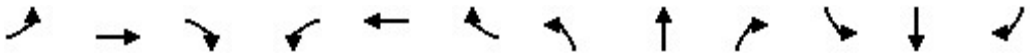
# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 280 | 1660 | 220 | 140 | 1905 | 90 | 310 | 385 | 165 | 75 | 205 | 240 |
| Future Volume (vph) | 280 | 1660 | 220 | 140 | 1905 | 90 | 310 | 385 | 165 | 75 | 205 | 240 |
| 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 | 3.5 | 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 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1860 | 4371 | 1570 | 1879 | 4745 | | 1716 | 1902 | 1566 | 1785 | 1865 | 1597 |
| Flt Permitted | 0.07 | 1.00 | 1.00 | 0.10 | 1.00 | | 0.56 | 1.00 | 1.00 | 0.31 | 1.00 | 1.00 |
| Satd. Flow (perm) | 123 | 4371 | 1570 | 181 | 4745 | | 1011 | 1902 | 1566 | 583 | 1865 | 1597 |
| 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) | 280 | 1660 | 220 | 140 | 1905 | 90 | 310 | 385 | 165 | 75 | 205 | 240 |
| RTOR Reduction (vph) | 0 | 0 | 106 | 0 | 4 | 0 | 0 | 0 | 80 | 0 | 0 | 147 |
| Lane Group Flow (vph) | 280 | 1660 | 114 | 140 | 1991 | 0 | 310 | 385 | 85 | 75 | 205 | 93 |
| Heavy Vehicles (%) | 1% | 20% | 4% | 0% | 10% | 5% | 4% | 1% | 2% | 0% | 3% | 0% |
| 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) | 77.7 | 67.7 | 67.7 | 64.7 | 57.7 | | 42.9 | 42.9 | 42.9 | 42.9 | 42.9 | 42.9 |
| Effective Green, g (s) | 77.7 | 67.7 | 67.7 | 64.7 | 57.7 | | 42.9 | 42.9 | 42.9 | 42.9 | 42.9 | 42.9 |
| Actuated g/C Ratio | 0.58 | 0.50 | 0.50 | 0.48 | 0.43 | | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 |
| 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) | 289 | 2191 | 787 | 174 | 2028 | | 321 | 604 | 497 | 185 | 592 | 507 |
| v/s Ratio Prot | c0.12 | 0.38 | | 0.04 | 0.42 | | | 0.20 | | | 0.11 | |
| v/s Ratio Perm | c0.44 | | 0.07 | 0.34 | | | c0.31 | | 0.05 | 0.13 | | 0.06 |
| v/c Ratio | 0.97 | 0.76 | 0.14 | 0.80 | 0.98 | | 0.97 | 0.64 | 0.17 | 0.41 | 0.35 | 0.18 |
| Uniform Delay, d1 | 44.6 | 27.1 | 18.1 | 22.1 | 38.1 | | 45.3 | 39.4 | 33.2 | 36.1 | 35.3 | 33.4 |
| 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 | 43.9 | 2.5 | 0.4 | 23.0 | 16.1 | | 42.3 | 5.1 | 0.7 | 6.5 | 1.6 | 0.8 |
| Delay (s) | 88.5 | 29.6 | 18.5 | 45.1 | 54.2 | | 87.6 | 44.5 | 34.0 | 42.5 | 36.9 | 34.2 |
| Level of Service | F | C | B | D | D | | F | D | C | D | D | C |
| Approach Delay (s) | | 36.1 | | | 53.6 | | | 58.0 | | | 36.5 | |
| Approach LOS | | D | | | D | | | E | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 46.0 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.99 | | |
| Actuated Cycle Length (s) | 135.0 | Sum of lost time (s) | 17.4 |
| Intersection Capacity Utilization | 105.8% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

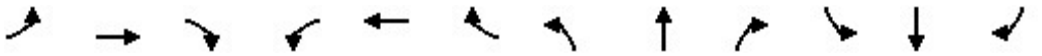


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 340 | 990 | 247 | 103 | 1139 | 82 | 356 | 613 | 93 | 108 | 454 | 304 |
| v/c Ratio | 3.06 | 0.80 | 0.32 | 0.77 | 0.88 | 0.18 | 0.99 | 0.49 | 0.21 | 0.46 | 0.36 | 0.52 |
| Control Delay | 966.5 | 18.7 | 3.2 | 55.4 | 23.4 | 3.9 | 64.6 | 11.7 | 7.5 | 17.6 | 10.5 | 13.0 |
| 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 | 966.5 | 18.7 | 3.2 | 55.4 | 23.4 | 3.9 | 64.6 | 11.7 | 7.5 | 17.6 | 10.5 | 13.0 |
| Queue Length 50th (m) | ~45.1 | 35.8 | 0.3 | 6.9 | 43.3 | 0.0 | 27.4 | 18.7 | 2.8 | 6.2 | 13.0 | 15.5 |
| Queue Length 95th (m) | #85.3 | #66.2 | 10.1 | #29.2 | #79.3 | 5.9 | #71.2 | 29.9 | 9.9 | 18.2 | 21.6 | 33.6 |
| Internal Link Dist (m) | | 1335.9 | | | 354.8 | | | 755.9 | | | 1515.6 | |
| Turn Bay Length (m) | 200.0 | | | 80.0 | | 80.0 | 140.0 | | 80.0 | 120.0 | | 115.0 |
| Base Capacity (vph) | 111 | 1237 | 762 | 134 | 1292 | 460 | 361 | 1258 | 437 | 237 | 1269 | 580 |
| 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 | 3.06 | 0.80 | 0.32 | 0.77 | 0.88 | 0.18 | 0.99 | 0.49 | 0.21 | 0.46 | 0.36 | 0.52 |

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.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 330 | 960 | 240 | 100 | 1105 | 80 | 345 | 595 | 90 | 105 | 440 | 295 |
| Future Volume (vph) | 330 | 960 | 240 | 100 | 1105 | 80 | 345 | 595 | 90 | 105 | 440 | 295 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 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 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1193 | 3093 | 1546 | 1436 | 3230 | 1027 | 1751 | 3147 | 1037 | 1458 | 3174 | 1398 |
| Flt Permitted | 0.22 | 1.00 | 1.00 | 0.22 | 1.00 | 1.00 | 0.49 | 1.00 | 1.00 | 0.39 | 1.00 | 1.00 |
| Satd. Flow (perm) | 279 | 3093 | 1546 | 336 | 3230 | 1027 | 903 | 3147 | 1037 | 594 | 3174 | 1398 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 340 | 990 | 247 | 103 | 1139 | 82 | 356 | 613 | 93 | 108 | 454 | 304 |
| RTOR Reduction (vph) | 0 | 0 | 144 | 0 | 0 | 49 | 0 | 0 | 22 | 0 | 0 | 22 |
| Lane Group Flow (vph) | 340 | 990 | 103 | 103 | 1139 | 33 | 356 | 613 | 71 | 108 | 454 | 282 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 53% | 18% | 4% | 27% | 13% | 59% | 4% | 16% | 55% | 25% | 15% | 15% |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | Perm | NA | Perm | Perm | NA | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 |
| Effective Green, g (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 |
| Actuated g/C Ratio | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Grp Cap (vph) | 111 | 1237 | 618 | 134 | 1292 | 410 | 361 | 1258 | 414 | 237 | 1269 | 559 |
| v/s Ratio Prot | | 0.32 | | | 0.35 | | | 0.19 | | | 0.14 | |
| v/s Ratio Perm | c1.22 | | 0.07 | 0.31 | | 0.03 | c0.39 | | 0.07 | 0.18 | | 0.20 |
| v/c Ratio | 3.06 | 0.80 | 0.17 | 0.77 | 0.88 | 0.08 | 0.99 | 0.49 | 0.17 | 0.46 | 0.36 | 0.51 |
| Uniform Delay, d1 | 13.5 | 11.9 | 8.7 | 11.7 | 12.5 | 8.4 | 13.4 | 10.1 | 8.7 | 9.9 | 9.5 | 10.2 |
| Progression 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 |
| Incremental Delay, d2 | 951.9 | 5.5 | 0.6 | 33.7 | 8.9 | 0.4 | 44.0 | 1.4 | 0.9 | 6.2 | 0.8 | 3.2 |
| Delay (s) | 965.4 | 17.4 | 9.3 | 45.4 | 21.4 | 8.7 | 57.4 | 11.4 | 9.6 | 16.1 | 10.2 | 13.4 |
| Level of Service | F | B | A | D | C | A | E | B | A | B | B | B |
| Approach Delay (s) | | 220.5 | | | 22.5 | | | 26.7 | | | 12.1 | |
| Approach LOS | | F | | | C | | | C | | | B | |

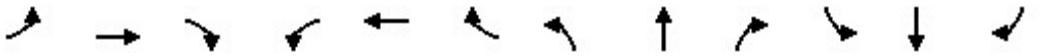
| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 86.2 | HCM 2000 Level of Service | F |
| HCM 2000 Volume to Capacity ratio | 2.02 | | |
| Actuated Cycle Length (s) | 45.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 97.9% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 141 | 2411 | 323 | 156 | 2313 | 78 | 464 | 135 | 99 | 52 | 109 |
| v/c Ratio | 0.84 | 1.30 | 0.38 | 0.92 | 1.18 | 0.11 | 0.89 | 0.18 | 0.15 | 0.10 | 0.08 |
| Control Delay | 58.9 | 157.3 | 3.0 | 73.4 | 104.7 | 3.3 | 36.5 | 9.5 | 6.8 | 9.2 | 8.6 |
| 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 | 58.9 | 157.3 | 3.0 | 73.4 | 104.7 | 3.3 | 36.5 | 9.5 | 6.8 | 9.2 | 8.6 |
| Queue Length 50th (m) | 9.9 | ~99.0 | 0.0 | 11.5 | ~89.0 | 0.0 | 33.6 | 6.8 | 3.1 | 2.6 | 2.7 |
| Queue Length 95th (m) | #36.4 | #126.4 | 11.0 | #40.3 | #116.1 | 5.5 | #80.4 | 15.0 | 9.8 | 7.5 | 6.2 |
| Internal Link Dist (m) | | 120.0 | | | 1370.7 | | | 212.7 | | | 532.9 |
| Turn Bay Length (m) | | | | | | | | | | | |
| Base Capacity (vph) | 168 | 1856 | 840 | 170 | 1960 | 700 | 524 | 760 | 674 | 515 | 1390 |
| 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 | 0.84 | 1.30 | 0.38 | 0.92 | 1.18 | 0.11 | 0.89 | 0.18 | 0.15 | 0.10 | 0.08 |

Intersection Summary

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

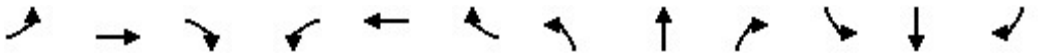
# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 135 | 2315 | 310 | 150 | 2220 | 75 | 445 | 130 | 95 | 50 | 80 | 25 |
| Future Volume (vph) | 135 | 2315 | 310 | 150 | 2220 | 75 | 445 | 130 | 95 | 50 | 80 | 25 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| 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) | 1807 | 4641 | 1617 | 1825 | 4902 | 1633 | 1825 | 1902 | 1633 | 1825 | 3478 | |
| Flt Permitted | 0.22 | 1.00 | 1.00 | 0.22 | 1.00 | 1.00 | 0.68 | 1.00 | 1.00 | 0.67 | 1.00 | |
| Satd. Flow (perm) | 423 | 4641 | 1617 | 427 | 4902 | 1633 | 1312 | 1902 | 1633 | 1288 | 3478 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 141 | 2411 | 323 | 156 | 2312 | 78 | 464 | 135 | 99 | 52 | 83 | 26 |
| RTOR Reduction (vph) | 0 | 0 | 194 | 0 | 0 | 47 | 0 | 0 | 22 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 141 | 2411 | 129 | 156 | 2313 | 31 | 464 | 135 | 77 | 52 | 109 | 0 |
| Heavy Vehicles (%) | 1% | 13% | 1% | 0% | 7% | 0% | 0% | 1% | 0% | 0% | 0% | 5% |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | 2 | 6 | | |
| Actuated Green, G (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | |
| Effective Green, g (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | |
| Actuated g/C Ratio | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| Lane Grp Cap (vph) | 169 | 1856 | 646 | 170 | 1960 | 653 | 524 | 760 | 653 | 515 | 1391 | |
| v/s Ratio Prot | | c0.52 | | | 0.47 | | | 0.07 | | | 0.03 | |
| v/s Ratio Perm | 0.33 | | 0.08 | 0.37 | | 0.02 | c0.35 | | 0.05 | 0.04 | | |
| v/c Ratio | 0.83 | 1.30 | 0.20 | 0.92 | 1.18 | 0.05 | 0.89 | 0.18 | 0.12 | 0.10 | 0.08 | |
| Uniform Delay, d1 | 12.2 | 13.5 | 8.8 | 12.8 | 13.5 | 8.3 | 12.5 | 8.7 | 8.5 | 8.4 | 8.4 | |
| 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 | 36.1 | 138.7 | 0.7 | 50.1 | 86.7 | 0.1 | 19.3 | 0.5 | 0.4 | 0.4 | 0.1 | |
| Delay (s) | 48.3 | 152.2 | 9.5 | 62.9 | 100.2 | 8.4 | 31.9 | 9.2 | 8.9 | 8.8 | 8.5 | |
| Level of Service | D | F | A | E | F | A | C | A | A | A | A | |
| Approach Delay (s) | | 131.0 | | | 95.1 | | | 24.2 | | | 8.6 | |
| Approach LOS | | F | | | F | | | C | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 101.4 | HCM 2000 Level of Service | F |
| HCM 2000 Volume to Capacity ratio | 1.09 | | |
| Actuated Cycle Length (s) | 45.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 96.9% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 25 | 0 | 110 | 110 | 0 | 45 | 170 | 325 | 50 | 10 | 130 | 35 |
| Future Volume (Veh/h) | 25 | 0 | 110 | 110 | 0 | 45 | 170 | 325 | 50 | 10 | 130 | 35 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 1.00 | 0.92 | 1.00 | 0.92 | 0.92 | 0.92 | 1.00 | 1.00 | 0.92 | 0.92 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 25 | 0 | 110 | 120 | 0 | 49 | 170 | 325 | 54 | 11 | 130 | 35 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 884 | 888 | 148 | 954 | 879 | 352 | 165 | | | 379 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 884 | 888 | 148 | 954 | 879 | 352 | 165 | | | 379 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 89 | 100 | 88 | 37 | 100 | 93 | 88 | | | 99 | | |
| cM capacity (veh/h) | 225 | 247 | 905 | 189 | 250 | 692 | 1426 | | | 1179 | | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total | 25 | 110 | 169 | 170 | 379 | 11 | 165 |
| Volume Left | 25 | 0 | 120 | 170 | 0 | 11 | 0 |
| Volume Right | 0 | 110 | 49 | 0 | 54 | 0 | 35 |
| cSH | 225 | 905 | 239 | 1426 | 1700 | 1179 | 1700 |
| Volume to Capacity | 0.11 | 0.12 | 0.71 | 0.12 | 0.22 | 0.01 | 0.10 |
| Queue Length 95th (m) | 3.0 | 3.3 | 37.6 | 3.2 | 0.0 | 0.2 | 0.0 |
| Control Delay (s) | 23.0 | 9.5 | 49.5 | 7.9 | 0.0 | 8.1 | 0.0 |
| Lane LOS | C | A | E | A | | A | |
| Approach Delay (s) | 12.0 | | 49.5 | 2.4 | | 0.5 | |
| Approach LOS | B | | E | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 11.1 | | | |
| Intersection Capacity Utilization | 49.0% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 15 | 70 | 130 | 620 | 425 | 15 |
| Future Volume (Veh/h) | 15 | 70 | 130 | 620 | 425 | 15 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 16 | 76 | 141 | 674 | 462 | 16 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1426 | 470 | 478 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1426 | 470 | 478 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 88 | 87 | 87 | | | |
| cM capacity (veh/h) | 130 | 594 | 1084 | | | |

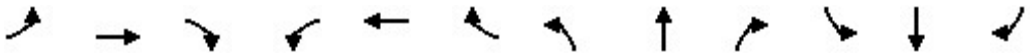
| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 92 | 141 | 674 | 478 |
| Volume Left | 16 | 141 | 0 | 0 |
| Volume Right | 76 | 0 | 0 | 16 |
| cSH | 366 | 1084 | 1700 | 1700 |
| Volume to Capacity | 0.25 | 0.13 | 0.40 | 0.28 |
| Queue Length 95th (m) | 7.8 | 3.6 | 0.0 | 0.0 |
| Control Delay (s) | 18.1 | 8.8 | 0.0 | 0.0 |
| Lane LOS | C | A | | |
| Approach Delay (s) | 18.1 | 1.5 | | 0.0 |
| Approach LOS | C | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.1 | | |
| Intersection Capacity Utilization | 45.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 10 | 75 | 110 | 540 | 340 | 10 |
| Future Volume (Veh/h) | 10 | 75 | 110 | 540 | 340 | 10 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 11 | 82 | 120 | 587 | 370 | 11 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1202 | 376 | 381 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1202 | 376 | 381 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 94 | 88 | 90 | | | |
| cM capacity (veh/h) | 183 | 671 | 1177 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 93 | 120 | 587 | 381 |
| Volume Left | 11 | 120 | 0 | 0 |
| Volume Right | 82 | 0 | 0 | 11 |
| cSH | 510 | 1177 | 1700 | 1700 |
| Volume to Capacity | 0.18 | 0.10 | 0.35 | 0.22 |
| Queue Length 95th (m) | 5.3 | 2.7 | 0.0 | 0.0 |
| Control Delay (s) | 13.6 | 8.4 | 0.0 | 0.0 |
| Lane LOS | B | A | | |
| Approach Delay (s) | 13.6 | 1.4 | | 0.0 |
| Approach LOS | B | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.9 | | |
| Intersection Capacity Utilization | 40.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 5 | 250 | 60 | 55 | 120 | 0 | 105 | 100 | 75 | 5 | 240 | 5 |
| Future Volume (vph) | 5 | 250 | 60 | 55 | 120 | 0 | 105 | 100 | 75 | 5 | 240 | 5 |
| 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) | 5 | 250 | 60 | 55 | 120 | 0 | 105 | 100 | 75 | 5 | 240 | 5 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 315 | 175 | 280 | 250 |
| Volume Left (vph) | 5 | 55 | 105 | 5 |
| Volume Right (vph) | 60 | 0 | 75 | 5 |
| Hadj (s) | -0.08 | 0.13 | -0.04 | 0.03 |
| Departure Headway (s) | 5.8 | 6.3 | 5.8 | 6.0 |
| Degree Utilization, x | 0.51 | 0.30 | 0.45 | 0.42 |
| Capacity (veh/h) | 574 | 497 | 561 | 537 |
| Control Delay (s) | 14.5 | 12.0 | 13.6 | 13.2 |
| Approach Delay (s) | 14.5 | 12.0 | 13.6 | 13.2 |
| Approach LOS | B | B | B | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 13.5 | | | |
| Level of Service | B | | | |
| Intersection Capacity Utilization | 68.6% | ICU Level of Service | C | |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 280 | 355 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 280 | 355 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 280 | 355 | 0 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 635 | 355 | 355 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 635 | 355 | 355 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 446 | 693 | 1215 | | | |

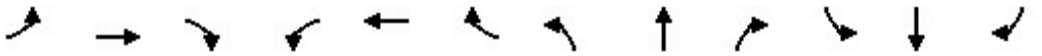
| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 0 | 280 | 355 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1700 | 1215 | 1700 |
| Volume to Capacity | 0.00 | 0.00 | 0.21 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 22.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 185 | 1810 | 190 | 185 | 1295 | 250 | 175 | 140 | 80 | 345 | 230 |
| v/c Ratio | 0.80 | 0.92 | 0.25 | 0.95 | 0.71 | 0.94 | 0.27 | 0.23 | 0.19 | 0.50 | 0.38 |
| Control Delay | 40.5 | 41.1 | 5.7 | 76.9 | 43.4 | 80.4 | 28.8 | 5.8 | 28.1 | 33.3 | 11.8 |
| 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 | 40.5 | 41.1 | 5.7 | 76.9 | 43.4 | 80.4 | 28.8 | 5.8 | 28.1 | 33.3 | 11.8 |
| Queue Length 50th (m) | 21.4 | 151.9 | 3.7 | 37.5 | 116.9 | 59.4 | 30.6 | 0.8 | 13.6 | 66.4 | 12.7 |
| Queue Length 95th (m) | #46.3 | 175.7 | 18.1 | m#72.6 | 135.4 | #113.3 | 49.0 | 14.6 | 26.1 | 95.9 | 33.7 |
| Internal Link Dist (m) | | 1370.7 | | | 1335.9 | | 280.7 | | | 753.6 | |
| Turn Bay Length (m) | | | | | | | | | 30.0 | | 56.0 |
| Base Capacity (vph) | 232 | 1978 | 751 | 194 | 1830 | 266 | 654 | 605 | 422 | 686 | 599 |
| 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 | 0.80 | 0.92 | 0.25 | 0.95 | 0.71 | 0.94 | 0.27 | 0.23 | 0.19 | 0.50 | 0.38 |

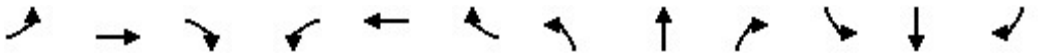
Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 185 | 1810 | 190 | 185 | 1220 | 75 | 250 | 175 | 140 | 80 | 345 | 230 |
| Future Volume (vph) | 185 | 1810 | 190 | 185 | 1220 | 75 | 250 | 175 | 140 | 80 | 345 | 230 |
| 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 | 3.5 | 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 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1879 | 4683 | 1555 | 1756 | 4157 | | 1733 | 1830 | 1452 | 1785 | 1921 | 1401 |
| Flt Permitted | 0.14 | 1.00 | 1.00 | 0.08 | 1.00 | | 0.41 | 1.00 | 1.00 | 0.63 | 1.00 | 1.00 |
| Satd. Flow (perm) | 268 | 4683 | 1555 | 133 | 4157 | | 747 | 1830 | 1452 | 1181 | 1921 | 1401 |
| 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) | 185 | 1810 | 190 | 185 | 1220 | 75 | 250 | 175 | 140 | 80 | 345 | 230 |
| RTOR Reduction (vph) | 0 | 0 | 95 | 0 | 6 | 0 | 0 | 0 | 87 | 0 | 0 | 99 |
| Lane Group Flow (vph) | 185 | 1810 | 95 | 185 | 1289 | 0 | 250 | 175 | 53 | 80 | 345 | 131 |
| Heavy Vehicles (%) | 0% | 12% | 5% | 7% | 26% | 10% | 3% | 5% | 10% | 0% | 0% | 14% |
| 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) | 57.7 | 50.7 | 50.7 | 61.7 | 52.7 | | 42.9 | 42.9 | 42.9 | 42.9 | 42.9 | 42.9 |
| Effective Green, g (s) | 57.7 | 50.7 | 50.7 | 61.7 | 52.7 | | 42.9 | 42.9 | 42.9 | 42.9 | 42.9 | 42.9 |
| Actuated g/C Ratio | 0.48 | 0.42 | 0.42 | 0.51 | 0.44 | | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 |
| 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 |
| Lane Grp Cap (vph) | 222 | 1978 | 656 | 190 | 1825 | | 267 | 654 | 519 | 422 | 686 | 500 |
| v/s Ratio Prot | 0.05 | 0.39 | | c0.07 | 0.31 | | | 0.10 | | | 0.18 | |
| v/s Ratio Perm | 0.35 | | 0.06 | c0.43 | | | c0.33 | | 0.04 | 0.07 | | 0.09 |
| v/c Ratio | 0.83 | 0.92 | 0.15 | 0.97 | 0.71 | | 0.94 | 0.27 | 0.10 | 0.19 | 0.50 | 0.26 |
| Uniform Delay, d1 | 19.7 | 32.6 | 21.3 | 32.7 | 27.4 | | 37.2 | 27.4 | 25.7 | 26.6 | 30.2 | 27.3 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.02 | 1.51 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 29.2 | 8.1 | 0.5 | 53.4 | 2.0 | | 40.9 | 1.0 | 0.4 | 1.0 | 2.6 | 1.3 |
| Delay (s) | 48.9 | 40.7 | 21.8 | 86.9 | 43.3 | | 78.1 | 28.4 | 26.1 | 27.6 | 32.8 | 28.6 |
| Level of Service | D | D | C | F | D | | E | C | C | C | C | C |
| Approach Delay (s) | | 39.8 | | | 48.7 | | | 49.8 | | | 30.7 | |
| Approach LOS | | D | | | D | | | D | | | C | |

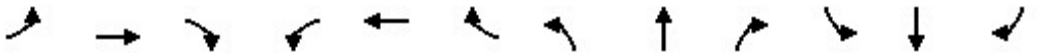
| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 42.4 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.98 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 17.4 |
| Intersection Capacity Utilization | 98.5% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 270 | 930 | 390 | 70 | 795 | 55 | 220 | 370 | 75 | 75 | 650 | 200 |
| v/c Ratio | 0.79 | 0.68 | 0.45 | 0.35 | 0.84 | 0.13 | 0.68 | 0.38 | 0.17 | 0.31 | 0.98 | 0.52 |
| Control Delay | 35.5 | 10.4 | 2.9 | 19.4 | 47.2 | 0.6 | 43.6 | 36.3 | 0.8 | 31.3 | 77.8 | 10.7 |
| 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 | 35.5 | 10.4 | 2.9 | 19.4 | 47.2 | 0.6 | 43.6 | 36.3 | 0.8 | 31.3 | 77.8 | 10.7 |
| Queue Length 50th (m) | 24.2 | 81.3 | 12.5 | 8.7 | 96.2 | 0.0 | 36.2 | 38.5 | 0.0 | 11.3 | 84.9 | 0.0 |
| Queue Length 95th (m) | m22.5 | m78.5 | m15.0 | 12.4 | 112.5 | 0.0 | #120.0 | 60.3 | 0.4 | 27.0 | #125.0 | 21.9 |
| Internal Link Dist (m) | | 1335.9 | | | 354.8 | | | 755.9 | | | 1515.6 | |
| Turn Bay Length (m) | 200.0 | | | 80.0 | | 80.0 | 140.0 | | 80.0 | 120.0 | | 115.0 |
| Base Capacity (vph) | 421 | 1479 | 906 | 301 | 1111 | 486 | 322 | 978 | 445 | 242 | 663 | 385 |
| 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 | 0.64 | 0.63 | 0.43 | 0.23 | 0.72 | 0.11 | 0.68 | 0.38 | 0.17 | 0.31 | 0.98 | 0.52 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 270 | 930 | 390 | 70 | 795 | 55 | 220 | 370 | 75 | 75 | 650 | 200 |
| Future Volume (vph) | 270 | 930 | 390 | 70 | 795 | 55 | 220 | 370 | 75 | 75 | 650 | 200 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 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 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1547 | 3230 | 1517 | 1351 | 3067 | 1102 | 1659 | 3042 | 1098 | 1296 | 3120 | 1072 |
| Flt Permitted | 0.15 | 1.00 | 1.00 | 0.24 | 1.00 | 1.00 | 0.14 | 1.00 | 1.00 | 0.53 | 1.00 | 1.00 |
| Satd. Flow (perm) | 236 | 3230 | 1517 | 338 | 3067 | 1102 | 239 | 3042 | 1098 | 725 | 3120 | 1072 |
| 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) | 270 | 930 | 390 | 70 | 795 | 55 | 220 | 370 | 75 | 75 | 650 | 200 |
| RTOR Reduction (vph) | 0 | 0 | 225 | 0 | 0 | 38 | 0 | 0 | 52 | 0 | 0 | 159 |
| Lane Group Flow (vph) | 270 | 930 | 165 | 70 | 795 | 17 | 220 | 370 | 23 | 75 | 650 | 41 |
| Confl. Peds. (#/hr) | 5 | | 10 | 10 | | 5 | 5 | | 10 | 10 | | 5 |
| Confl. Bikes (#/hr) | | | 5 | | | | | | | | | |
| Heavy Vehicles (%) | 18% | 13% | 4% | 35% | 19% | 45% | 10% | 20% | 44% | 40% | 17% | 49% |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | 62.6 | 50.7 | 50.7 | 45.3 | 37.9 | 37.9 | 48.4 | 36.9 | 36.9 | 31.7 | 24.7 | 24.7 |
| Effective Green, g (s) | 62.6 | 50.7 | 50.7 | 45.3 | 37.9 | 37.9 | 48.4 | 36.9 | 36.9 | 31.7 | 24.7 | 24.7 |
| Actuated g/C Ratio | 0.52 | 0.42 | 0.42 | 0.38 | 0.32 | 0.32 | 0.40 | 0.31 | 0.31 | 0.26 | 0.21 | 0.21 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| 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 | 3.0 |
| Lane Grp Cap (vph) | 343 | 1364 | 640 | 190 | 968 | 348 | 323 | 935 | 337 | 224 | 642 | 220 |
| v/s Ratio Prot | c0.13 | 0.29 | | 0.02 | 0.26 | | c0.11 | 0.12 | | 0.02 | c0.21 | |
| v/s Ratio Perm | c0.28 | | 0.11 | 0.12 | | 0.02 | 0.17 | | 0.02 | 0.07 | | 0.04 |
| v/c Ratio | 0.79 | 0.68 | 0.26 | 0.37 | 0.82 | 0.05 | 0.68 | 0.40 | 0.07 | 0.33 | 1.01 | 0.19 |
| Uniform Delay, d1 | 24.5 | 28.1 | 22.5 | 24.9 | 37.9 | 28.5 | 27.3 | 32.8 | 29.4 | 34.5 | 47.6 | 39.4 |
| Progression Factor | 1.16 | 0.32 | 1.13 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 6.1 | 0.7 | 0.1 | 1.2 | 5.7 | 0.1 | 5.8 | 1.3 | 0.4 | 0.9 | 38.7 | 1.9 |
| Delay (s) | 34.5 | 9.8 | 25.5 | 26.1 | 43.6 | 28.6 | 33.1 | 34.0 | 29.8 | 35.4 | 86.3 | 41.2 |
| Level of Service | C | A | C | C | D | C | C | C | C | D | F | D |
| Approach Delay (s) | | 17.8 | | | 41.4 | | | 33.2 | | | 72.4 | |
| Approach LOS | | B | | | D | | | C | | | E | |

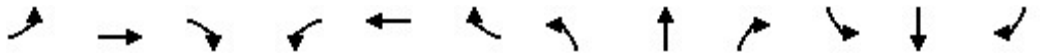
| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 37.9 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 18.0 |
| Intersection Capacity Utilization | 82.1% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 125 | 1985 | 305 | 105 | 1465 | 25 | 505 | 70 | 55 | 55 | 105 |
| v/c Ratio | 0.53 | 0.84 | 0.33 | 0.59 | 0.69 | 0.03 | 1.47 | 0.19 | 0.14 | 0.18 | 0.17 |
| Control Delay | 18.0 | 27.5 | 3.0 | 31.6 | 23.6 | 0.1 | 259.2 | 42.5 | 2.6 | 33.3 | 27.8 |
| 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 | 18.0 | 27.5 | 3.0 | 31.6 | 23.6 | 0.1 | 259.2 | 42.5 | 2.6 | 33.3 | 27.8 |
| Queue Length 50th (m) | 10.9 | 139.1 | 1.2 | 9.1 | 90.8 | 0.0 | ~172.6 | 14.5 | 0.0 | 9.8 | 7.1 |
| Queue Length 95th (m) | 20.8 | 163.1 | 14.9 | 28.1 | 115.7 | 0.0 | #246.9 | 29.1 | 3.1 | 21.2 | 15.7 |
| Internal Link Dist (m) | | 120.0 | | | 1370.7 | | | 212.7 | | | 532.9 |
| Turn Bay Length (m) | | | | | | | | | | | |
| Base Capacity (vph) | 307 | 2656 | 992 | 195 | 2290 | 927 | 343 | 376 | 388 | 318 | 616 |
| 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 | 0.41 | 0.75 | 0.31 | 0.54 | 0.64 | 0.03 | 1.47 | 0.19 | 0.14 | 0.17 | 0.17 |

Intersection Summary

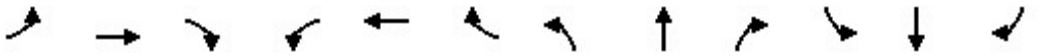
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 125 | 1985 | 305 | 105 | 1465 | 25 | 505 | 70 | 55 | 55 | 65 | 40 |
| Future Volume (vph) | 125 | 1985 | 305 | 105 | 1465 | 25 | 505 | 70 | 55 | 55 | 65 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.94 | |
| 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) | 1722 | 4683 | 1526 | 1601 | 4230 | 1633 | 1674 | 1731 | 1445 | 1615 | 3349 | |
| Flt Permitted | 0.11 | 1.00 | 1.00 | 0.07 | 1.00 | 1.00 | 0.58 | 1.00 | 1.00 | 0.71 | 1.00 | |
| Satd. Flow (perm) | 195 | 4683 | 1526 | 120 | 4230 | 1633 | 1016 | 1731 | 1445 | 1209 | 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) | 125 | 1985 | 305 | 105 | 1465 | 25 | 505 | 70 | 55 | 55 | 65 | 40 |
| RTOR Reduction (vph) | 0 | 0 | 146 | 0 | 0 | 13 | 0 | 0 | 43 | 0 | 33 | 0 |
| Lane Group Flow (vph) | 125 | 1985 | 159 | 105 | 1465 | 12 | 505 | 70 | 12 | 55 | 72 | 0 |
| Heavy Vehicles (%) | 6% | 12% | 7% | 14% | 24% | 0% | 9% | 11% | 13% | 13% | 2% | 4% |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | 2 | 6 | | |
| Actuated Green, G (s) | 66.2 | 57.1 | 57.1 | 64.6 | 56.3 | 56.3 | 34.1 | 24.5 | 24.5 | 26.3 | 20.6 | |
| Effective Green, g (s) | 66.2 | 57.1 | 57.1 | 64.6 | 56.3 | 56.3 | 34.1 | 24.5 | 24.5 | 26.3 | 20.6 | |
| Actuated g/C Ratio | 0.58 | 0.50 | 0.50 | 0.57 | 0.50 | 0.50 | 0.30 | 0.22 | 0.22 | 0.23 | 0.18 | |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| 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) | 235 | 2353 | 767 | 176 | 2096 | 809 | 360 | 373 | 311 | 300 | 607 | |
| v/s Ratio Prot | 0.04 | c0.42 | | c0.04 | 0.35 | | c0.12 | 0.04 | | 0.01 | 0.02 | |
| v/s Ratio Perm | 0.27 | | 0.10 | 0.30 | | 0.01 | c0.30 | | 0.01 | 0.03 | | |
| v/c Ratio | 0.53 | 0.84 | 0.21 | 0.60 | 0.70 | 0.02 | 1.40 | 0.19 | 0.04 | 0.18 | 0.12 | |
| Uniform Delay, d1 | 13.8 | 24.4 | 15.7 | 18.8 | 22.1 | 14.6 | 39.0 | 36.4 | 35.2 | 34.7 | 38.9 | |
| 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 | 2.3 | 2.9 | 0.1 | 5.3 | 1.0 | 0.0 | 197.3 | 1.1 | 0.2 | 0.3 | 0.4 | |
| Delay (s) | 16.1 | 27.3 | 15.8 | 24.2 | 23.1 | 14.6 | 236.3 | 37.5 | 35.5 | 35.0 | 39.3 | |
| Level of Service | B | C | B | C | C | B | F | D | D | D | D | |
| Approach Delay (s) | | 25.3 | | | 23.1 | | | 196.7 | | | 37.8 | |
| Approach LOS | | C | | | C | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 47.5 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 1.05 | | |
| Actuated Cycle Length (s) | 113.6 | Sum of lost time (s) | 18.0 |
| Intersection Capacity Utilization | 90.1% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 105 | 0 | 120 | 65 | 0 | 10 | 70 | 165 | 110 | 30 | 285 | 40 |
| Future Volume (Veh/h) | 105 | 0 | 120 | 65 | 0 | 10 | 70 | 165 | 110 | 30 | 285 | 40 |
| 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) | 105 | 0 | 120 | 65 | 0 | 10 | 70 | 165 | 110 | 30 | 285 | 40 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 680 | 780 | 305 | 825 | 745 | 220 | 325 | | | 275 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 680 | 780 | 305 | 825 | 745 | 220 | 325 | | | 275 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 69 | 100 | 84 | 72 | 100 | 99 | 94 | | | 98 | | |
| cM capacity (veh/h) | 341 | 301 | 740 | 230 | 316 | 820 | 1246 | | | 1288 | | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total | 105 | 120 | 75 | 70 | 275 | 30 | 325 |
| Volume Left | 105 | 0 | 65 | 70 | 0 | 30 | 0 |
| Volume Right | 0 | 120 | 10 | 0 | 110 | 0 | 40 |
| cSH | 341 | 740 | 254 | 1246 | 1700 | 1288 | 1700 |
| Volume to Capacity | 0.31 | 0.16 | 0.30 | 0.06 | 0.16 | 0.02 | 0.19 |
| Queue Length 95th (m) | 10.2 | 4.6 | 9.5 | 1.4 | 0.0 | 0.6 | 0.0 |
| Control Delay (s) | 20.2 | 10.8 | 25.0 | 8.1 | 0.0 | 7.9 | 0.0 |
| Lane LOS | C | B | C | A | | A | |
| Approach Delay (s) | 15.2 | | 25.0 | 1.6 | | 0.7 | |
| Approach LOS | C | | C | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 6.1 | | | |
| Intersection Capacity Utilization | 42.2% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 35 | 135 | 70 | 330 | 520 | 20 |
| Future Volume (Veh/h) | 35 | 135 | 70 | 330 | 520 | 20 |
| 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) | 35 | 135 | 70 | 330 | 520 | 20 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1000 | 530 | 540 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1000 | 530 | 540 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 86 | 75 | 93 | | | |
| cM capacity (veh/h) | 251 | 549 | 1028 | | | |

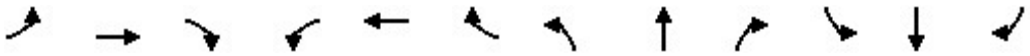
| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 170 | 70 | 330 | 540 |
| Volume Left | 35 | 70 | 0 | 0 |
| Volume Right | 135 | 0 | 0 | 20 |
| cSH | 441 | 1028 | 1700 | 1700 |
| Volume to Capacity | 0.39 | 0.07 | 0.19 | 0.32 |
| Queue Length 95th (m) | 14.3 | 1.7 | 0.0 | 0.0 |
| Control Delay (s) | 18.2 | 8.8 | 0.0 | 0.0 |
| Lane LOS | C | A | | |
| Approach Delay (s) | 18.2 | 1.5 | | 0.0 |
| Approach LOS | C | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.3 | | |
| Intersection Capacity Utilization | 52.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 55 | 100 | 40 | 290 | 440 | 35 |
| Future Volume (Veh/h) | 55 | 100 | 40 | 290 | 440 | 35 |
| 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) | 55 | 100 | 40 | 290 | 440 | 35 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 828 | 458 | 475 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 828 | 458 | 475 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 83 | 83 | 96 | | | |
| cM capacity (veh/h) | 329 | 603 | 1087 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 155 | 40 | 290 | 475 |
| Volume Left | 55 | 40 | 0 | 0 |
| Volume Right | 100 | 0 | 0 | 35 |
| cSH | 465 | 1087 | 1700 | 1700 |
| Volume to Capacity | 0.33 | 0.04 | 0.17 | 0.28 |
| Queue Length 95th (m) | 11.6 | 0.9 | 0.0 | 0.0 |
| Control Delay (s) | 16.6 | 8.4 | 0.0 | 0.0 |
| Lane LOS | C | A | | |
| Approach Delay (s) | 16.6 | 1.0 | | 0.0 |
| Approach LOS | C | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.0 | | |
| Intersection Capacity Utilization | 47.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 10 | 145 | 110 | 75 | 355 | 5 | 75 | 285 | 100 | 5 | 120 | 5 |
| Future Volume (vph) | 10 | 145 | 110 | 75 | 355 | 5 | 75 | 285 | 100 | 5 | 120 | 5 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 11 | 158 | 120 | 82 | 386 | 5 | 82 | 310 | 109 | 5 | 130 | 5 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 289 | 473 | 501 | 140 |
| Volume Left (vph) | 11 | 82 | 82 | 5 |
| Volume Right (vph) | 120 | 5 | 109 | 5 |
| Hadj (s) | -0.20 | 0.05 | -0.08 | 0.13 |
| Departure Headway (s) | 7.8 | 7.4 | 7.2 | 8.8 |
| Degree Utilization, x | 0.62 | 0.97 | 1.00 | 0.34 |
| Capacity (veh/h) | 459 | 492 | 501 | 386 |
| Control Delay (s) | 22.7 | 61.5 | 68.3 | 16.4 |
| Approach Delay (s) | 22.7 | 61.5 | 68.3 | 16.4 |
| Approach LOS | C | F | F | C |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 51.4 | | | |
| Level of Service | F | | | |
| Intersection Capacity Utilization | 83.5% | ICU Level of Service | E | |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 465 | 305 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 465 | 305 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 484 | 318 | 0 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 802 | 318 | 318 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 802 | 318 | 318 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 356 | 727 | 1253 | | | |

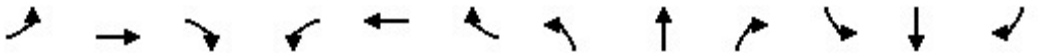
| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 0 | 484 | 318 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1700 | 1253 | 1700 |
| Volume to Capacity | 0.00 | 0.00 | 0.19 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 27.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 270 | 1650 | 220 | 140 | 1960 | 310 | 360 | 165 | 65 | 205 | 230 |
| v/c Ratio | 0.97 | 0.76 | 0.25 | 0.78 | 0.97 | 0.94 | 0.58 | 0.28 | 0.30 | 0.34 | 0.35 |
| Control Delay | 84.5 | 30.7 | 3.4 | 48.7 | 50.9 | 81.0 | 42.5 | 12.1 | 39.0 | 36.5 | 7.9 |
| 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 | 84.5 | 30.7 | 3.4 | 48.7 | 50.9 | 81.0 | 42.5 | 12.1 | 39.0 | 36.5 | 7.9 |
| Queue Length 50th (m) | 58.5 | 134.5 | 1.3 | 16.1 | 193.2 | 84.4 | 84.0 | 9.2 | 13.7 | 43.6 | 5.4 |
| Queue Length 95th (m) | #116.5 | 154.6 | 14.8 | #50.0 | #231.6 | #144.8 | 117.8 | 27.1 | 27.7 | 66.0 | 25.3 |
| Internal Link Dist (m) | | 1370.7 | | | 1335.9 | | 280.7 | | | 753.6 | |
| Turn Bay Length (m) | | | | | | | | | 30.0 | | 56.0 |
| Base Capacity (vph) | 279 | 2159 | 882 | 179 | 2031 | 330 | 618 | 588 | 214 | 606 | 655 |
| 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 | 0.97 | 0.76 | 0.25 | 0.78 | 0.97 | 0.94 | 0.58 | 0.28 | 0.30 | 0.34 | 0.35 |

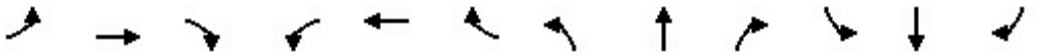
Intersection Summary

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



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 270 | 1650 | 220 | 140 | 1885 | 75 | 310 | 360 | 165 | 65 | 205 | 230 |
| Future Volume (vph) | 270 | 1650 | 220 | 140 | 1885 | 75 | 310 | 360 | 165 | 65 | 205 | 230 |
| 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 | 3.5 | 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 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1860 | 4371 | 1570 | 1879 | 4749 | | 1716 | 1902 | 1566 | 1785 | 1865 | 1597 |
| Flt Permitted | 0.07 | 1.00 | 1.00 | 0.09 | 1.00 | | 0.56 | 1.00 | 1.00 | 0.35 | 1.00 | 1.00 |
| Satd. Flow (perm) | 123 | 4371 | 1570 | 178 | 4749 | | 1018 | 1902 | 1566 | 660 | 1865 | 1597 |
| 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) | 270 | 1650 | 220 | 140 | 1885 | 75 | 310 | 360 | 165 | 65 | 205 | 230 |
| RTOR Reduction (vph) | 0 | 0 | 107 | 0 | 3 | 0 | 0 | 0 | 80 | 0 | 0 | 136 |
| Lane Group Flow (vph) | 270 | 1650 | 113 | 140 | 1957 | 0 | 310 | 360 | 85 | 65 | 205 | 94 |
| Heavy Vehicles (%) | 1% | 20% | 4% | 0% | 10% | 5% | 4% | 1% | 2% | 0% | 3% | 0% |
| 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) | 76.7 | 66.7 | 66.7 | 64.7 | 57.7 | | 43.9 | 43.9 | 43.9 | 43.9 | 43.9 | 43.9 |
| Effective Green, g (s) | 76.7 | 66.7 | 66.7 | 64.7 | 57.7 | | 43.9 | 43.9 | 43.9 | 43.9 | 43.9 | 43.9 |
| Actuated g/C Ratio | 0.57 | 0.49 | 0.49 | 0.48 | 0.43 | | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 |
| 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 |
| Lane Grp Cap (vph) | 275 | 2159 | 775 | 173 | 2029 | | 331 | 618 | 509 | 214 | 606 | 519 |
| v/s Ratio Prot | c0.12 | 0.38 | | 0.04 | 0.41 | | | 0.19 | | | 0.11 | |
| v/s Ratio Perm | c0.44 | | 0.07 | 0.35 | | | c0.30 | | 0.05 | 0.10 | | 0.06 |
| v/c Ratio | 0.98 | 0.76 | 0.15 | 0.81 | 0.96 | | 0.94 | 0.58 | 0.17 | 0.30 | 0.34 | 0.18 |
| Uniform Delay, d1 | 44.4 | 27.8 | 18.6 | 22.4 | 37.7 | | 44.2 | 37.9 | 32.5 | 34.1 | 34.5 | 32.7 |
| 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 | 49.8 | 2.6 | 0.4 | 32.1 | 13.2 | | 35.7 | 4.0 | 0.7 | 3.6 | 1.5 | 0.8 |
| Delay (s) | 94.2 | 30.4 | 19.0 | 54.6 | 50.9 | | 79.9 | 41.9 | 33.2 | 37.7 | 36.0 | 33.4 |
| Level of Service | F | C | B | D | D | | E | D | C | D | D | C |
| Approach Delay (s) | | 37.3 | | | 51.1 | | | 54.3 | | | 35.1 | |
| Approach LOS | | D | | | D | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 44.8 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.98 | | |
| Actuated Cycle Length (s) | 135.0 | Sum of lost time (s) | 17.4 |
| Intersection Capacity Utilization | 103.2% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

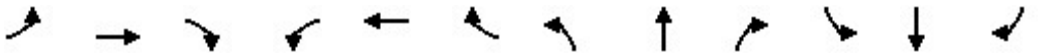


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 340 | 964 | 247 | 103 | 1098 | 82 | 361 | 613 | 93 | 108 | 454 | 304 |
| v/c Ratio | 1.20 | 0.62 | 0.28 | 0.39 | 0.91 | 0.17 | 1.59 | 0.89 | 0.28 | 0.86 | 0.74 | 0.59 |
| Control Delay | 150.2 | 23.3 | 2.8 | 15.5 | 45.8 | 1.4 | 314.5 | 60.7 | 4.2 | 87.8 | 53.0 | 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 | 0.0 |
| Total Delay | 150.2 | 23.3 | 2.8 | 15.5 | 45.8 | 1.4 | 314.5 | 60.7 | 4.2 | 87.8 | 53.0 | 9.9 |
| Queue Length 50th (m) | ~92.0 | 85.0 | 0.0 | 9.5 | 129.5 | 0.0 | ~103.9 | 78.8 | 0.0 | 20.4 | 56.6 | 0.0 |
| Queue Length 95th (m) | #152.3 | 112.2 | 13.4 | 17.1 | 160.0 | 1.8 | #167.2 | #113.3 | 5.3 | #47.7 | 76.1 | 26.5 |
| Internal Link Dist (m) | | 1335.9 | | | 354.8 | | | 755.9 | | | 1515.6 | |
| Turn Bay Length (m) | 200.0 | | | 80.0 | | 80.0 | 140.0 | | 80.0 | 120.0 | | 115.0 |
| Base Capacity (vph) | 284 | 1560 | 897 | 371 | 1321 | 500 | 227 | 691 | 332 | 125 | 615 | 514 |
| 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 | 1.20 | 0.62 | 0.28 | 0.28 | 0.83 | 0.16 | 1.59 | 0.89 | 0.28 | 0.86 | 0.74 | 0.59 |

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.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 330 | 935 | 240 | 100 | 1065 | 80 | 350 | 595 | 90 | 105 | 440 | 295 |
| Future Volume (vph) | 330 | 935 | 240 | 100 | 1065 | 80 | 350 | 595 | 90 | 105 | 440 | 295 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 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 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1193 | 3093 | 1536 | 1436 | 3230 | 1027 | 1754 | 3147 | 1031 | 1459 | 3174 | 1389 |
| Flt Permitted | 0.08 | 1.00 | 1.00 | 0.27 | 1.00 | 1.00 | 0.24 | 1.00 | 1.00 | 0.19 | 1.00 | 1.00 |
| Satd. Flow (perm) | 104 | 3093 | 1536 | 411 | 3230 | 1027 | 451 | 3147 | 1031 | 294 | 3174 | 1389 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 340 | 964 | 247 | 103 | 1098 | 82 | 361 | 613 | 93 | 108 | 454 | 304 |
| RTOR Reduction (vph) | 0 | 0 | 123 | 0 | 0 | 51 | 0 | 0 | 73 | 0 | 0 | 245 |
| Lane Group Flow (vph) | 340 | 964 | 124 | 103 | 1098 | 31 | 361 | 613 | 20 | 108 | 454 | 59 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 53% | 18% | 4% | 27% | 13% | 59% | 4% | 16% | 55% | 25% | 15% | 15% |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | 71.7 | 58.3 | 58.3 | 52.6 | 43.7 | 43.7 | 34.1 | 25.6 | 25.6 | 28.1 | 22.6 | 22.6 |
| Effective Green, g (s) | 71.7 | 58.3 | 58.3 | 52.6 | 43.7 | 43.7 | 34.1 | 25.6 | 25.6 | 28.1 | 22.6 | 22.6 |
| Actuated g/C Ratio | 0.62 | 0.50 | 0.50 | 0.45 | 0.38 | 0.38 | 0.29 | 0.22 | 0.22 | 0.24 | 0.19 | 0.19 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| 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 | 3.0 |
| Lane Grp Cap (vph) | 284 | 1550 | 769 | 264 | 1213 | 385 | 227 | 692 | 226 | 126 | 616 | 269 |
| v/s Ratio Prot | c0.24 | 0.31 | | 0.03 | 0.34 | | c0.12 | 0.19 | | 0.04 | 0.14 | |
| v/s Ratio Perm | c0.49 | | 0.08 | 0.15 | | 0.03 | c0.35 | | 0.02 | 0.17 | | 0.04 |
| v/c Ratio | 1.20 | 0.62 | 0.16 | 0.39 | 0.91 | 0.08 | 1.59 | 0.89 | 0.09 | 0.86 | 0.74 | 0.22 |
| Uniform Delay, d1 | 36.8 | 21.0 | 15.7 | 18.9 | 34.3 | 23.4 | 38.5 | 43.9 | 36.1 | 39.6 | 44.1 | 39.4 |
| Progression 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 |
| Incremental Delay, d2 | 117.7 | 0.8 | 0.1 | 1.0 | 9.7 | 0.1 | 285.5 | 15.5 | 0.8 | 40.1 | 7.7 | 1.9 |
| Delay (s) | 154.5 | 21.8 | 15.8 | 19.8 | 44.0 | 23.5 | 324.0 | 59.4 | 36.9 | 79.7 | 51.7 | 41.3 |
| Level of Service | F | C | B | B | D | C | F | E | D | E | D | D |
| Approach Delay (s) | | 49.9 | | | 40.8 | | | 147.0 | | | 51.6 | |
| Approach LOS | | D | | | D | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 69.5 | HCM 2000 Level of Service | E |
| HCM 2000 Volume to Capacity ratio | 1.40 | | |
| Actuated Cycle Length (s) | 116.3 | Sum of lost time (s) | 18.0 |
| Intersection Capacity Utilization | 97.1% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

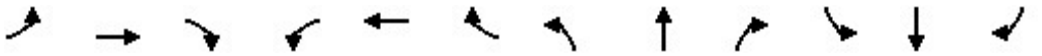
c Critical Lane Group

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 141 | 2391 | 323 | 156 | 2276 | 83 | 464 | 135 | 99 | 52 | 109 |
| v/c Ratio | 0.84 | 1.29 | 0.38 | 0.92 | 1.16 | 0.12 | 0.89 | 0.18 | 0.15 | 0.10 | 0.08 |
| Control Delay | 58.9 | 152.5 | 3.0 | 73.4 | 96.5 | 3.2 | 36.5 | 9.5 | 6.8 | 9.2 | 8.6 |
| 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 | 58.9 | 152.5 | 3.0 | 73.4 | 96.5 | 3.2 | 36.5 | 9.5 | 6.8 | 9.2 | 8.6 |
| Queue Length 50th (m) | 9.9 | ~97.7 | 0.0 | 11.5 | ~86.5 | 0.0 | 33.6 | 6.8 | 3.1 | 2.6 | 2.7 |
| Queue Length 95th (m) | #36.4 | #125.0 | 11.0 | #40.3 | #113.5 | 5.6 | #80.4 | 15.0 | 9.8 | 7.5 | 6.2 |
| Internal Link Dist (m) | | 120.0 | | | 1370.7 | | | 212.7 | | | 532.9 |
| Turn Bay Length (m) | | | | | | | | | | | |
| Base Capacity (vph) | 168 | 1856 | 840 | 170 | 1960 | 703 | 524 | 760 | 674 | 515 | 1390 |
| 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 | 0.84 | 1.29 | 0.38 | 0.92 | 1.16 | 0.12 | 0.89 | 0.18 | 0.15 | 0.10 | 0.08 |

Intersection Summary

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

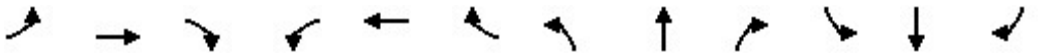
# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 135 | 2295 | 310 | 150 | 2185 | 80 | 445 | 130 | 95 | 50 | 80 | 25 |
| Future Volume (vph) | 135 | 2295 | 310 | 150 | 2185 | 80 | 445 | 130 | 95 | 50 | 80 | 25 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| 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) | 1807 | 4641 | 1617 | 1825 | 4902 | 1633 | 1825 | 1902 | 1633 | 1825 | 3478 | |
| Flt Permitted | 0.22 | 1.00 | 1.00 | 0.22 | 1.00 | 1.00 | 0.68 | 1.00 | 1.00 | 0.67 | 1.00 | |
| Satd. Flow (perm) | 423 | 4641 | 1617 | 427 | 4902 | 1633 | 1312 | 1902 | 1633 | 1288 | 3478 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 141 | 2391 | 323 | 156 | 2276 | 83 | 464 | 135 | 99 | 52 | 83 | 26 |
| RTOR Reduction (vph) | 0 | 0 | 194 | 0 | 0 | 50 | 0 | 0 | 22 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 141 | 2391 | 129 | 156 | 2276 | 33 | 464 | 135 | 77 | 52 | 109 | 0 |
| Heavy Vehicles (%) | 1% | 13% | 1% | 0% | 7% | 0% | 0% | 1% | 0% | 0% | 0% | 5% |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | 2 | 6 | | |
| Actuated Green, G (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | |
| Effective Green, g (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | |
| Actuated g/C Ratio | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| Lane Grp Cap (vph) | 169 | 1856 | 646 | 170 | 1960 | 653 | 524 | 760 | 653 | 515 | 1391 | |
| v/s Ratio Prot | | c0.52 | | | 0.46 | | | 0.07 | | | 0.03 | |
| v/s Ratio Perm | 0.33 | | 0.08 | 0.37 | | 0.02 | c0.35 | | 0.05 | 0.04 | | |
| v/c Ratio | 0.83 | 1.29 | 0.20 | 0.92 | 1.16 | 0.05 | 0.89 | 0.18 | 0.12 | 0.10 | 0.08 | |
| Uniform Delay, d1 | 12.2 | 13.5 | 8.8 | 12.8 | 13.5 | 8.3 | 12.5 | 8.7 | 8.5 | 8.4 | 8.4 | |
| 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 | 36.1 | 133.9 | 0.7 | 50.1 | 78.7 | 0.1 | 19.3 | 0.5 | 0.4 | 0.4 | 0.1 | |
| Delay (s) | 48.3 | 147.4 | 9.5 | 62.9 | 92.2 | 8.4 | 31.9 | 9.2 | 8.9 | 8.8 | 8.5 | |
| Level of Service | D | F | A | E | F | A | C | A | A | A | A | |
| Approach Delay (s) | | 126.9 | | | 87.6 | | | 24.2 | | | 8.6 | |
| Approach LOS | | F | | | F | | | C | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 96.5 | HCM 2000 Level of Service | F |
| HCM 2000 Volume to Capacity ratio | 1.09 | | |
| Actuated Cycle Length (s) | 45.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 96.5% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 65 | 0 | 80 | 110 | 0 | 45 | 140 | 350 | 50 | 10 | 200 | 95 |
| Future Volume (Veh/h) | 65 | 0 | 80 | 110 | 0 | 45 | 140 | 350 | 50 | 10 | 200 | 95 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 1.00 | 0.92 | 1.00 | 0.92 | 0.92 | 0.92 | 1.00 | 1.00 | 0.92 | 0.92 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 65 | 0 | 80 | 120 | 0 | 49 | 140 | 350 | 54 | 11 | 200 | 95 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 948 | 954 | 248 | 959 | 974 | 377 | 295 | | | 404 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 948 | 954 | 248 | 959 | 974 | 377 | 295 | | | 404 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 68 | 100 | 90 | 38 | 100 | 93 | 89 | | | 99 | | |
| cM capacity (veh/h) | 204 | 228 | 796 | 194 | 222 | 670 | 1278 | | | 1155 | | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total | 65 | 80 | 169 | 140 | 404 | 11 | 295 |
| Volume Left | 65 | 0 | 120 | 140 | 0 | 11 | 0 |
| Volume Right | 0 | 80 | 49 | 0 | 54 | 0 | 95 |
| cSH | 204 | 796 | 244 | 1278 | 1700 | 1155 | 1700 |
| Volume to Capacity | 0.32 | 0.10 | 0.69 | 0.11 | 0.24 | 0.01 | 0.17 |
| Queue Length 95th (m) | 10.4 | 2.7 | 36.4 | 2.9 | 0.0 | 0.2 | 0.0 |
| Control Delay (s) | 30.6 | 10.0 | 47.5 | 8.2 | 0.0 | 8.1 | 0.0 |
| Lane LOS | D | B | E | A | | A | |
| Approach Delay (s) | 19.3 | | 47.5 | 2.1 | | 0.3 | |
| Approach LOS | C | | E | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 10.4 | | | |
| Intersection Capacity Utilization | 50.3% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 20 | 95 | 180 | 515 | 385 | 45 |
| Future Volume (Veh/h) | 20 | 95 | 180 | 515 | 385 | 45 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 22 | 103 | 196 | 560 | 418 | 49 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1394 | 442 | 467 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1394 | 442 | 467 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 83 | 83 | 82 | | | |
| cM capacity (veh/h) | 128 | 615 | 1094 | | | |

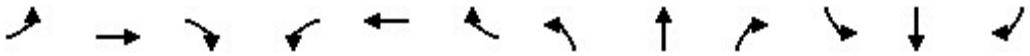
| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 125 | 196 | 560 | 467 |
| Volume Left | 22 | 196 | 0 | 0 |
| Volume Right | 103 | 0 | 0 | 49 |
| cSH | 368 | 1094 | 1700 | 1700 |
| Volume to Capacity | 0.34 | 0.18 | 0.33 | 0.27 |
| Queue Length 95th (m) | 11.8 | 5.2 | 0.0 | 0.0 |
| Control Delay (s) | 19.7 | 9.0 | 0.0 | 0.0 |
| Lane LOS | C | A | | |
| Approach Delay (s) | 19.7 | 2.3 | | 0.0 |
| Approach LOS | C | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.1 | | |
| Intersection Capacity Utilization | 49.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 35 | 55 | 45 | 510 | 345 | 50 |
| Future Volume (Veh/h) | 35 | 55 | 45 | 510 | 345 | 50 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 38 | 60 | 49 | 554 | 375 | 54 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1054 | 402 | 429 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1054 | 402 | 429 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 84 | 91 | 96 | | | |
| cM capacity (veh/h) | 239 | 648 | 1130 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 98 | 49 | 554 | 429 |
| Volume Left | 38 | 49 | 0 | 0 |
| Volume Right | 60 | 0 | 0 | 54 |
| cSH | 390 | 1130 | 1700 | 1700 |
| Volume to Capacity | 0.25 | 0.04 | 0.33 | 0.25 |
| Queue Length 95th (m) | 7.8 | 1.1 | 0.0 | 0.0 |
| Control Delay (s) | 17.3 | 8.3 | 0.0 | 0.0 |
| Lane LOS | C | A | | |
| Approach Delay (s) | 17.3 | 0.7 | | 0.0 |
| Approach LOS | C | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.9 | | |
| Intersection Capacity Utilization | 39.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 5 | 265 | 40 | 40 | 120 | 0 | 35 | 135 | 30 | 5 | 240 | 5 |
| Future Volume (vph) | 5 | 265 | 40 | 40 | 120 | 0 | 35 | 135 | 30 | 5 | 240 | 5 |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 6 | 305 | 46 | 46 | 138 | 0 | 40 | 155 | 34 | 6 | 276 | 6 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 357 | 184 | 229 | 288 |
| Volume Left (vph) | 6 | 46 | 40 | 6 |
| Volume Right (vph) | 46 | 0 | 34 | 6 |
| Hadj (s) | -0.04 | 0.13 | 0.03 | 0.03 |
| Departure Headway (s) | 5.9 | 6.4 | 6.3 | 6.1 |
| Degree Utilization, x | 0.59 | 0.33 | 0.40 | 0.49 |
| Capacity (veh/h) | 572 | 489 | 517 | 541 |
| Control Delay (s) | 16.9 | 12.6 | 13.3 | 14.9 |
| Approach Delay (s) | 16.9 | 12.6 | 13.3 | 14.9 |
| Approach LOS | C | B | B | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 14.8 | | | |
| Level of Service | B | | | |
| Intersection Capacity Utilization | 62.6% | ICU Level of Service | B | |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 200 | 320 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 200 | 320 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 213 | 340 | 0 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 553 | 340 | 340 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 553 | 340 | 340 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 498 | 707 | 1230 | | | |

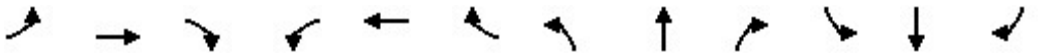
| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 0 | 213 | 340 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1700 | 1230 | 1700 |
| Volume to Capacity | 0.00 | 0.00 | 0.20 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | | 0.0 | |
| Intersection Capacity Utilization | | 20.2% | ICU Level of Service |
| Analysis Period (min) | | 15 | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 205 | 1820 | 190 | 185 | 1315 | 270 | 190 | 135 | 110 | 365 | 275 |
| v/c Ratio | 0.90 | 0.97 | 0.27 | 0.91 | 0.76 | 0.99 | 0.28 | 0.21 | 0.26 | 0.51 | 0.44 |
| Control Delay | 57.9 | 51.1 | 6.8 | 70.2 | 33.4 | 90.8 | 27.2 | 4.9 | 27.5 | 31.7 | 13.8 |
| 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 | 57.9 | 51.1 | 6.8 | 70.2 | 33.4 | 90.8 | 27.2 | 4.9 | 27.5 | 31.7 | 13.8 |
| Queue Length 50th (m) | 25.6 | 160.6 | 5.1 | 29.5 | 99.8 | 65.0 | 32.1 | 0.0 | 18.4 | 68.2 | 19.9 |
| Queue Length 95th (m) | #72.8 | #198.9 | 20.4 | #76.6 | 119.1 | #122.1 | 50.7 | 13.0 | 33.2 | 97.6 | 44.2 |
| Internal Link Dist (m) | | 1370.7 | | | 1335.9 | | 280.7 | | | 753.6 | |
| Turn Bay Length (m) | | | | | | | | | 30.0 | | 56.0 |
| Base Capacity (vph) | 229 | 1870 | 715 | 204 | 1727 | 278 | 699 | 638 | 440 | 734 | 632 |
| 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 | 0.90 | 0.97 | 0.27 | 0.91 | 0.76 | 0.97 | 0.27 | 0.21 | 0.25 | 0.50 | 0.44 |

Intersection Summary

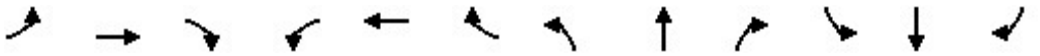
# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 205 | 1820 | 190 | 185 | 1235 | 80 | 270 | 190 | 135 | 110 | 365 | 275 |
| Future Volume (vph) | 205 | 1820 | 190 | 185 | 1235 | 80 | 270 | 190 | 135 | 110 | 365 | 275 |
| 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 | 3.5 | 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 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1879 | 4683 | 1555 | 1756 | 4157 | | 1733 | 1830 | 1452 | 1785 | 1921 | 1401 |
| Flt Permitted | 0.13 | 1.00 | 1.00 | 0.08 | 1.00 | | 0.40 | 1.00 | 1.00 | 0.61 | 1.00 | 1.00 |
| Satd. Flow (perm) | 242 | 4683 | 1555 | 141 | 4157 | | 728 | 1830 | 1452 | 1152 | 1921 | 1401 |
| 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) | 205 | 1820 | 190 | 185 | 1235 | 80 | 270 | 190 | 135 | 110 | 365 | 275 |
| RTOR Reduction (vph) | 0 | 0 | 94 | 0 | 6 | 0 | 0 | 0 | 84 | 0 | 0 | 98 |
| Lane Group Flow (vph) | 205 | 1820 | 96 | 185 | 1309 | 0 | 270 | 190 | 51 | 110 | 365 | 178 |
| Heavy Vehicles (%) | 0% | 12% | 5% | 7% | 26% | 10% | 3% | 5% | 10% | 0% | 0% | 14% |
| 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) | 55.8 | 47.9 | 47.9 | 59.4 | 49.7 | | 45.0 | 45.0 | 45.0 | 45.0 | 45.0 | 45.0 |
| Effective Green, g (s) | 55.8 | 47.9 | 47.9 | 59.4 | 49.7 | | 45.0 | 45.0 | 45.0 | 45.0 | 45.0 | 45.0 |
| Actuated g/C Ratio | 0.46 | 0.40 | 0.40 | 0.49 | 0.41 | | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 |
| 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) | 220 | 1869 | 620 | 200 | 1721 | | 273 | 686 | 544 | 432 | 720 | 525 |
| v/s Ratio Prot | 0.06 | c0.39 | | c0.07 | 0.31 | | | 0.10 | | | 0.19 | |
| v/s Ratio Perm | 0.37 | | 0.06 | 0.38 | | | c0.37 | | 0.03 | 0.10 | | 0.13 |
| v/c Ratio | 0.93 | 0.97 | 0.16 | 0.93 | 0.76 | | 0.99 | 0.28 | 0.09 | 0.25 | 0.51 | 0.34 |
| Uniform Delay, d1 | 21.8 | 35.4 | 23.1 | 32.1 | 30.1 | | 37.3 | 26.2 | 24.3 | 25.9 | 28.9 | 26.8 |
| 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 | 41.9 | 15.5 | 0.5 | 42.7 | 3.2 | | 50.9 | 0.2 | 0.1 | 0.3 | 0.6 | 0.4 |
| Delay (s) | 63.8 | 50.9 | 23.6 | 74.8 | 33.3 | | 88.1 | 26.4 | 24.4 | 26.2 | 29.5 | 27.2 |
| Level of Service | E | D | C | E | C | | F | C | C | C | C | C |
| Approach Delay (s) | | 49.8 | | | 38.4 | | | 53.9 | | | 28.2 | |
| Approach LOS | | D | | | D | | | D | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 43.7 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.98 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 17.4 |
| Intersection Capacity Utilization | 100.8% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

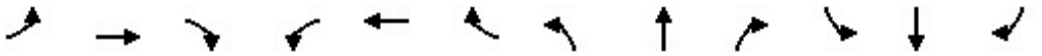


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 273 | 975 | 399 | 71 | 818 | 56 | 217 | 374 | 76 | 76 | 657 | 202 |
| v/c Ratio | 1.58 | 0.75 | 0.58 | 0.56 | 0.67 | 0.12 | 0.87 | 0.31 | 0.16 | 0.26 | 0.53 | 0.43 |
| Control Delay | 307.1 | 16.5 | 11.3 | 34.4 | 14.3 | 3.9 | 51.1 | 10.1 | 6.4 | 12.1 | 12.2 | 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 | 0.0 |
| Total Delay | 307.1 | 16.5 | 11.3 | 34.4 | 14.3 | 3.9 | 51.1 | 10.1 | 6.4 | 12.1 | 12.2 | 9.9 |
| Queue Length 50th (m) | ~34.0 | 34.3 | 16.0 | 4.3 | 27.5 | 0.0 | 15.6 | 10.4 | 1.9 | 4.0 | 20.4 | 7.1 |
| Queue Length 95th (m) | #57.8 | 52.7 | 37.0 | #20.6 | 43.1 | 4.8 | #48.5 | 18.1 | 7.9 | 11.6 | 32.6 | 20.0 |
| Internal Link Dist (m) | | 1335.9 | | | 354.8 | | | 755.9 | | | 1515.6 | |
| Turn Bay Length (m) | 200.0 | | | 80.0 | | 80.0 | 140.0 | | 80.0 | 120.0 | | 115.0 |
| Base Capacity (vph) | 173 | 1292 | 686 | 126 | 1226 | 477 | 250 | 1216 | 467 | 289 | 1248 | 473 |
| 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 | 1.58 | 0.75 | 0.58 | 0.56 | 0.67 | 0.12 | 0.87 | 0.31 | 0.16 | 0.26 | 0.53 | 0.43 |

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.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 270 | 965 | 395 | 70 | 810 | 55 | 215 | 370 | 75 | 75 | 650 | 200 |
| Future Volume (vph) | 270 | 965 | 395 | 70 | 810 | 55 | 215 | 370 | 75 | 75 | 650 | 200 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| 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 | 0.98 |
| 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 | 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 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1545 | 3230 | 1535 | 1350 | 3067 | 1109 | 1657 | 3042 | 1112 | 1298 | 3120 | 1079 |
| Flt Permitted | 0.27 | 1.00 | 1.00 | 0.22 | 1.00 | 1.00 | 0.36 | 1.00 | 1.00 | 0.53 | 1.00 | 1.00 |
| Satd. Flow (perm) | 435 | 3230 | 1535 | 316 | 3067 | 1109 | 626 | 3042 | 1112 | 723 | 3120 | 1079 |
| Peak-hour factor, PHF | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 273 | 975 | 399 | 71 | 818 | 56 | 217 | 374 | 76 | 76 | 657 | 202 |
| RTOR Reduction (vph) | 0 | 0 | 72 | 0 | 0 | 34 | 0 | 0 | 23 | 0 | 0 | 41 |
| Lane Group Flow (vph) | 273 | 975 | 327 | 71 | 818 | 22 | 217 | 374 | 53 | 76 | 657 | 161 |
| Confl. Peds. (#/hr) | 5 | | 10 | 10 | | 5 | 5 | | 10 | 10 | | 5 |
| Confl. Bikes (#/hr) | | | 5 | | | | | | | | | |
| Heavy Vehicles (%) | 18% | 13% | 4% | 35% | 19% | 45% | 10% | 20% | 44% | 40% | 17% | 49% |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | Perm | NA | Perm | Perm | NA | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 |
| Effective Green, g (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 |
| Actuated g/C Ratio | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Grp Cap (vph) | 174 | 1292 | 614 | 126 | 1226 | 443 | 250 | 1216 | 444 | 289 | 1248 | 431 |
| v/s Ratio Prot | | 0.30 | | | 0.27 | | | 0.12 | | | 0.21 | |
| v/s Ratio Perm | c0.63 | | 0.21 | 0.22 | | 0.02 | c0.35 | | 0.05 | 0.11 | | 0.15 |
| v/c Ratio | 1.57 | 0.75 | 0.53 | 0.56 | 0.67 | 0.05 | 0.87 | 0.31 | 0.12 | 0.26 | 0.53 | 0.37 |
| Uniform Delay, d1 | 13.5 | 11.6 | 10.3 | 10.5 | 11.0 | 8.3 | 12.4 | 9.2 | 8.5 | 9.1 | 10.3 | 9.5 |
| Progression 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 |
| Incremental Delay, d2 | 281.9 | 4.1 | 3.3 | 17.0 | 2.9 | 0.2 | 31.1 | 0.7 | 0.6 | 2.2 | 1.6 | 2.5 |
| Delay (s) | 295.4 | 15.7 | 13.6 | 27.4 | 13.9 | 8.5 | 43.5 | 9.9 | 9.1 | 11.3 | 11.9 | 12.0 |
| Level of Service | F | B | B | C | B | A | D | A | A | B | B | B |
| Approach Delay (s) | | 61.6 | | | 14.6 | | | 20.7 | | | 11.8 | |
| Approach LOS | | E | | | B | | | C | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 33.4 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 1.22 | | |
| Actuated Cycle Length (s) | 45.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 82.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

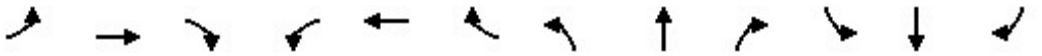
c Critical Lane Group

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 132 | 2137 | 321 | 111 | 1621 | 26 | 532 | 74 | 58 | 42 | 110 |
| v/c Ratio | 0.82 | 1.14 | 0.40 | 0.74 | 0.96 | 0.04 | 1.11 | 0.11 | 0.10 | 0.09 | 0.08 |
| Control Delay | 58.2 | 88.1 | 3.2 | 48.7 | 29.7 | 3.3 | 94.1 | 9.0 | 5.4 | 9.1 | 8.4 |
| 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 | 58.2 | 88.1 | 3.2 | 48.7 | 29.7 | 3.3 | 94.1 | 9.0 | 5.4 | 9.1 | 8.4 |
| Queue Length 50th (m) | 9.2 | ~80.2 | 0.0 | 7.4 | 44.9 | 0.0 | ~53.2 | 3.6 | 1.1 | 2.0 | 2.6 |
| Queue Length 95th (m) | #34.8 | #106.8 | 11.2 | #30.0 | #76.5 | 2.7 | #99.2 | 9.4 | 5.9 | 6.4 | 6.2 |
| Internal Link Dist (m) | | 120.0 | | | 1370.7 | | | 212.7 | | | 532.9 |
| Turn Bay Length (m) | | | | | | | | | | | |
| Base Capacity (vph) | 160 | 1873 | 803 | 149 | 1692 | 674 | 480 | 692 | 599 | 482 | 1342 |
| 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 | 0.82 | 1.14 | 0.40 | 0.74 | 0.96 | 0.04 | 1.11 | 0.11 | 0.10 | 0.09 | 0.08 |

Intersection Summary

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

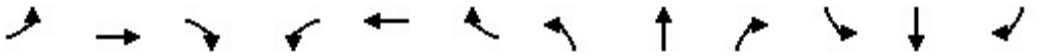
# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 125 | 2030 | 305 | 105 | 1540 | 25 | 505 | 70 | 55 | 40 | 65 | 40 |
| Future Volume (vph) | 125 | 2030 | 305 | 105 | 1540 | 25 | 505 | 70 | 55 | 40 | 65 | 40 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.94 | |
| 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) | 1722 | 4683 | 1526 | 1601 | 4230 | 1633 | 1674 | 1731 | 1445 | 1615 | 3349 | |
| Flt Permitted | 0.22 | 1.00 | 1.00 | 0.22 | 1.00 | 1.00 | 0.68 | 1.00 | 1.00 | 0.71 | 1.00 | |
| Satd. Flow (perm) | 403 | 4683 | 1526 | 374 | 4230 | 1633 | 1203 | 1731 | 1445 | 1205 | 3349 | |
| Peak-hour factor, PHF | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 132 | 2137 | 321 | 111 | 1621 | 26 | 532 | 74 | 58 | 42 | 68 | 42 |
| RTOR Reduction (vph) | 0 | 0 | 193 | 0 | 0 | 16 | 0 | 0 | 22 | 0 | 2 | 0 |
| Lane Group Flow (vph) | 132 | 2137 | 128 | 111 | 1621 | 10 | 532 | 74 | 36 | 42 | 108 | 0 |
| Heavy Vehicles (%) | 6% | 12% | 7% | 14% | 24% | 0% | 9% | 11% | 13% | 13% | 2% | 4% |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | 2 | 6 | | |
| Actuated Green, G (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | |
| Effective Green, g (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | |
| Actuated g/C Ratio | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| Lane Grp Cap (vph) | 161 | 1873 | 610 | 149 | 1692 | 653 | 481 | 692 | 578 | 482 | 1339 | |
| v/s Ratio Prot | | c0.46 | | | 0.38 | | | 0.04 | | | 0.03 | |
| v/s Ratio Perm | 0.33 | | 0.08 | 0.30 | | 0.01 | c0.44 | | 0.03 | 0.03 | | |
| v/c Ratio | 0.82 | 1.14 | 0.21 | 0.74 | 0.96 | 0.02 | 1.11 | 0.11 | 0.06 | 0.09 | 0.08 | |
| Uniform Delay, d1 | 12.1 | 13.5 | 8.8 | 11.5 | 13.1 | 8.2 | 13.5 | 8.5 | 8.3 | 8.4 | 8.4 | |
| 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 | 35.4 | 70.4 | 0.8 | 28.3 | 14.0 | 0.0 | 73.2 | 0.3 | 0.2 | 0.4 | 0.1 | |
| Delay (s) | 47.5 | 83.9 | 9.6 | 39.8 | 27.1 | 8.2 | 86.7 | 8.8 | 8.5 | 8.7 | 8.5 | |
| Level of Service | D | F | A | D | C | A | F | A | A | A | A | |
| Approach Delay (s) | | 72.9 | | | 27.6 | | | 71.2 | | | 8.6 | |
| Approach LOS | | E | | | C | | | E | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 55.4 | HCM 2000 Level of Service | E |
| HCM 2000 Volume to Capacity ratio | 1.12 | | |
| Actuated Cycle Length (s) | 45.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 90.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 60 | 0 | 170 | 65 | 0 | 10 | 75 | 130 | 110 | 30 | 265 | 25 |
| Future Volume (Veh/h) | 60 | 0 | 170 | 65 | 0 | 10 | 75 | 130 | 110 | 30 | 265 | 25 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 1.00 | 0.92 | 1.00 | 0.92 | 0.92 | 0.92 | 1.00 | 1.00 | 0.92 | 0.92 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 60 | 0 | 170 | 71 | 0 | 11 | 75 | 130 | 120 | 33 | 265 | 25 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 634 | 744 | 278 | 841 | 696 | 190 | 290 | | | 250 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 634 | 744 | 278 | 841 | 696 | 190 | 290 | | | 250 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 84 | 100 | 78 | 66 | 100 | 99 | 94 | | | 97 | | |
| cM capacity (veh/h) | 365 | 315 | 766 | 207 | 335 | 852 | 1283 | | | 1316 | | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total | 60 | 170 | 82 | 75 | 250 | 33 | 290 |
| Volume Left | 60 | 0 | 71 | 75 | 0 | 33 | 0 |
| Volume Right | 0 | 170 | 11 | 0 | 120 | 0 | 25 |
| cSH | 365 | 766 | 231 | 1283 | 1700 | 1316 | 1700 |
| Volume to Capacity | 0.16 | 0.22 | 0.36 | 0.06 | 0.15 | 0.03 | 0.17 |
| Queue Length 95th (m) | 4.7 | 6.8 | 12.2 | 1.5 | 0.0 | 0.6 | 0.0 |
| Control Delay (s) | 16.8 | 11.0 | 28.9 | 8.0 | 0.0 | 7.8 | 0.0 |
| Lane LOS | C | B | D | A | | A | |
| Approach Delay (s) | 12.5 | | 28.9 | 1.8 | | 0.8 | |
| Approach LOS | B | | D | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 6.4 | | | |
| Intersection Capacity Utilization | 47.7% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 20 | 165 | 95 | 345 | 585 | 10 |
| Future Volume (Veh/h) | 20 | 165 | 95 | 345 | 585 | 10 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 22 | 179 | 103 | 375 | 636 | 11 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1222 | 642 | 647 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1222 | 642 | 647 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 88 | 62 | 89 | | | |
| cM capacity (veh/h) | 176 | 474 | 939 | | | |

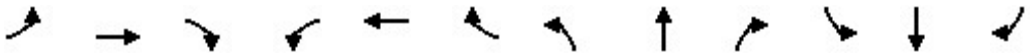
| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 201 | 103 | 375 | 647 |
| Volume Left | 22 | 103 | 0 | 0 |
| Volume Right | 179 | 0 | 0 | 11 |
| cSH | 400 | 939 | 1700 | 1700 |
| Volume to Capacity | 0.50 | 0.11 | 0.22 | 0.38 |
| Queue Length 95th (m) | 21.8 | 2.9 | 0.0 | 0.0 |
| Control Delay (s) | 22.7 | 9.3 | 0.0 | 0.0 |
| Lane LOS | C | A | | |
| Approach Delay (s) | 22.7 | 2.0 | | 0.0 |
| Approach LOS | C | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 4.2 | | |
| Intersection Capacity Utilization | 58.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 30 | 110 | 45 | 285 | 480 | 25 |
| Future Volume (Veh/h) | 30 | 110 | 45 | 285 | 480 | 25 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 33 | 120 | 49 | 310 | 522 | 27 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 944 | 536 | 549 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 944 | 536 | 549 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 88 | 78 | 95 | | | |
| cM capacity (veh/h) | 277 | 545 | 1021 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 153 | 49 | 310 | 549 |
| Volume Left | 33 | 49 | 0 | 0 |
| Volume Right | 120 | 0 | 0 | 27 |
| cSH | 451 | 1021 | 1700 | 1700 |
| Volume to Capacity | 0.34 | 0.05 | 0.18 | 0.32 |
| Queue Length 95th (m) | 11.8 | 1.2 | 0.0 | 0.0 |
| Control Delay (s) | 17.0 | 8.7 | 0.0 | 0.0 |
| Lane LOS | C | A | | |
| Approach Delay (s) | 17.0 | 1.2 | | 0.0 |
| Approach LOS | C | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.9 | | |
| Intersection Capacity Utilization | 48.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 10 | 155 | 40 | 25 | 370 | 5 | 35 | 300 | 70 | 5 | 120 | 5 |
| Future Volume (vph) | 10 | 155 | 40 | 25 | 370 | 5 | 35 | 300 | 70 | 5 | 120 | 5 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 11 | 168 | 43 | 27 | 402 | 5 | 38 | 326 | 76 | 5 | 130 | 5 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 222 | 434 | 440 | 140 |
| Volume Left (vph) | 11 | 27 | 38 | 5 |
| Volume Right (vph) | 43 | 5 | 76 | 5 |
| Hadj (s) | -0.05 | 0.03 | -0.06 | 0.13 |
| Departure Headway (s) | 7.0 | 6.5 | 6.4 | 7.5 |
| Degree Utilization, x | 0.43 | 0.78 | 0.79 | 0.29 |
| Capacity (veh/h) | 450 | 524 | 529 | 407 |
| Control Delay (s) | 15.1 | 29.3 | 29.3 | 13.5 |
| Approach Delay (s) | 15.1 | 29.3 | 29.3 | 13.5 |
| Approach LOS | C | D | D | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | | 25.0 | | |
| Level of Service | | C | | |
| Intersection Capacity Utilization | | 67.3% | ICU Level of Service | C |
| Analysis Period (min) | | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 410 | 185 | 0 |
| Future Volume (Veh/h) | 0 | 0 | 0 | 410 | 185 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 0 | 0 | 0 | 427 | 193 | 0 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 620 | 193 | 193 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 620 | 193 | 193 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 100 | | | |
| cM capacity (veh/h) | 455 | 854 | 1392 | | | |

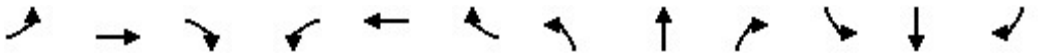
| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 0 | 427 | 193 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1700 | 1392 | 1700 |
| Volume to Capacity | 0.00 | 0.00 | 0.11 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 24.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 320 | 1660 | 220 | 140 | 2005 | 310 | 410 | 165 | 80 | 220 | 260 |
| v/c Ratio | 0.98 | 0.75 | 0.24 | 0.68 | 0.99 | 0.95 | 0.72 | 0.29 | 0.63 | 0.91 | 0.66 |
| Control Delay | 85.5 | 29.3 | 3.2 | 36.1 | 55.2 | 76.8 | 50.3 | 9.1 | 77.7 | 95.5 | 20.3 |
| 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 | 85.5 | 29.3 | 3.2 | 36.1 | 55.2 | 76.8 | 50.3 | 9.1 | 77.7 | 95.5 | 20.3 |
| Queue Length 50th (m) | 73.1 | 133.5 | 1.0 | 15.1 | 200.8 | 71.1 | 102.4 | 4.4 | 21.5 | 61.5 | 11.2 |
| Queue Length 95th (m) | #137.2 | 153.4 | 14.3 | #39.5 | #241.2 | #120.4 | 141.5 | 21.9 | #43.5 | #108.7 | 41.1 |
| Internal Link Dist (m) | | 1370.7 | | | 1335.9 | | 280.7 | | | 753.6 | |
| Turn Bay Length (m) | | | | | | | | | 30.0 | | 56.0 |
| Base Capacity (vph) | 326 | 2216 | 901 | 210 | 2032 | 328 | 576 | 574 | 130 | 248 | 400 |
| 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 | 0.98 | 0.75 | 0.24 | 0.67 | 0.99 | 0.95 | 0.71 | 0.29 | 0.62 | 0.89 | 0.65 |

Intersection Summary

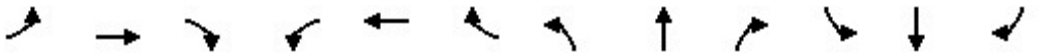
# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 320 | 1660 | 220 | 140 | 1905 | 100 | 310 | 410 | 165 | 80 | 220 | 260 |
| Future Volume (vph) | 320 | 1660 | 220 | 140 | 1905 | 100 | 310 | 410 | 165 | 80 | 220 | 260 |
| 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 | 3.5 | 3.5 | 3.7 | 3.5 |
| Total Lost time (s) | 3.0 | 7.3 | 7.3 | 3.0 | 7.3 | | 3.5 | 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 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1860 | 4371 | 1570 | 1879 | 4743 | | 1716 | 1902 | 1566 | 1785 | 1865 | 1597 |
| Flt Permitted | 0.07 | 1.00 | 1.00 | 0.10 | 1.00 | | 0.25 | 1.00 | 1.00 | 0.52 | 1.00 | 1.00 |
| Satd. Flow (perm) | 123 | 4371 | 1570 | 186 | 4743 | | 444 | 1902 | 1566 | 980 | 1865 | 1597 |
| 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) | 320 | 1660 | 220 | 140 | 1905 | 100 | 310 | 410 | 165 | 80 | 220 | 260 |
| RTOR Reduction (vph) | 0 | 0 | 105 | 0 | 4 | 0 | 0 | 0 | 100 | 0 | 0 | 188 |
| Lane Group Flow (vph) | 320 | 1660 | 115 | 140 | 2001 | 0 | 310 | 410 | 65 | 80 | 220 | 72 |
| Heavy Vehicles (%) | 1% | 20% | 4% | 0% | 10% | 5% | 4% | 1% | 2% | 0% | 3% | 0% |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | Perm | Perm | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 7 | 4 | | | 8 | |
| Permitted Phases | 2 | | 2 | 6 | | | 4 | | 4 | 8 | | 8 |
| Actuated Green, G (s) | 80.1 | 68.5 | 68.5 | 66.3 | 57.7 | | 40.5 | 40.5 | 40.5 | 17.6 | 17.6 | 17.6 |
| Effective Green, g (s) | 80.1 | 68.5 | 68.5 | 66.3 | 57.7 | | 40.5 | 40.5 | 40.5 | 17.6 | 17.6 | 17.6 |
| Actuated g/C Ratio | 0.59 | 0.51 | 0.51 | 0.49 | 0.43 | | 0.30 | 0.30 | 0.30 | 0.13 | 0.13 | 0.13 |
| Clearance Time (s) | 3.0 | 7.3 | 7.3 | 3.0 | 7.3 | | 3.5 | 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) | 322 | 2217 | 796 | 199 | 2027 | | 315 | 570 | 469 | 127 | 243 | 208 |
| v/s Ratio Prot | c0.14 | 0.38 | | 0.04 | 0.42 | | c0.14 | 0.22 | | | 0.12 | |
| v/s Ratio Perm | c0.45 | | 0.07 | 0.30 | | | c0.15 | | 0.04 | 0.08 | | 0.05 |
| v/c Ratio | 0.99 | 0.75 | 0.14 | 0.70 | 0.99 | | 0.98 | 0.72 | 0.14 | 0.63 | 0.91 | 0.35 |
| Uniform Delay, d1 | 45.6 | 26.4 | 17.7 | 20.9 | 38.3 | | 42.1 | 42.2 | 34.5 | 55.6 | 57.9 | 53.5 |
| 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 | 48.2 | 2.4 | 0.4 | 10.7 | 17.2 | | 46.1 | 4.3 | 0.1 | 9.4 | 33.4 | 1.0 |
| Delay (s) | 93.8 | 28.8 | 18.1 | 31.7 | 55.5 | | 88.1 | 46.5 | 34.6 | 65.0 | 91.2 | 54.5 |
| Level of Service | F | C | B | C | E | | F | D | C | E | F | D |
| Approach Delay (s) | | 37.2 | | | 53.9 | | | 58.9 | | | 70.4 | |
| Approach LOS | | D | | | D | | | E | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 49.9 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 1.03 | | |
| Actuated Cycle Length (s) | 135.0 | Sum of lost time (s) | 20.9 |
| Intersection Capacity Utilization | 109.6% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

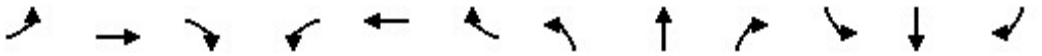


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 340 | 995 | 247 | 103 | 1144 | 82 | 361 | 613 | 93 | 108 | 454 | 304 |
| v/c Ratio | 3.06 | 0.80 | 0.32 | 0.77 | 0.89 | 0.18 | 1.00 | 0.49 | 0.21 | 0.46 | 0.36 | 0.52 |
| Control Delay | 966.5 | 18.9 | 3.2 | 55.4 | 23.8 | 3.9 | 68.2 | 11.7 | 7.5 | 17.6 | 10.5 | 13.0 |
| 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 | 966.5 | 18.9 | 3.2 | 55.4 | 23.8 | 3.9 | 68.2 | 11.7 | 7.5 | 17.6 | 10.5 | 13.0 |
| Queue Length 50th (m) | ~45.1 | 36.1 | 0.3 | 6.9 | 43.6 | 0.0 | 28.1 | 18.7 | 2.8 | 6.2 | 13.0 | 15.5 |
| Queue Length 95th (m) | #85.3 | #66.6 | 10.1 | #29.2 | #79.8 | 5.9 | #72.3 | 29.9 | 9.9 | 18.2 | 21.6 | 33.6 |
| Internal Link Dist (m) | | 1335.9 | | | 354.8 | | | 755.9 | | | 1515.6 | |
| Turn Bay Length (m) | 200.0 | | | 80.0 | | 80.0 | 140.0 | | 80.0 | 120.0 | | 115.0 |
| Base Capacity (vph) | 111 | 1237 | 762 | 134 | 1292 | 460 | 361 | 1258 | 437 | 237 | 1269 | 580 |
| 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 | 3.06 | 0.80 | 0.32 | 0.77 | 0.89 | 0.18 | 1.00 | 0.49 | 0.21 | 0.46 | 0.36 | 0.52 |

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.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 330 | 965 | 240 | 100 | 1110 | 80 | 350 | 595 | 90 | 105 | 440 | 295 |
| Future Volume (vph) | 330 | 965 | 240 | 100 | 1110 | 80 | 350 | 595 | 90 | 105 | 440 | 295 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.98 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 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 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1193 | 3093 | 1546 | 1436 | 3230 | 1027 | 1751 | 3147 | 1037 | 1458 | 3174 | 1398 |
| Flt Permitted | 0.22 | 1.00 | 1.00 | 0.22 | 1.00 | 1.00 | 0.49 | 1.00 | 1.00 | 0.39 | 1.00 | 1.00 |
| Satd. Flow (perm) | 279 | 3093 | 1546 | 336 | 3230 | 1027 | 903 | 3147 | 1037 | 594 | 3174 | 1398 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Adj. Flow (vph) | 340 | 995 | 247 | 103 | 1144 | 82 | 361 | 613 | 93 | 108 | 454 | 304 |
| RTOR Reduction (vph) | 0 | 0 | 144 | 0 | 0 | 49 | 0 | 0 | 22 | 0 | 0 | 22 |
| Lane Group Flow (vph) | 340 | 995 | 103 | 103 | 1144 | 33 | 361 | 613 | 71 | 108 | 454 | 282 |
| Confl. Peds. (#/hr) | | | 5 | 5 | | | 5 | | 5 | 5 | | 5 |
| Heavy Vehicles (%) | 53% | 18% | 4% | 27% | 13% | 59% | 4% | 16% | 55% | 25% | 15% | 15% |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | Perm | NA | Perm | Perm | NA | Perm |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 |
| Effective Green, g (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 |
| Actuated g/C Ratio | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 |
| Lane Grp Cap (vph) | 111 | 1237 | 618 | 134 | 1292 | 410 | 361 | 1258 | 414 | 237 | 1269 | 559 |
| v/s Ratio Prot | | 0.32 | | | 0.35 | | | 0.19 | | | 0.14 | |
| v/s Ratio Perm | c1.22 | | 0.07 | 0.31 | | 0.03 | c0.40 | | 0.07 | 0.18 | | 0.20 |
| v/c Ratio | 3.06 | 0.80 | 0.17 | 0.77 | 0.89 | 0.08 | 1.00 | 0.49 | 0.17 | 0.46 | 0.36 | 0.51 |
| Uniform Delay, d1 | 13.5 | 11.9 | 8.7 | 11.7 | 12.5 | 8.4 | 13.5 | 10.1 | 8.7 | 9.9 | 9.5 | 10.2 |
| Progression 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 |
| Incremental Delay, d2 | 951.9 | 5.6 | 0.6 | 33.7 | 9.1 | 0.4 | 47.4 | 1.4 | 0.9 | 6.2 | 0.8 | 3.2 |
| Delay (s) | 965.4 | 17.6 | 9.3 | 45.4 | 21.7 | 8.7 | 60.9 | 11.4 | 9.6 | 16.1 | 10.2 | 13.4 |
| Level of Service | F | B | A | D | C | A | E | B | A | B | B | B |
| Approach Delay (s) | | 220.0 | | | 22.7 | | | 28.0 | | | 12.1 | |
| Approach LOS | | F | | | C | | | C | | | B | |

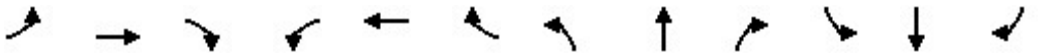
| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 86.4 | HCM 2000 Level of Service | F |
| HCM 2000 Volume to Capacity ratio | 2.02 | | |
| Actuated Cycle Length (s) | 45.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 98.4% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 141 | 2453 | 323 | 156 | 2333 | 78 | 464 | 135 | 99 | 52 | 109 |
| v/c Ratio | 0.84 | 1.32 | 0.38 | 0.92 | 1.19 | 0.11 | 0.89 | 0.18 | 0.15 | 0.10 | 0.08 |
| Control Delay | 58.9 | 167.4 | 3.0 | 73.4 | 109.1 | 3.3 | 36.5 | 9.5 | 6.8 | 9.2 | 8.6 |
| 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 | 58.9 | 167.4 | 3.0 | 73.4 | 109.1 | 3.3 | 36.5 | 9.5 | 6.8 | 9.2 | 8.6 |
| Queue Length 50th (m) | 9.9 | ~101.9 | 0.0 | 11.5 | ~90.4 | 0.0 | 33.6 | 6.8 | 3.1 | 2.6 | 2.7 |
| Queue Length 95th (m) | #36.4 | #129.3 | 11.0 | #40.3 | #117.5 | 5.5 | #80.4 | 15.0 | 9.8 | 7.5 | 6.2 |
| Internal Link Dist (m) | | 120.0 | | | 1370.7 | | | 212.7 | | | 532.9 |
| Turn Bay Length (m) | | | | | | | | | | | |
| Base Capacity (vph) | 168 | 1856 | 840 | 170 | 1960 | 700 | 524 | 760 | 674 | 515 | 1390 |
| 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 | 0.84 | 1.32 | 0.38 | 0.92 | 1.19 | 0.11 | 0.89 | 0.18 | 0.15 | 0.10 | 0.08 |

Intersection Summary

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

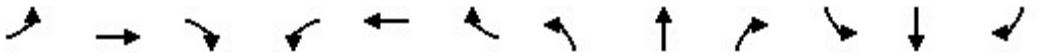
# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 135 | 2355 | 310 | 150 | 2240 | 75 | 445 | 130 | 95 | 50 | 80 | 25 |
| Future Volume (vph) | 135 | 2355 | 310 | 150 | 2240 | 75 | 445 | 130 | 95 | 50 | 80 | 25 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| Lane Util. Factor | 1.00 | 0.91 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | |
| 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) | 1807 | 4641 | 1617 | 1825 | 4902 | 1633 | 1825 | 1902 | 1633 | 1825 | 3478 | |
| Flt Permitted | 0.22 | 1.00 | 1.00 | 0.22 | 1.00 | 1.00 | 0.68 | 1.00 | 1.00 | 0.67 | 1.00 | |
| Satd. Flow (perm) | 423 | 4641 | 1617 | 427 | 4902 | 1633 | 1312 | 1902 | 1633 | 1288 | 3478 | |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Adj. Flow (vph) | 141 | 2453 | 323 | 156 | 2333 | 78 | 464 | 135 | 99 | 52 | 83 | 26 |
| RTOR Reduction (vph) | 0 | 0 | 194 | 0 | 0 | 47 | 0 | 0 | 22 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 141 | 2453 | 129 | 156 | 2333 | 31 | 464 | 135 | 77 | 52 | 109 | 0 |
| Heavy Vehicles (%) | 1% | 13% | 1% | 0% | 7% | 0% | 0% | 1% | 0% | 0% | 0% | 5% |
| Turn Type | Perm | NA | Perm | Perm | NA | Perm | Perm | NA | Perm | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | 2 | 6 | | |
| Actuated Green, G (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | |
| Effective Green, g (s) | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | 18.0 | |
| Actuated g/C Ratio | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | |
| Clearance Time (s) | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | |
| Lane Grp Cap (vph) | 169 | 1856 | 646 | 170 | 1960 | 653 | 524 | 760 | 653 | 515 | 1391 | |
| v/s Ratio Prot | | c0.53 | | | 0.48 | | | 0.07 | | | 0.03 | |
| v/s Ratio Perm | 0.33 | | 0.08 | 0.37 | | 0.02 | c0.35 | | 0.05 | 0.04 | | |
| v/c Ratio | 0.83 | 1.32 | 0.20 | 0.92 | 1.19 | 0.05 | 0.89 | 0.18 | 0.12 | 0.10 | 0.08 | |
| Uniform Delay, d1 | 12.2 | 13.5 | 8.8 | 12.8 | 13.5 | 8.3 | 12.5 | 8.7 | 8.5 | 8.4 | 8.4 | |
| 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 | 36.1 | 148.6 | 0.7 | 50.1 | 91.0 | 0.1 | 19.3 | 0.5 | 0.4 | 0.4 | 0.1 | |
| Delay (s) | 48.3 | 162.1 | 9.5 | 62.9 | 104.5 | 8.4 | 31.9 | 9.2 | 8.9 | 8.8 | 8.5 | |
| Level of Service | D | F | A | E | F | A | C | A | A | A | A | |
| Approach Delay (s) | | 139.7 | | | 99.1 | | | 24.2 | | | 8.6 | |
| Approach LOS | | F | | | F | | | C | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 107.2 | HCM 2000 Level of Service | F |
| HCM 2000 Volume to Capacity ratio | 1.10 | | |
| Actuated Cycle Length (s) | 45.0 | Sum of lost time (s) | 9.0 |
| Intersection Capacity Utilization | 97.6% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 35 | 0 | 115 | 110 | 0 | 45 | 160 | 325 | 50 | 10 | 140 | 35 |
| Future Volume (Veh/h) | 35 | 0 | 115 | 110 | 0 | 45 | 160 | 325 | 50 | 10 | 140 | 35 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 1.00 | 0.92 | 1.00 | 0.92 | 0.92 | 0.92 | 1.00 | 1.00 | 0.92 | 0.92 | 1.00 | 1.00 |
| Hourly flow rate (vph) | 35 | 0 | 115 | 120 | 0 | 49 | 160 | 325 | 54 | 11 | 140 | 35 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 874 | 878 | 158 | 949 | 869 | 352 | 175 | | | 379 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 874 | 878 | 158 | 949 | 869 | 352 | 175 | | | 379 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 85 | 100 | 87 | 37 | 100 | 93 | 89 | | | 99 | | |
| cM capacity (veh/h) | 230 | 252 | 893 | 190 | 255 | 692 | 1414 | | | 1179 | | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total | 35 | 115 | 169 | 160 | 379 | 11 | 175 |
| Volume Left | 35 | 0 | 120 | 160 | 0 | 11 | 0 |
| Volume Right | 0 | 115 | 49 | 0 | 54 | 0 | 35 |
| cSH | 230 | 893 | 240 | 1414 | 1700 | 1179 | 1700 |
| Volume to Capacity | 0.15 | 0.13 | 0.70 | 0.11 | 0.22 | 0.01 | 0.10 |
| Queue Length 95th (m) | 4.2 | 3.5 | 37.3 | 3.1 | 0.0 | 0.2 | 0.0 |
| Control Delay (s) | 23.5 | 9.6 | 49.0 | 7.9 | 0.0 | 8.1 | 0.0 |
| Lane LOS | C | A | E | A | | A | |
| Approach Delay (s) | 12.9 | | 49.0 | 2.3 | | 0.5 | |
| Approach LOS | B | | E | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 11.1 | | | |
| Intersection Capacity Utilization | 49.0% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 10 | 105 | 265 | 560 | 435 | 10 |
| Future Volume (Veh/h) | 10 | 105 | 265 | 560 | 435 | 10 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 11 | 114 | 288 | 609 | 473 | 11 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1664 | 478 | 484 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1664 | 478 | 484 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 86 | 81 | 73 | | | |
| cM capacity (veh/h) | 78 | 587 | 1079 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 125 | 288 | 609 | 484 |
| Volume Left | 11 | 288 | 0 | 0 |
| Volume Right | 114 | 0 | 0 | 11 |
| cSH | 373 | 1079 | 1700 | 1700 |
| Volume to Capacity | 0.33 | 0.27 | 0.36 | 0.28 |
| Queue Length 95th (m) | 11.6 | 8.6 | 0.0 | 0.0 |
| Control Delay (s) | 19.4 | 9.5 | 0.0 | 0.0 |
| Lane LOS | C | A | | |
| Approach Delay (s) | 19.4 | 3.1 | | 0.0 |
| Approach LOS | C | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.4 | | |
| Intersection Capacity Utilization | 55.2% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 20 | 70 | 60 | 525 | 350 | 20 |
| Future Volume (Veh/h) | 20 | 70 | 60 | 525 | 350 | 20 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 22 | 76 | 65 | 571 | 380 | 22 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1092 | 391 | 402 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1092 | 391 | 402 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 90 | 88 | 94 | | | |
| cM capacity (veh/h) | 224 | 658 | 1157 | | | |

| Direction, Lane # | EB 1 | NB 1 | NB 2 | SB 1 |
|---|---|---|---|---|
| Volume Total | 98 | 65 | 571 | 402 |
| Volume Left | 22 | 65 | 0 | 0 |
| Volume Right | 76 | 0 | 0 | 22 |
| cSH | 458 | 1157 | 1700 | 1700 |
| Volume to Capacity | 0.21 | 0.06 | 0.34 | 0.24 |
| Queue Length 95th (m) | 6.4 | 1.4 | 0.0 | 0.0 |
| Control Delay (s) | 15.0 | 8.3 | 0.0 | 0.0 |
| Lane LOS | B | A | | |
| Approach Delay (s) | 15.0 | 0.8 | | 0.0 |
| Approach LOS | B | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.8 | | |
| Intersection Capacity Utilization | 39.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

# APPENDIX E:
# Signal Timing Plans

# REGIONAL MUNICIPALITY OF PEEL

**Traffic Signal Timing Parameters**

| | | | | |
|---|---|---|---|---|
| **Database Date** | **September 19, 2022** | | **Prepared Date** | **September 19, 2022** |
| **Database Rev** | **MaxView** | | **Completed By** | **BF** |
| **Timing Card / Field rev** | **MaxView** | | **Checked By** | **TF** |
| **Location** | **Mayfield Road at Torbram Road** | | | |

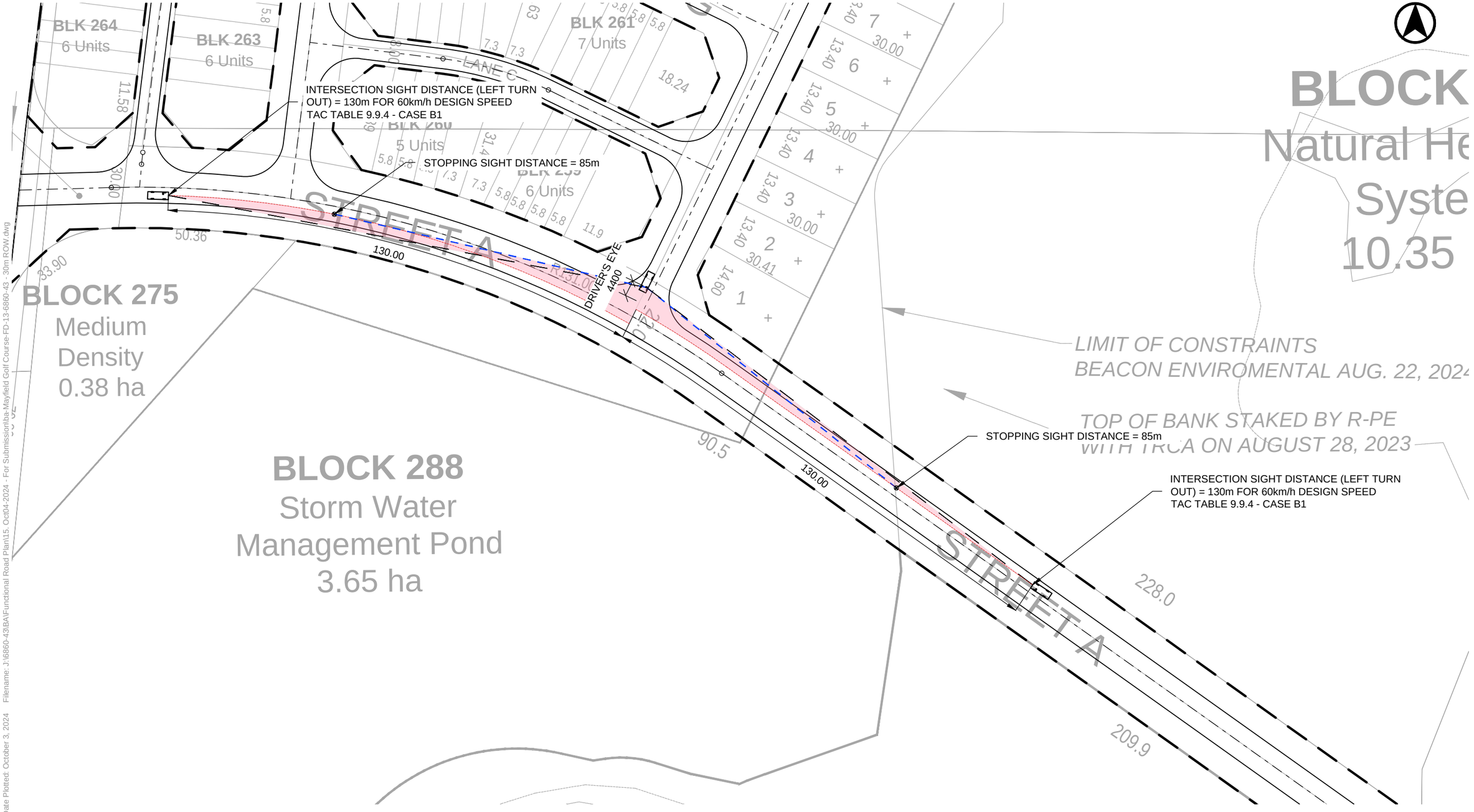
| Phase # | Street Name - Direction | Vehicle Minimum (s) | Pedestrian Minimum (s) | | Amber (s) | All Red (s) | TIME PERIOD (s) | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | WALK | FDWALK | | | AM SPLITS | OFF SPLITS | PM SPLITS |
| **1** | Mayfield Road - WB Prot. Perm. LT | 5.0 | 0.0 | 0.0 | 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 Prot. Perm. 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 |

# APPENDIX F:
# Desktop Sight Distance Assessment




Date Plotted: October 3, 2024 Filename: J:\6860-43\BA\Functional Road Plan\15. Oct04-2024 - For Submission\ba-Mayfield Golf Course-FD-13-6860-43 - 30m ROW.dwg

BA Group

# MAYFIELD GOLF COURSE

SIGHT DISTANCE REVIEW

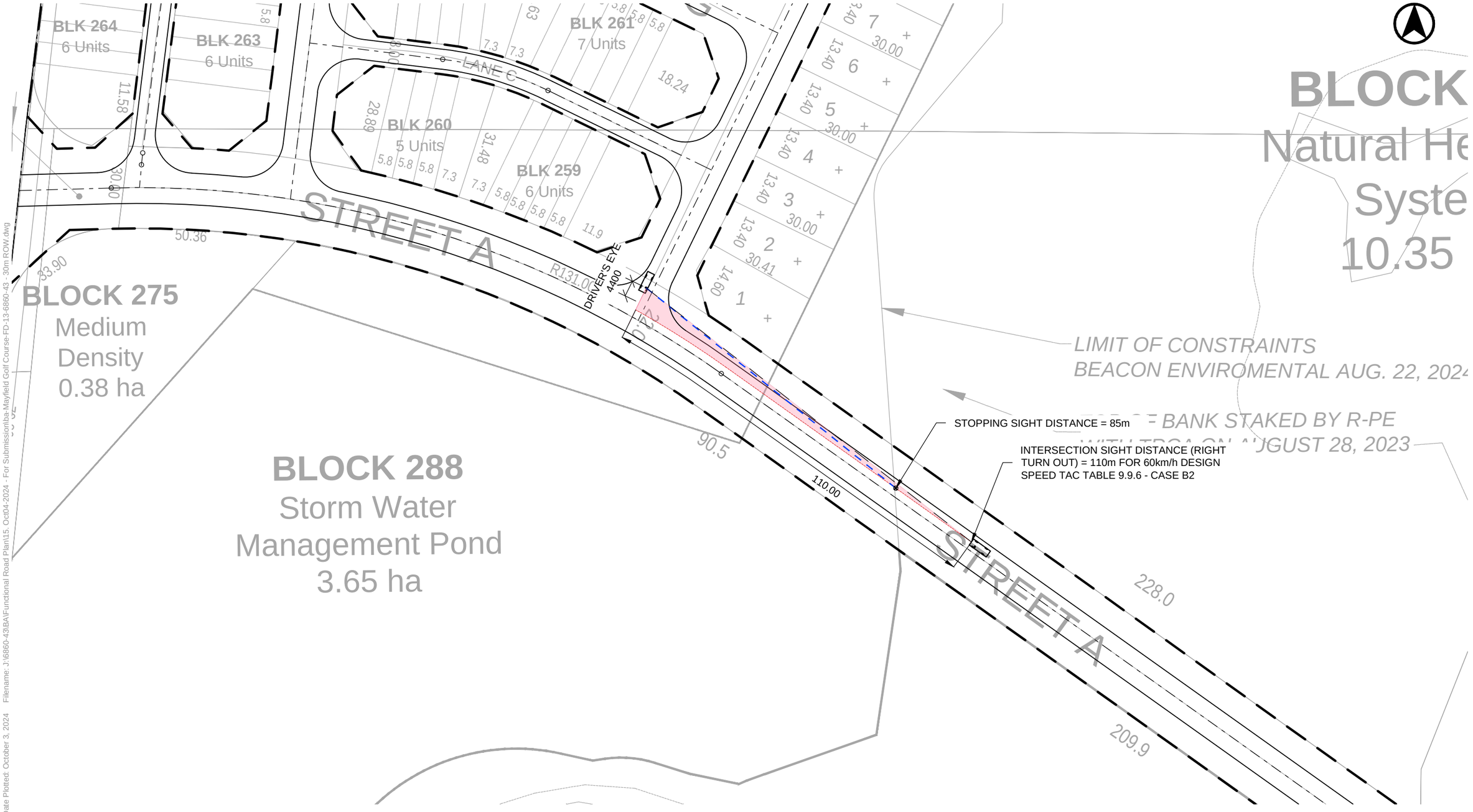
TAC MINIMUM INTERSECTION SIGHT LINE POLICY

LEFT-TURN FROM STOP - STREET 'A' / STREET 'E'

| | |
|---|---|
| Project: | Mayfield Golf Course |
| Project No. | 6860-43 |
| Date: | October 3, 2024 |
| Revised: | -- |

Scale 1:1,000 (0 10 20 30 40 50m)

Drawing No. SD-01A




Date Plotted: October 3, 2024 Filename: J:\6860-43\BA\Functional Road Plan\15. Oct04-2024 - For Submission\ba-Mayfield Golf Course-FD-13-6860-43 - 30m ROW.dwg

BA Group

# MAYFIELD GOLF COURSE

SIGHT DISTANCE REVIEW

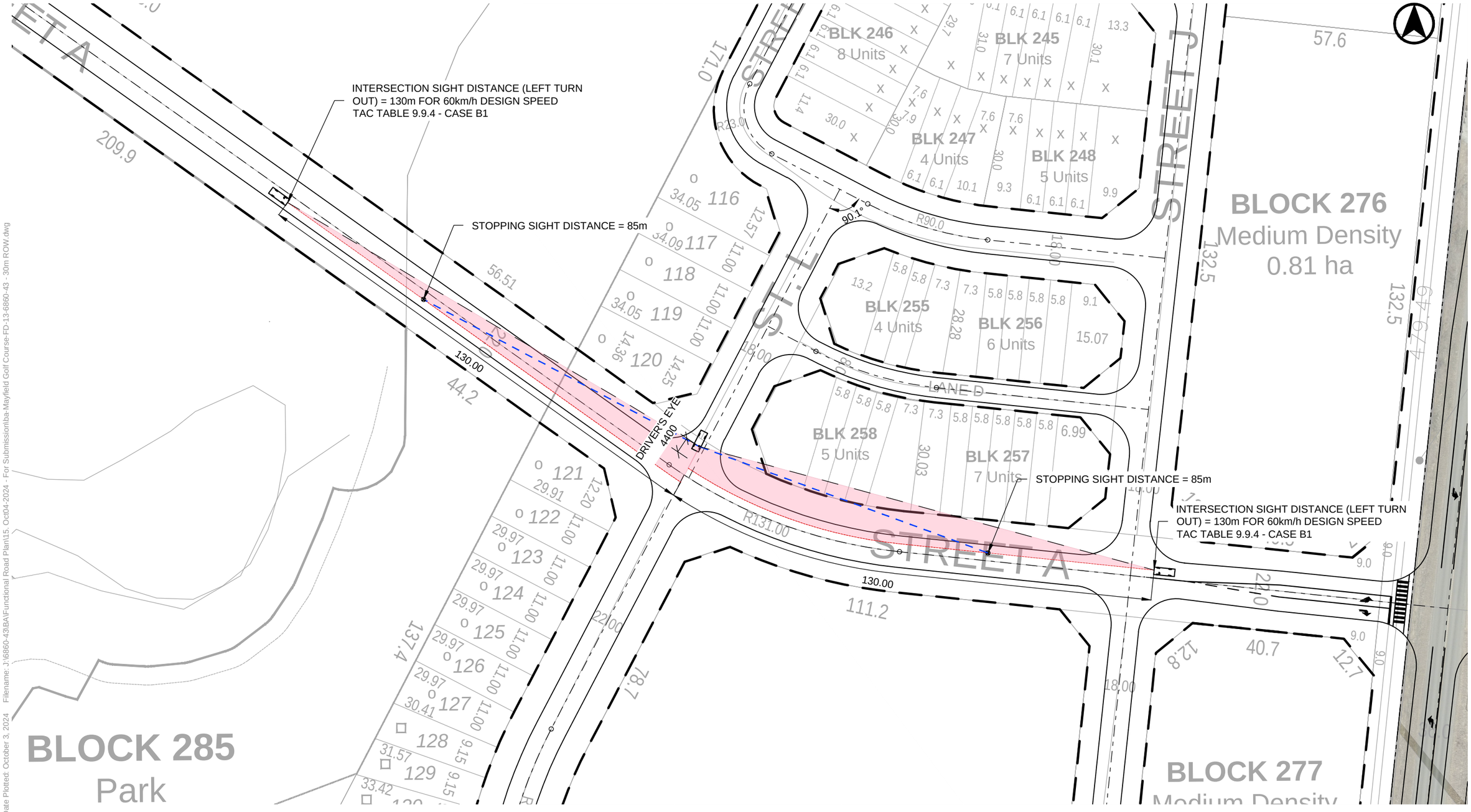
TAC MINIMUM INTERSECTION SIGHT LINE POLICY

RIGHT-TURN FROM STOP - STREET 'A' / STREET 'E'

| | |
|---|---|
| Project: | Mayfield Golf Course |
| Project No. | 6860-43 |
| Date: | October 3, 2024 |
| Revised: | -- |

Scale 1:1,000 (0 10 20 30 40 50m)

Drawing No. SD-01B




Date Plotted: October 3, 2024 Filename: J:\6860-43\BA\Functional Road Plan\15. Oct04-2024 - For Submission\ba-Mayfield Golf Course-FD-13-6860-43 - 30m ROW.dwg

BA Group

# MAYFIELD GOLF COURSE

SIGHT DISTANCE REVIEW

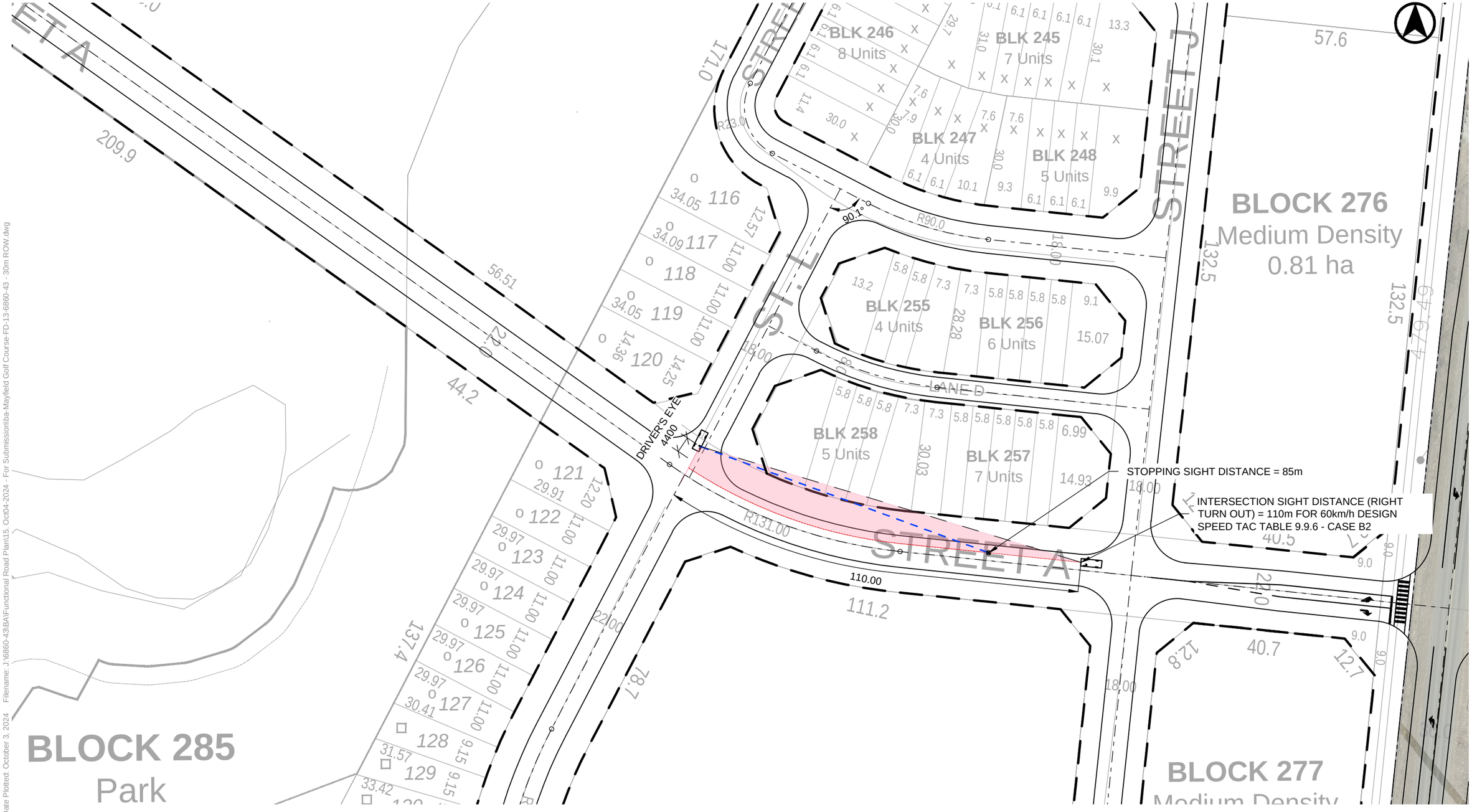
TAC MINIMUM INTERSECTION SIGHT LINE POLICY

LEFT-TURN FROM STOP - STREET 'A' / STREET 'L'

| | |
|---|---|
| Project: | Mayfield Golf Course |
| Project No. | 6860-43 |
| Date: | October 3, 2024 |
| Revised: | -- |

Scale 1:1,000 (0 10 20 30 40 50m)

Drawing No. SD-02A




Date Plotted: October 3, 2024 Filename: J:\6860-43\BA\Functional Road Plan\15. Oct04-2024 - For Submission\ba-Mayfield Golf Course-FD-13-6860-43 - 30m ROW.dwg

BA Group

# MAYFIELD GOLF COURSE

SIGHT DISTANCE REVIEW

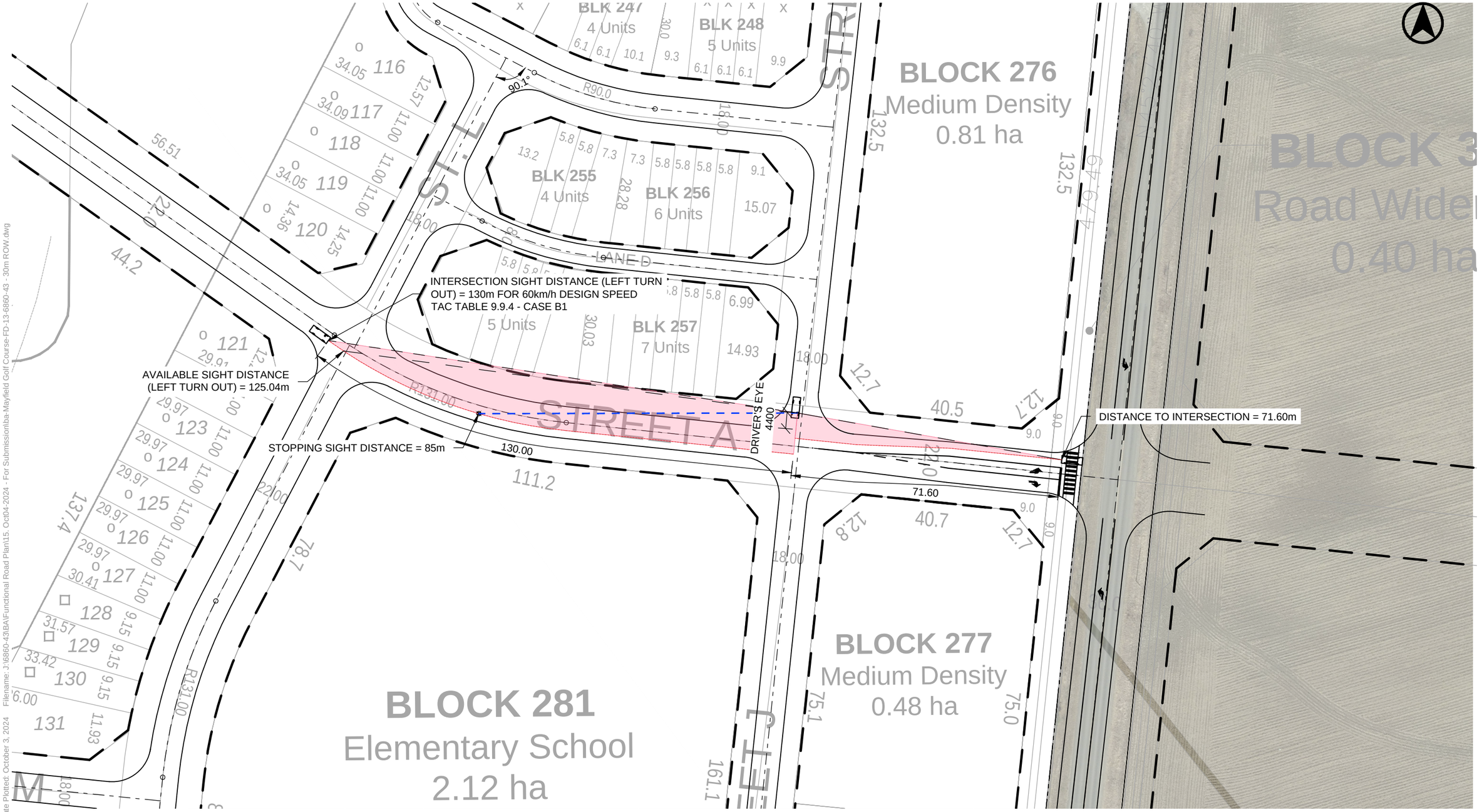
TAC MINIMUM INTERSECTION SIGHT LINE POLICY

RIGHT-TURN FROM STOP - STREET 'A' / STREET 'L'

| | |
|---|---|
| Project: | Mayfield Golf Course |
| Project No. | 6860-43 |
| Date: | October 3, 2024 |
| Revised: | -- |

Scale 1:1,000 (0 10 20 30 40 50m)

Drawing No. SD-02B




Date Plotted: October 3, 2024 Filename: J:\6860-43\BA\Functional Road Plan\15. Oct04-2024 - For Submission\ba-Mayfield Golf Course-FD-13-6860-43 - 30m ROW.dwg

BA Group

# MAYFIELD GOLF COURSE

SIGHT DISTANCE REVIEW

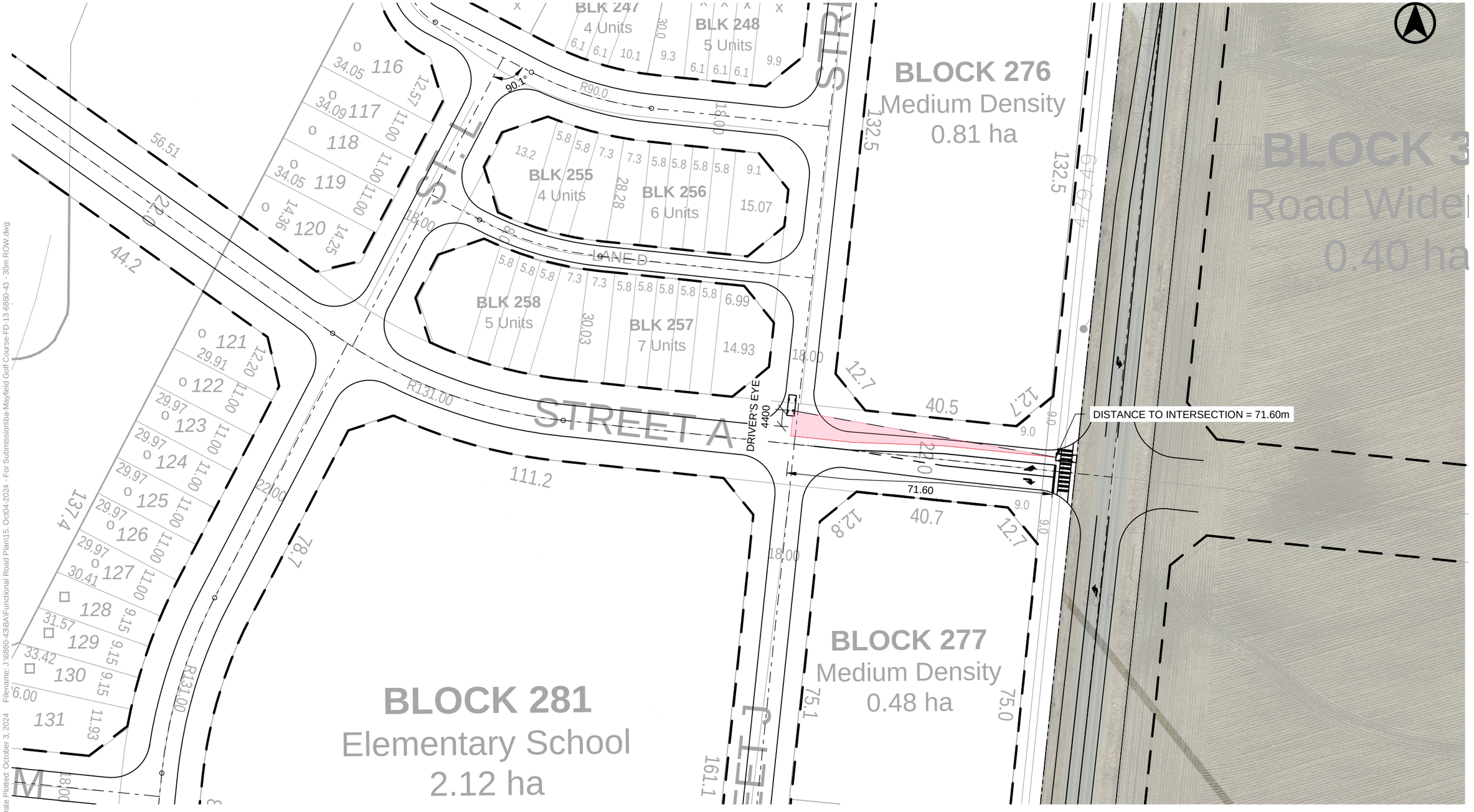
TAC MINIMUM INTERSECTION SIGHT LINE POLICY

LEFT-TURN FROM STOP - STREET 'A' / STREET 'J'

| | |
|---|---|
| Project: | Mayfield Golf Course |
| Project No. | 6860-43 |
| Date: | October 3, 2024 |
| Revised: | -- |

Scale 1:1,000 (0 10 20 30 40 50m)

Drawing No. SD-03A




Date Plotted: October 3, 2024 Filename: J:\6860-43\BA\Functional Road Plan\15. Oct04-2024 - For Submission\ba-Mayfield Golf Course-FD-13-6860-43 - 30m ROW.dwg

BA Group

# MAYFIELD GOLF COURSE

SIGHT DISTANCE REVIEW

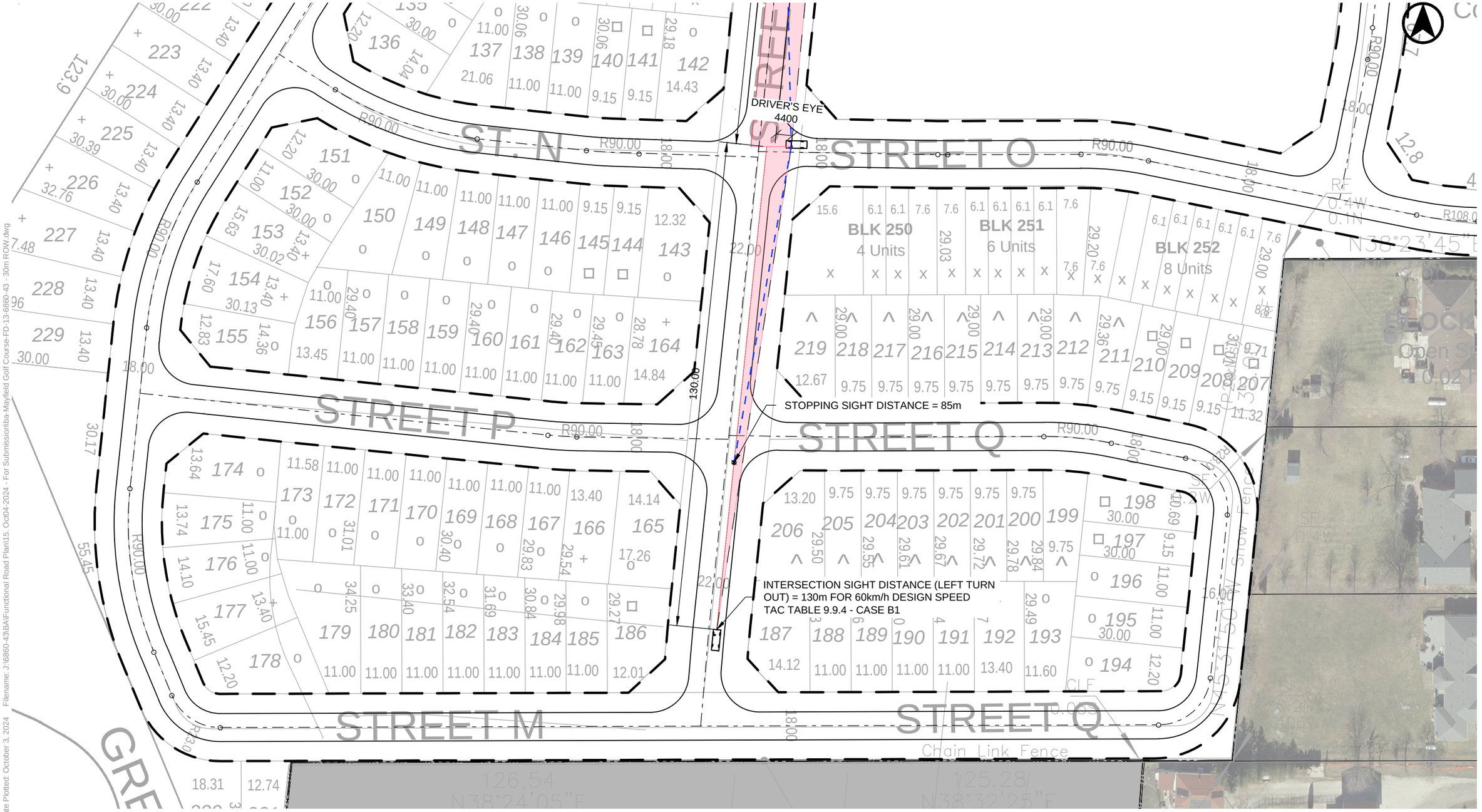
TAC MINIMUM INTERSECTION SIGHT LINE POLICY

RIGHT-TURN FROM STOP - STREET 'A' / STREET 'J'

| | |
|---|---|
| Project: | Mayfield Golf Course |
| Project No. | 6860-43 |
| Date: | October 3, 2024 |
| Revised: | -- |

Scale 1:1,000 (0 10 20 30 40 50m)

Drawing No. SD-03B




Date Plotted: October 3, 2024 Filename: J:\6860-43\BA\Functional Road Plan\15. Oct04-2024 - For Submission\ba-Mayfield Golf Course-FD-13-6860-43 - 30m ROW.dwg

BA Group

# MAYFIELD GOLF COURSE

SIGHT DISTANCE REVIEW

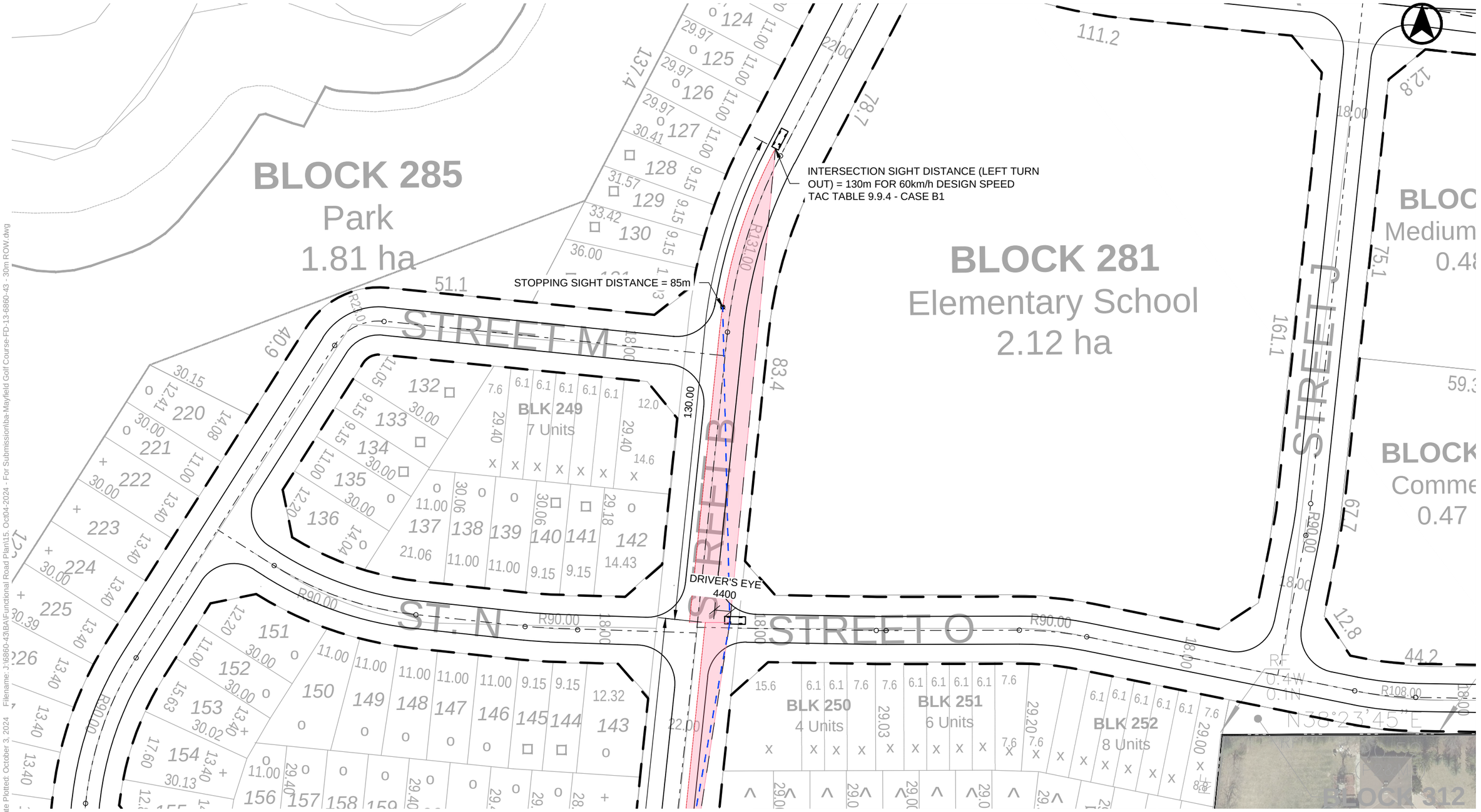
TAC MINIMUM INTERSECTION SIGHT LINE POLICY

LEFT-TURN FROM STOP (LOOKING SOUTH) - STREET 'B' / STREET 'O'

| | |
|---|---|
| Project: | Mayfield Golf Course |
| Project No. | 6860-43 |
| Date: | October 3, 2024 |
| Revised: | -- |

Scale 1:1,000 (0 10 20 30 40 50m)

Drawing No. SD-04A




Date Plotted: October 3, 2024 Filename: J:\6860-43\BA\Functional Road Plan\15. Oct04-2024 - For Submission\ba-Mayfield Golf Course-FD-13-6860-43 - 30m ROW.dwg

BA Group

# MAYFIELD GOLF COURSE

SIGHT DISTANCE REVIEW

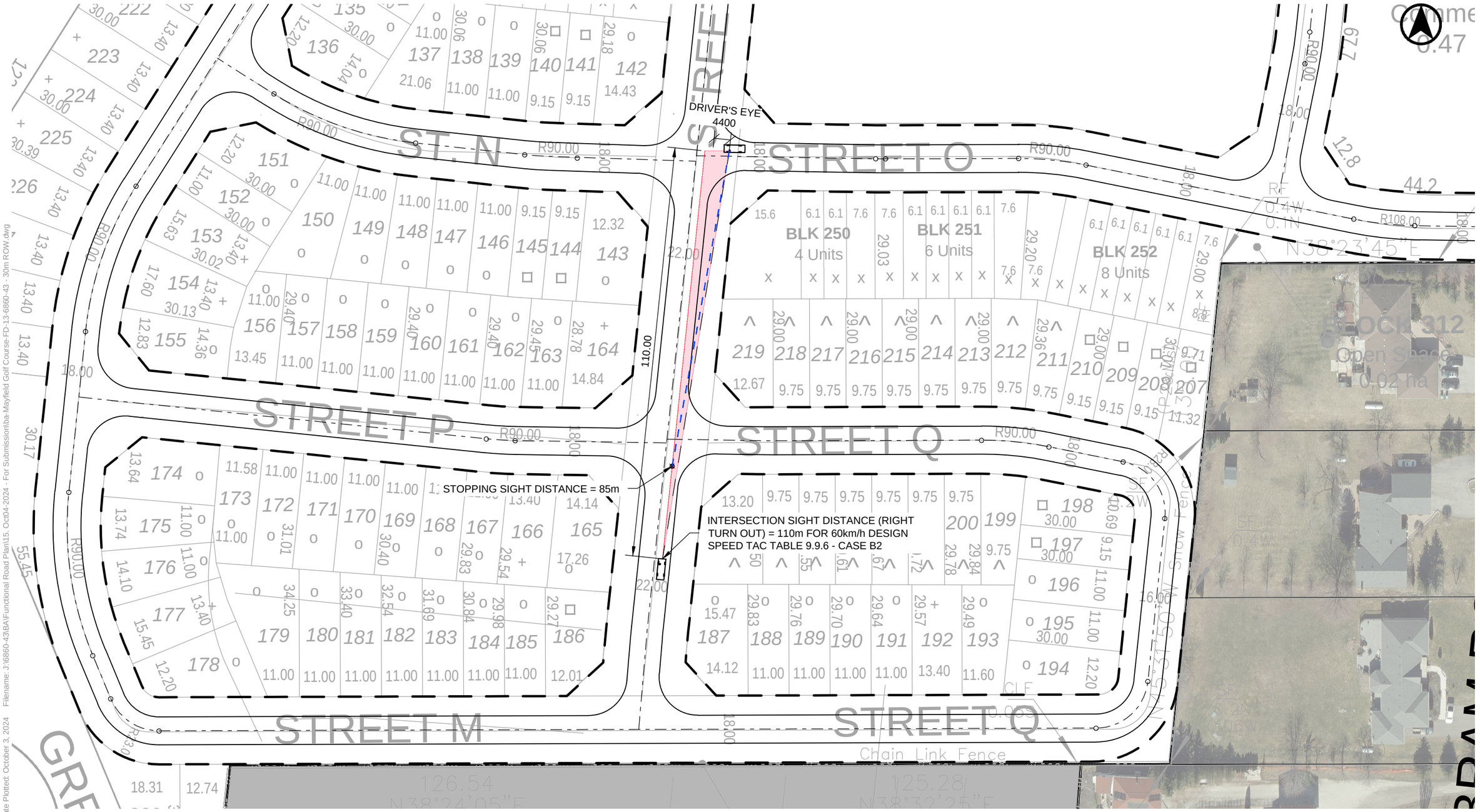
TAC MINIMUM INTERSECTION SIGHT LINE POLICY

LEFT-TURN FROM STOP (LOOKING NORTH) - STREET 'B' / STREET 'O'

| | |
|---|---|
| Project: | Mayfield Golf Course |
| Project No. | 6860-43 |
| Date: | October 3, 2024 |
| Revised: | -- |

Scale 1:1,000 (0 10 20 30 40 50m)

Drawing No. SD-04B




Date Plotted: October 3, 2024 Filename: J:\6860-43\BA\Functional Road Plan\15. Oct04-2024 - For Submission\ba-Mayfield Golf Course-FD-13-6860-43 - 30m ROW.dwg

BA Group

# MAYFIELD GOLF COURSE

## SIGHT DISTANCE REVIEW

## TAC MINIMUM INTERSECTION SIGHT LINE POLICY

## RIGHT-TURN FROM STOP - STREET 'B' / STREET 'O'

| | |
|---|---|
| Project: | Mayfield Golf Course |
| Project No. | 6860-43 |
| Date: | October 3, 2024 |
| Revised: | -- |

Scale 1:1,000 (0 10 20 30 40 50m)

Drawing No. SD-04C

# APPENDIX G:
# On-Street Parking Plan

## GENERAL NOTES

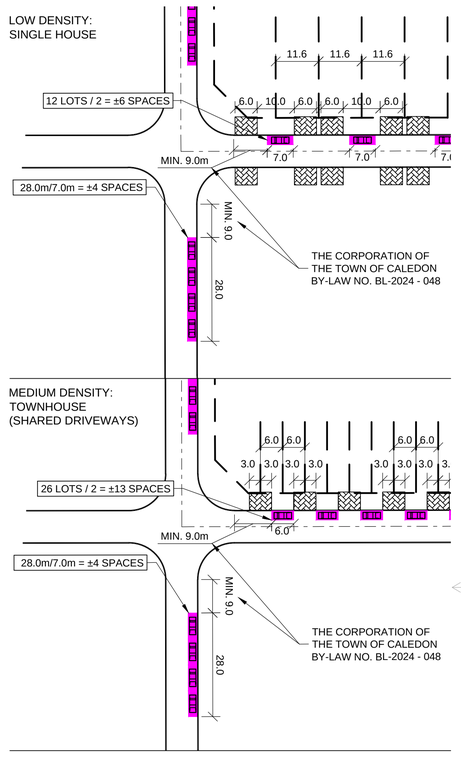
1. DRAFT PLAN OF SUBDIVISION DATED SEPTEMBER 2024, PREPARED BY MGP.
2. CURB / GUTTER DIMENSION HAS BEEN ADOPTED AS PER TOWN OF CALEDON DEVELOPMENT STANDARDS MANUAL (2019)
3. THIS PLAN IS ILLUSTRATIVE FOR THE PURPOSE OF SHOWING FUNCTIONAL PLAN AND SHALL NOT BE RELIED UPON FOR DETAILED DESIGN OR CONSTRUCTION.
4. LOCATION OF MAILBOX AND FIRE HYDRANTS CANNOT BE DETERMINED AT THIS STAGE, WHICH WILL IMPACT ON-STREET PARKING SPACES.
5. ON-STREET PARKING SUPPLY WILL REDUCE UPON INTRODUCING DRIVEWAYS FOR MEDIUM DENSITY BLOCKS, MIXED USE BLOCKS, SCHOOL BLOCKS, ETC.
6. NO PARKING WITHIN 30m OF EITHER SIDE OF THE ENTRANCE DRIVEWAY OF A FIRE HALL

## SAMPLE PARKING CALCULATION / ASSUMPTIONS

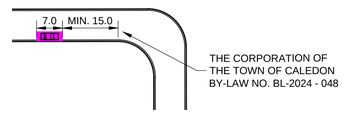
NUMBER OF SPACES DETERMINED BY LENGTH

NUMBER OF SPACES DETERMINED BY LOTS

## SAMPLE PARKING CALCULATION / ASSUMPTIONS




PARKING OFFSET FROM INSIDE OF ELBOW




| Street Name | From | To | Location of Spaces | ROW (m) | Length (m) | # of lots | Total Spaces By Length | Total Spaces By Lot |
|---|---|---|---|---|---|---|---|---|
| C | Laneway | D | North | 18 | 320.7 | | 45 | |
| | D | Cul-de-Sac | North | 18 | 107.2 | 9 | | 4 |
| D | C | S-W Elbow | West | 18 | 65.1 | 6 | | 3 |
| | S-W Elbow | S-E Elbow | South | 18 | 19.5 | | 2 | |
| | S-E Elbow | C | West | 18 | 9.7 | | 1 | |
| E | A | C | East | 18 | 291.3 | 26 | | 13 |
| F | H | C | West | 18 | 108.5 | | 15 | |
| | A | H | West | 18 | 114.7 | | 16 | |
| G | F | E | South | 18 | 81.6 | | 11 | |
| H | F | E | North | 18 | 74.8 | 7 | | 3 |
| | F | E | North | 18 | 16.4 | | 2 | |
| I | F | E | North | 18 | 64.1 | 6 | | 3 |
| | F | E | North | 18 | 16.5 | | 2 | |
| A | F | E | North | 22 | 55.5 | | 7 | |
| | E | L | North | 22 | 304.8 | | 43 | |
| | L | J | North | 22 | 76.1 | | 10 | |
| J | K | A | East | 18 | 128.6 | | 18 | |
| | A | O | West | 18 | 134.2 | | 19 | |
| B | A | O | East | 22 | 156.8 | | 22 | |
| | O | Q | East | 22 | 30.2 | | 4 | |
| | Q | Q | East | 22 | 31.9 | | 4 | |
| | Cul-de-Sac | Torbram | North | 22 | 156.8 | | 22 | |
| O | B | J | North | 18 | 109.3 | | 15 | |
| K | N-W Elbow | J | North | 18 | 44 | 6 | | 3 |
| | N-W Elbow | S-W Elbow | West | 18 | 18.9 | | 2 | |
| | L | J | South | 18 | 45.8 | | 6 | |
| L | K | B | West | 18 | 39.9 | 5 | | 2 |
| M | B | N-W Elbow | North | 18 | 53.5 | | 7 | |
| | N-W Elbow | N | West | 18 | 13.1 | | 1 | |
| | N-W Elbow | P | West | 18 | 127 | 10 | | 5 |
| | P | S-W Elbow | West | 18 | 73.6 | | 10 | |
| | S-W Elbow | B | South | 18 | 113.4 | | 16 | |
| N | M | B | North | 18 | 16.1 | | 2 | |
| | M | B | North | 18 | 70.8 | 6 | | 3 |
| P | M | B | North | 18 | 15.9 | | 2 | |
| | M | B | North | 18 | 96.6 | 9 | | 4 |
| Q | B | S-E Elbow | South | 18 | 107.8 | | 15 | |
| | S-E Elbow | N-E Elbow | East | 18 | 13.9 | | 1 | |
| | N-E Elbow | B | North | 18 | 83.4 | 10 | | 5 |
| | | | | | | | 320 | 48 |
| Grand Total | | | | | | | 368 | |

00 MM-DD-YR INT REVISION NOTE


BA Group

BA Consulting Group Ltd.
300 - 45 St. Clair Ave. W.
Toronto ON M4V 1K9
TEL 416 961 7110
EMAIL bagroup@bagroup.com

MOVEMENT IN URBAN ENVIRONMENTS
BAGROUP.COM


MAYFIELD GOLF COURSE

PARKING SUPPLY DIAGRAM

Date: October 2024

Project No.: 6860-43

Scale: 1:1,000

PK-01


Date Plotted: October 3, 2024 Filename: J:\6860-43\BA\Parking Count\2024\7. Oct\03-24 - For Submission\ba-Mayfield Golf Course-PK-07-6860-43.dwg

## GENERAL NOTES

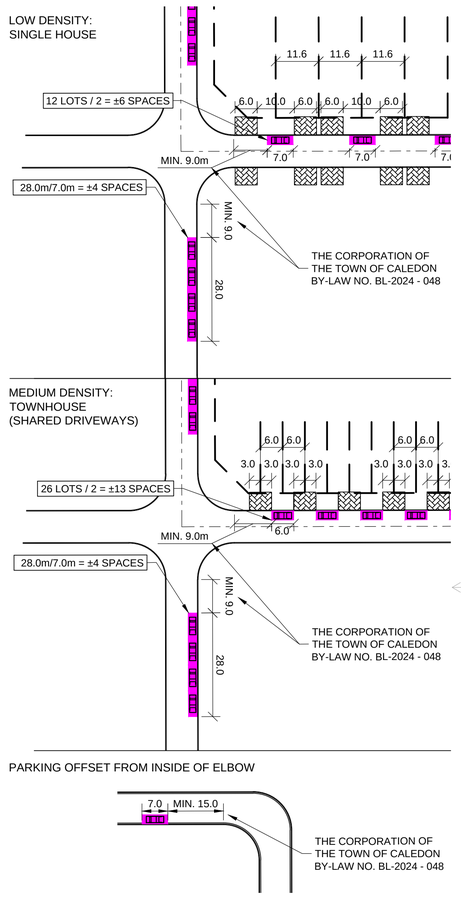
1. DRAFT PLAN OF SUBDIVISION DATED SEPTEMBER 2024, PREPARED BY MGP.
2. CURB / GUTTER DIMENSION HAS BEEN ADOPTED AS PER TOWN OF CALEDON DEVELOPMENT STANDARDS MANUAL (2019)
3. THIS PLAN IS ILLUSTRATIVE FOR THE PURPOSE OF SHOWING FUNCTIONAL PLAN AND SHALL NOT BE RELIED UPON FOR DETAILED DESIGN OR CONSTRUCTION.
4. LOCATION OF MAILBOX AND FIRE HYDRANTS CANNOT BE DETERMINED AT THIS STAGE, WHICH WILL IMPACT ON-STREET PARKING SPACES.
5. ON-STREET PARKING SUPPLY WILL REDUCE UPON INTRODUCING DRIVEWAYS FOR MEDIUM DENSITY BLOCKS, MIXED USE BLOCKS, SCHOOL BLOCKS, ETC.
6. NO PARKING WITHIN 30m OF EITHER SIDE OF THE ENTRANCE DRIVEWAY OF A FIRE HALL

## SAMPLE PARKING CALCULATION / ASSUMPTIONS

NUMBER OF SPACES DETERMINED BY LENGTH

NUMBER OF SPACES DETERMINED BY LOTS

## SAMPLE PARKING CALCULATION / ASSUMPTIONS




| Street Name | From | To | Location of Spaces | ROW (m) | Length (m) | # of lots | Total Spaces By Length | Total Spaces By Lot |
|---|---|---|---|---|---|---|---|---|
| C | Laneway | D | North | 18 | 320.7 | | 45 | |
| | D | Cul-de-Sac | North | 18 | 107.2 | 9 | | 4 |
| D | C | S-W Elbow | West | 18 | 65.1 | 6 | | 3 |
| | S-W Elbow | S-E Elbow | South | 18 | 19.5 | | 2 | |
| | S-E Elbow | C | West | 18 | 9.7 | | 1 | |
| E | A | C | East | 18 | 291.3 | 26 | | 13 |
| F | H | C | West | 18 | 108.5 | | 15 | |
| | A | H | West | 18 | 114.7 | | 16 | |
| G | F | E | South | 18 | 81.6 | | 11 | |
| H | F | E | North | 18 | 74.8 | 7 | | 3 |
| | F | E | North | 18 | 16.4 | | 2 | |
| I | F | E | North | 18 | 64.1 | 6 | | 3 |
| | F | E | North | 18 | 16.5 | | 2 | |
| A | F | E | North | 22 | 55.5 | | 7 | |
| | E | L | North | 22 | 304.8 | | 43 | |
| | L | J | North | 22 | 76.1 | | 10 | |
| J | K | A | East | 18 | 128.6 | | 18 | |
| | A | O | West | 18 | 134.2 | | 19 | |
| B | A | O | East | 22 | 156.8 | | 22 | |
| | O | Q | East | 22 | 30.2 | | 4 | |
| | Q | Q | East | 22 | 31.9 | | 4 | |
| | Cul-de-Sac | Torbram | North | 22 | 156.8 | | 22 | |
| O | B | J | North | 18 | 109.3 | | 15 | |
| K | N-W Elbow | J | North | 18 | 44 | 6 | | 3 |
| | N-W Elbow | S-W Elbow | West | 18 | 18.9 | | 2 | |
| | L | J | South | 18 | 45.8 | | 6 | |
| L | K | B | West | 18 | 39.9 | 5 | | 2 |
| M | B | N-W Elbow | North | 18 | 53.5 | | 7 | |
| | N-W Elbow | N | West | 18 | 13.1 | | 1 | |
| | N-W Elbow | P | West | 18 | 127 | 10 | | 5 |
| | P | S-W Elbow | West | 18 | 73.6 | | 10 | |
| | S-W Elbow | B | South | 18 | 113.4 | | 16 | |
| N | M | B | North | 18 | 16.1 | | 2 | |
| | M | B | North | 18 | 70.8 | 6 | | 3 |
| P | M | B | North | 18 | 15.9 | | 2 | |
| | M | B | North | 18 | 96.6 | 9 | | 4 |
| Q | B | S-E Elbow | South | 18 | 107.8 | | 15 | |
| | S-E Elbow | N-E Elbow | East | 18 | 13.9 | | 1 | |
| | N-E Elbow | B | North | 18 | 83.4 | 10 | | 5 |
| | | | | | | | 320 | 48 |
| **Grand Total** | | | | | | | **368** | |

Date Plotted: October 3, 2024 Filename: 2:\6860-43\BA\Parking Count\202407. Oct03-24 - For Submission\ba-Mayfield Golf Course-PK-07-6860-43.dwg

00 MM-DD-YR INT REVISION NOTE


BA Group

BA Consulting Group Ltd.
300 - 45 St. Clair Ave. W.
Toronto ON, M4V 1K9
TEL 416 961 7110
EMAIL bagroup@bagroup.com

MOVEMENT IN URBAN ENVIRONMENTS
BAGROUP.COM


MAYFIELD GOLF COURSE

PARKING SUPPLY DIAGRAM

Date: October 2024

Project No.: 6860-43

Scale: 1:1,000 0 10 20 30 40 50m

PK-02