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Transportation Impact Study

PROPOSED RESIDENTIAL SUBDIVISION

Snell's Hollow (Heart Lake Rd & Mayfield Rd),
TOWN OF CALEDON, ONTARIO

April 2021
Project No: NT-20-018

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NextEng Consulting Group Inc.

April 22, 2021

Mr. Jason Afonso, Trustee

Snell's Hollow Developers Group
c/o 700-10 Kingsbridge Garden Circle
Mississauga, ON L5R 3K6

Re: **Transportation Impact Study
Proposed Residential Development
Snell's Hollow, Town of Caledon
Our Project No. NT-20-018**

Nextrans Consulting Engineers (a Division of NextEng Consulting Group Inc.) is pleased to present the enclosed Transportation Impact Study for the above noted site in support of an Official Plan Amendment application for a proposed residential subdivision and a neighbourhood commercial block.

The subject lands are bounded by Highway 410 to the north, Highway 410 southbound off-ramp to the east, Kennedy Road to the west and Mayfield Road to the south, in the Town of Caledon. The proposed development consists of approximately 1,087 residential dwelling units of mixed types and approximately 1.47 ha (93 employees) of commercial development area. A full moves access will be provided onto Heart Lake Road, a full moves access onto Kennedy Road, and two full moves accesses onto Mayfield Road to service the proposed development.

The transportation study concludes that the proposed development can adequately be accommodated by the existing transportation network, the proposed transportation improvements, as well as the Transportation Demand Management measures and incentives recommended in this report.

We trust the enclosed sufficiently addresses your needs. Should you have any questions, please do not hesitate to contact the undersigned.

Yours truly,

Nextrans Consulting Engineers
A Division of NextEng Consulting Group Inc.

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Record of Report Submission

Identification	Date	Description of issued and/or revision
Final Report	April 22, 2021	For Final Submission

EXECUTIVE SUMMARY

Nextrans Consulting Engineers (A Division of NextEng Consulting Group Inc.) was retained by Snell's Hollow Developers Group (the 'Client') to undertake a Transportation Impact Study in support of an Official Plan Amendment application for a proposed residential subdivision and a neighbourhood commercial block. The subject lands are bounded by Highway 410 to the north, Highway 410 southbound off-ramp to the east, Kennedy Road to the west and Mayfield Road to the south, in the Town of Caledon.

It should be noted that a study terms of reference based on Peel Region, the Town of Caledon and MTO Traffic Impact Study Guidelines have been submitted to the Region and the Town staff. The Region and the Town have accepted the terms of reference with some comments on the proposed study methodology for the technical analysis and traffic turning movement count estimates (Appendix A). The Town staff has also requested that the parking rates and traffic signal warrant for the proposed development accesses onto Kennedy Road and Heart Lake Road to be conducted as part of the Study.

Proposed Development

Currently the subject site is mostly vacant, with two existing single-detached residential units and two farm houses (one on Kennedy Road and one on Heart Lake Road). The proposed development consists of approximately 1,087 residential dwelling units of mixed types and approximately 1.47 ha of commercial development area.

Proposed Development Access

The following access arrangement will be provided to accommodate each block of the proposed development and the recommended lane configurations and traffic control types based on the findings of this Study:

- One full moves intersection onto Kennedy Road, opposite the existing Snellview Boulevard. This proposed intersection is located approximately 285 m from centreline of the Mayfield Road/Kennedy Road intersection. The lane configurations and traffic control type include:
 - Traffic signals should be provided by 2033 horizon, based on the intersection capacity analysis
 - One exclusive northbound and southbound left turn lanes with minimum of 30 m storage length
 - One exclusive westbound left turn lane with 15 m storage, a shared through/right and one inbound lane
 - Convert the existing eastbound exclusive right turn lane on Snellview Boulevard to a shared through/right lane
- One full moves intersection onto Heart Lake Road is located approximately 215 m from the centreline of Mayfield Road/Heart Lake Road intersection. The lane configurations and traffic control type include:
 - A full moves intersection with stop signs on the east-west direction
 - One southbound and one northbound left turn lane with minimum of 30 m storage length and a shared northbound and southbound through/right lane
 - One westbound and one eastbound exclusive left turn lanes with minimum of 15 m storage and a shared westbound and eastbound through/right lane
- One access onto Mayfield Road to accommodate the proposed commercial and the proposed medium-high density parcels. This proposed access will be located opposite Stonegate Drive. The lane configurations and traffic control type include:
 - Require traffic signals by 2023 with the proposed completion of the commercial/medium-high density parcels;
 - One exclusive westbound and eastbound left turn with minimum of 30 m storage length.

- One exclusive southbound left turn with 15 m storage and a shared through/right, as well as one inbound lane be provided for the proposed Site Access #3.

The analysis indicates that the proposed traffic control types and lane configurations are appropriate for the proposed development accesses. The proposed development accesses are expected to operate at acceptable levels of service for all horizon years considered in the analysis.

Capacity Analysis

The proposed development is expected to generate:

- 387 total two-way trips (115 inbound and 272 outbound) and 559 total two-way trips (329 inbound and 230 outbound) during the AM and PM peak hours, respectively;
- 370 two-way auto trips (110 inbound and 260 outbound) and 536 two-way auto trips (315 inbound and 221 outbound) during the AM and PM peak hours, respectively; and
- 17 two-way transit trips (5 inbound and 12 outbound) and 23 two-way transit trips (14 inbound and 9 outbound) during the AM and PM peak hours, respectively.

Auto Mode Assessment

The intersection capacity analysis indicates that under the existing 2021 conditions, all intersections are currently operating at acceptable levels of service, no improvements are required at this time.

Under the future background conditions with the planned widening of Mayfield Road from its existing 4-lane cross-section west of Heart Lake Road to a 6-lane cross-section, all intersections are expected to operate at acceptable levels of service. However, for the Mayfield Road/Kennedy Road intersection, a westbound exclusive right turn lane and southbound double left turn lanes are required by 2028. It is recommended that these improvements to be included as part of the Mayfield Road improvements.

Under the future total conditions with the planned widening of Mayfield Road from its existing 4-lane cross-section west of Heart Lake Road to a 6-lane cross-section, the majority of the intersections are expected to operate at acceptable levels of service. However, for the Mayfield Road/Kennedy Road intersection, a westbound exclusive right turn lane and southbound double left turn lanes are required by 2028. For the Mayfield Road/Stonegate Drive/Site Access #3, a traffic signal will be required by 2023 to improve operation and help facilitate pedestrian and cyclist crossing from the south side to the north side of Mayfield Road, although traffic signals are not numerically warranted. It is recommended that all of these improvements to be included as part of the Mayfield Road improvements.

Active Transportation Mode Assessment

Walking

Currently, sidewalk is available on the east side on Kennedy Road, north and south of Mayfield Road. Sidewalks are currently provided on both sides of Snellview Boulevard and Stonegate Drive. However, no sidewalks are currently provided along Mayfield Road and Heart Lake Road in the area.

As part of the capital road improvement for Mayfield Road, a 3.0 m multi-use path will be provided along both sides of Mayfield Road to the west of Kennedy Road, but only on the south side of Mayfield Road to the east of Kennedy Road. Nextrans recommends that the proposed 3.0 multi-use path should continue on the north side of Mayfield Road from Kennedy Road to Heart Lake Road. This should be included in the detailed design and construction of Mayfield Road.

Cycling

Under the existing conditions, there are no dedicated cycling lanes along Mayfield Road, Kennedy Road and Heart Lake Road. However, there are existing multiuse trails along Mayfield Road from east of Kennedy Road to the east of Stonegate

Drive that connects with Heart Lake off-road multiuse trail. There is a multiuse trail on the west side of Kennedy Road from north of Mayfield Drive to Abbotside Way.

As indicated above, as part of the capital road improvement for Mayfield Road, a 3.0 m multi-use path will be provided along both sides of Mayfield Road to the west of Kennedy Road, but only on the south side of Mayfield Road to the east of Kennedy Road. Nextrans recommends that the proposed 3.0 multi-use path should continue on the north side of Mayfield Road from Kennedy Road to Heart Lake Road. This should be included in the detailed design and construction of Mayfield Road.

It is also recommended that the proposed development provides at least 10 short-term bicycle parking spaces and 40 long-term bicycle parking spaces (about 10% of the total numbers of units) for the medium-high density component of the proposed development. This provision will encourage residents to use more sustainable modes of transportation instead of driving single-occupant-vehicles.

Transit Mode Assessment

The proposed development is expected to generate 17 two-way transit trips (5 inbound and 12 outbound) and 23 two-way transit trips (14 inbound and 9 outbound) during the AM and PM peak hours, respectively.

The analysis indicates that the transit passenger demands generated by the proposed development per transit vehicle is very low due to limited transit opportunities in the area under the existing conditions. However, it is suggested that the Town of Caledon should work with Brampton Transit to extend the existing Kennedy Bus Route 7/7A to service this future area.

Vehicle Parking Review

Based the applicable Zoning By-law requirement, the proposed development will require to provide approximately 1,710 vehicle parking spaces are required for the residential components, however, the commercial component parking requirements will be determined at the subsequent stage of the development. It is Nextrans understanding that the proposed development will meet this requirement.

Bicycle Parking Review

The Town of Caledon currently does not have bicycle requirements in the current Zoning By-law. In order to support and encourage active transportation use, Nextrans recommends that the proposed development provides at least 10 short-term bicycle parking spaces and 40 long-term bicycle parking spaces (about 10% of the total numbers of units) for the medium-high density component of the proposed development. This provision will encourage the future residents to take sustainable mode of transportation instead of driving single-occupant-vehicles.

Transportation Demand Management Measures and Incentives

The TDM measures and incentives related to the proposed development have been assessed and recommended in Section 9 of this report to support active transportation and transit, to meet the objectives and requirements of the Town of Caledon and Peel Region sustainable transportation objectives.

Loading Requirement

The vehicle turning movement templates will be provided at the subsequent development stages.

Study Conclusions and Recommendations

Based on the findings of this Study, the following recommendations are provided:

- Intersection improvements:

- Provide traffic signals at the Kennedy Road/Snellview Boulevard/Site Access #1 intersection by 2033 or the completion of the proposed development. The proposed lane configurations include:
 - One exclusive northbound and southbound left turn lanes with minimum of 30 m storage length
 - One exclusive westbound left turn lane with 15 m storage, a shared through/right and one inbound lane
 - Convert the existing eastbound exclusive right turn lane on Snellview Boulevard to a shared through/right lane
- Provide a full moves intersection at the Heart Lake Road/Site Access #2 with stop signs on the east-west direction. The lane configurations include:
 - One southbound and one northbound left turn lane with minimum of 30 m storage length and a shared northbound and southbound through/right lane
 - One westbound and one eastbound exclusive left turn lanes with minimum of 15 m storage and a shared westbound and eastbound through/right lane
- Provide traffic signals the Mayfield Road/Stonegate Drive/Site Access #3 intersection by 2023 or the completion of the proposed commercial/medium-high density residential blocks. The proposed lane configurations include:
 - One exclusive westbound left turn with minimum of 60 m storage length and one exclusive eastbound left turn with minimum of 30 m storage
 - One exclusive southbound left turn with 15 m storage and a shared through/right, as well as one inbound lane be provided for the proposed Site Access #3.
- Provide westbound exclusive right turn and southbound double left turn lanes at the Mayfield Road/Kennedy Road intersection as part of the Mayfield Road widening project (2026).
- The proposed development implements the TDM measures and incentives identified in this report to support active transportation and transit and to reduce the numbers of single-occupant-vehicle trips to and from the proposed development;
- The proposed development provides at least 10 short-term bicycle parking spaces and 40 long-term bicycle parking spaces (about 10% of the total numbers of units) for the medium-high density component of the proposed development.
- The Town and the Region should provide 3.0 multi-use path on the north side of Mayfield Road from Kennedy Road to Heart Lake Road. This should be included in the detailed design and construction of Mayfield Road.
- The proposed development provides direct shared pedestrian and cycling connections to Mayfield Road and Heart Lake Road for the medium-high density components

Recommended Improvements and Intersection Control Devices

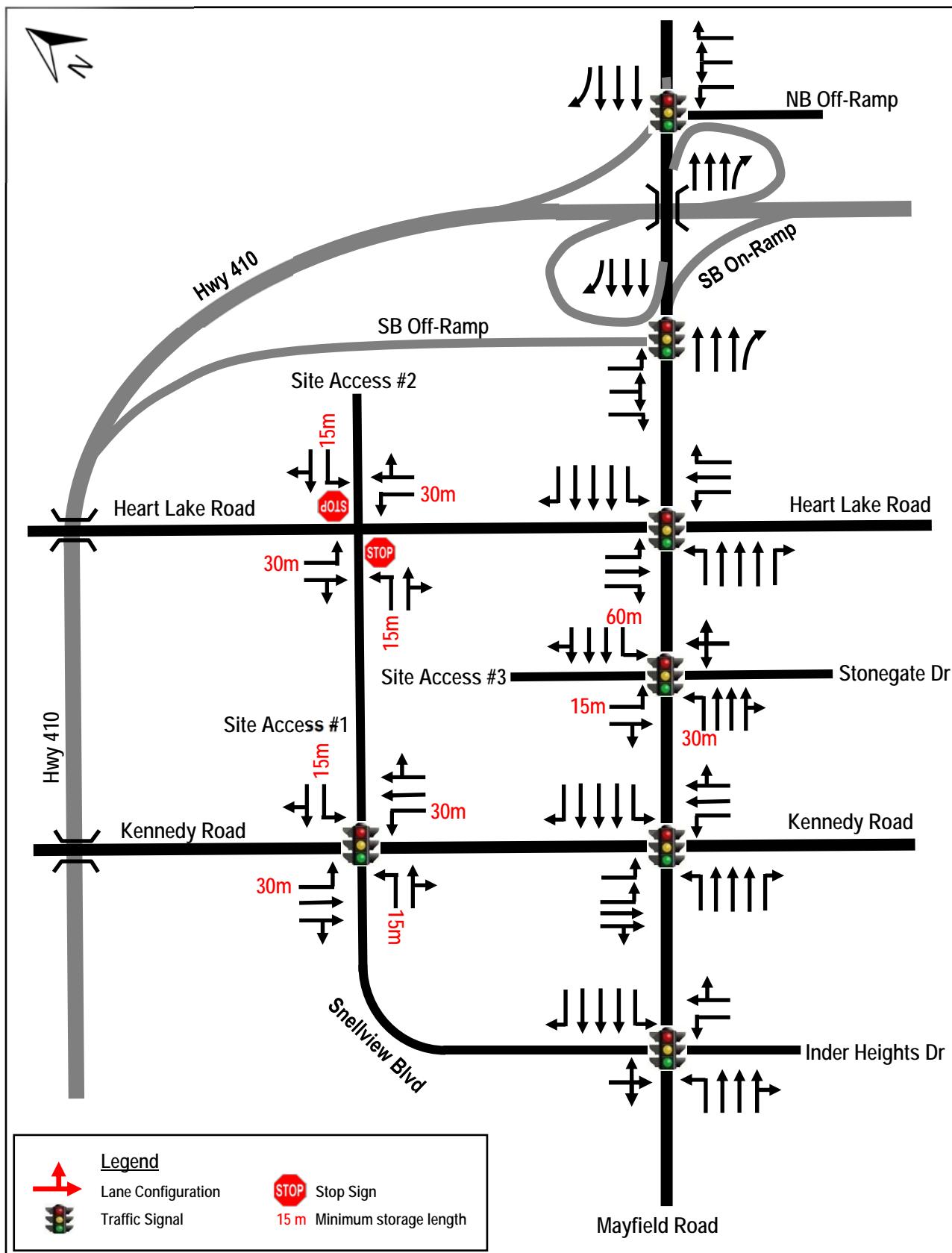


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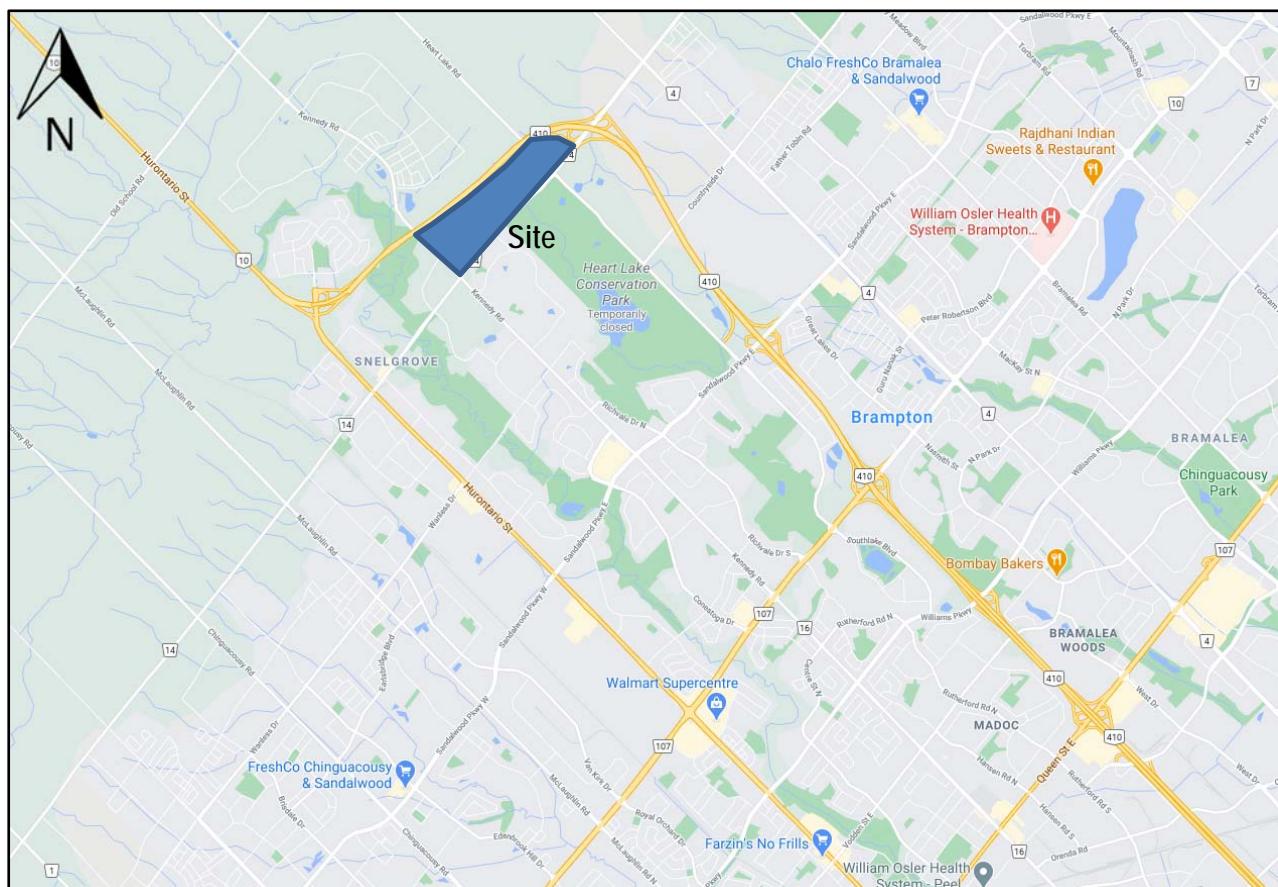
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1.0 INTRODUCTION

Nextrans Consulting Engineers (A Division of NextEng Consulting Group Inc.) was retained by Snell's Hollow Developers Group (the 'Client') to undertake a Transportation Impact Study in support of an Official Plan Amendment application for a proposed residential subdivision and a neighbourhood commercial. The subject lands are bounded by Highway 410 to the north, Highway 410 southbound off-ramp to the east, Kennedy Road to the west and Mayfield Road to the south, in the Town of Caledon.

The location of the proposed development is illustrated in Figure 1.

Figure 1 – Proposed Development Location



Source: Google Map

Currently the subject site is mostly vacant, with two existing single-detached residential units and two farm houses (one on Kennedy Road and one on Heart Lake Road). The proposed development consists of approximately 1,087 residential dwelling units of mixed types and approximately 1.47 ha of commercial development area.

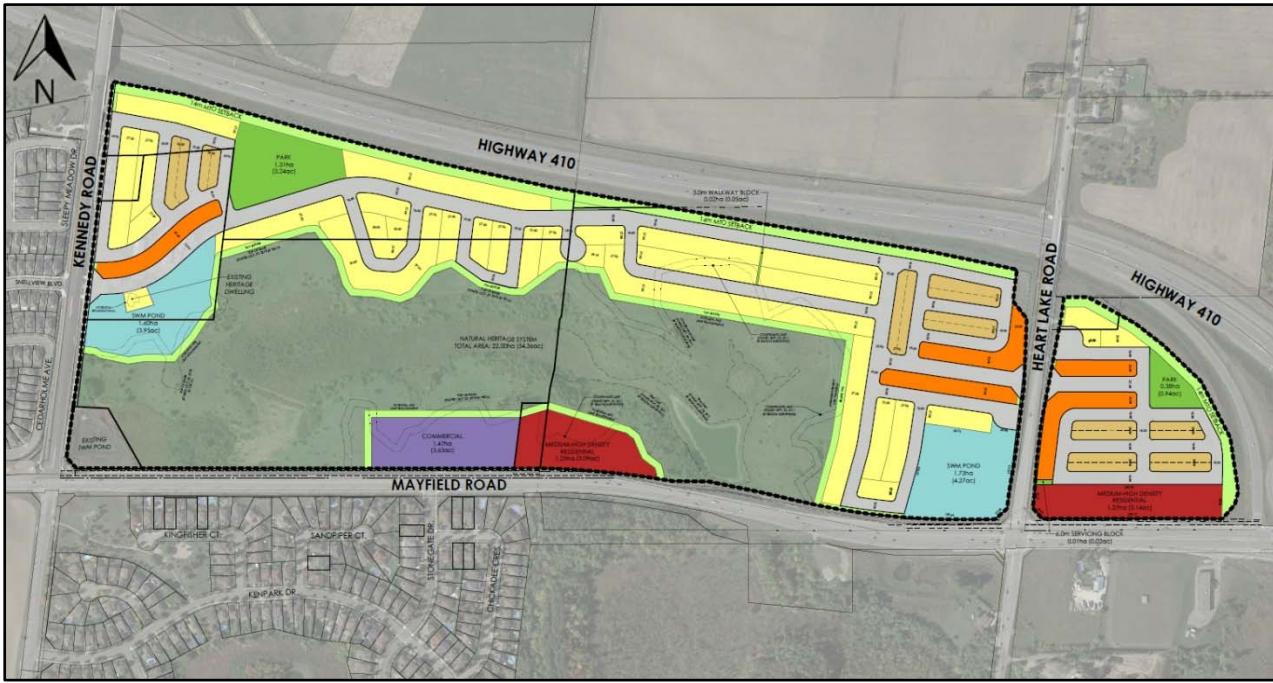
The following access arrangement will be provided to accommodate each block of the proposed development and the recommended lane configurations and traffic control types based on the findings of this Study:

- One full moves intersection onto Kennedy Road, opposite the existing Snellview Boulevard. This proposed intersection is located approximately 285 m from centreline of the Mayfield Road/Kennedy Road intersection;
- One full moves intersection onto Heart Lake Road is located approximately 215 m from the centreline of Mayfield Road/Heart Lake Road intersection;

- One access onto Mayfield Road to accommodate the proposed medium-high density residential and commercial parcel. This proposed access will be located opposite the existing Stonegate Drive.

Figure 2 illustrates the proposed draft plan of subdivision.

Figure 2 – Proposed Draft Plan of Subdivision



2.0 EXISTING TRAFFIC CONDITIONS

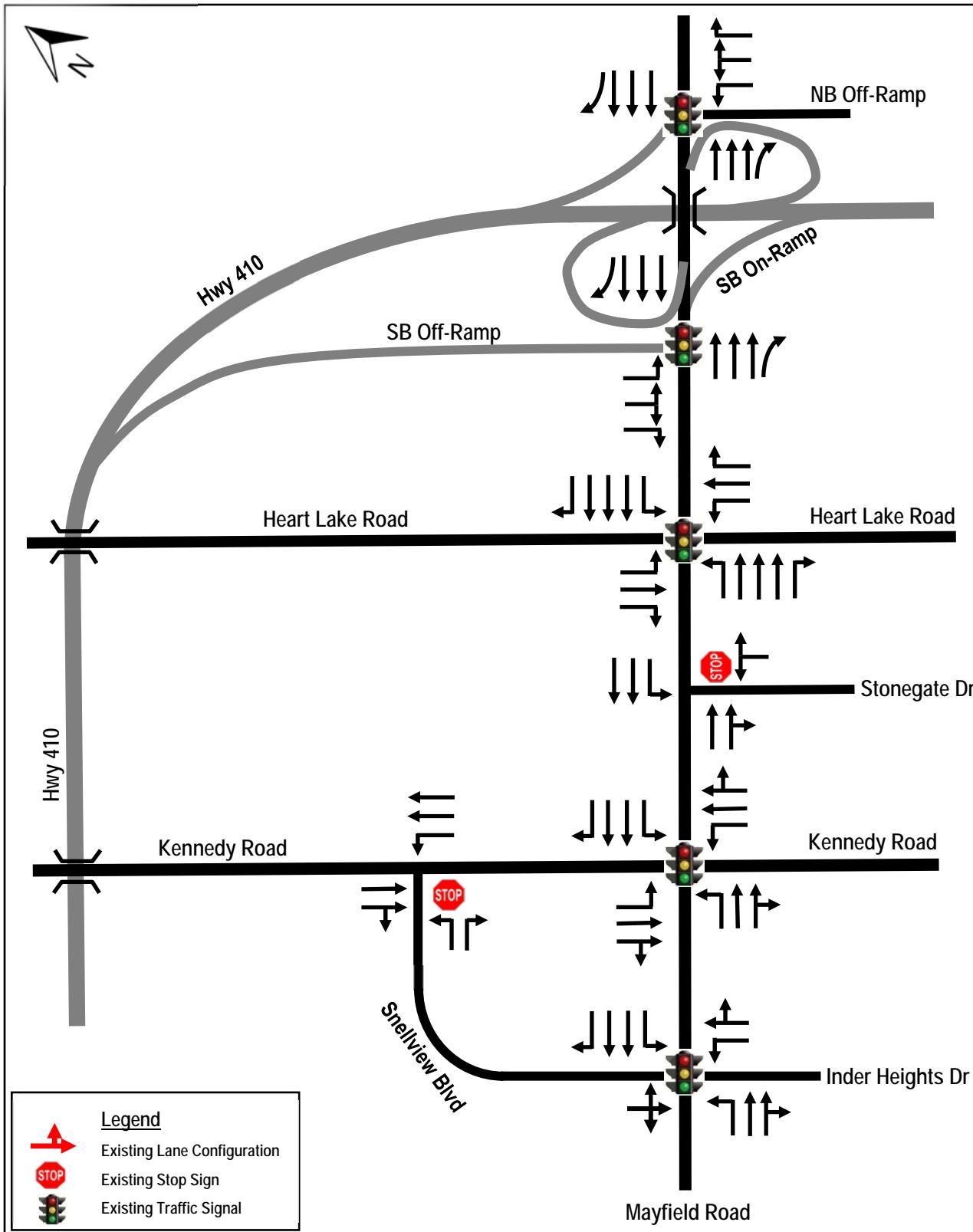
2.1. Existing Road Network

The existing road network, lane configuration and existing traffic control for the study area are shown in Figure 3 (Existing Lane Configurations). The details area described below:

- **Mayfield Road:** is an east-west major collector under the jurisdiction of Peel Region. It generally has a six-lane cross-section between Hwy 410 and approximately 280 m west of Heart Lake Road. After that, it generally has a four-lane cross-section with turning lanes at the major intersections in the vicinity of the proposed development. It maintains a posted speed limit of 60 km/h near the subject site.
- **Heart lake Road:** is a north-south major arterial under the jurisdiction of the Town of Caledon. It generally has two general purpose lanes north and south of Mayfield Road with turning lanes at the major intersections in the vicinity of the proposed development. It maintains an unposted speed limit of 50 km/h near the subject site.
- **Kennedy Road:** is a north-south major arterial under the jurisdiction of the Town of Caledon. It generally has two general purpose lanes north and south of Mayfield Road. It generally has two general purpose lanes north and south of Mayfield Road with turning lanes at the major intersections in the vicinity of the proposed development. It maintains a posted speed limit of 50 km/h near the subject site.
- **Stonegate Drive:** is a north-south local road under the jurisdiction of the City of Brampton. It has two general purpose lanes and maintains a posted speed limit of 40 km/h near the subject site.
- **Snellview Boulevard:** is a north-south to east-west local road under the jurisdiction of the Town of Caledon. It has two general purpose lanes and maintains a posted speed limit of 40 km/h near the subject site.

- Highway 410: is a 400-Series Highway generally runs north-south under the jurisdiction of the Ontario Ministry of Transportation. It has four general purpose lanes and maintains a posted speed limit of 100 km/h near the subject site.

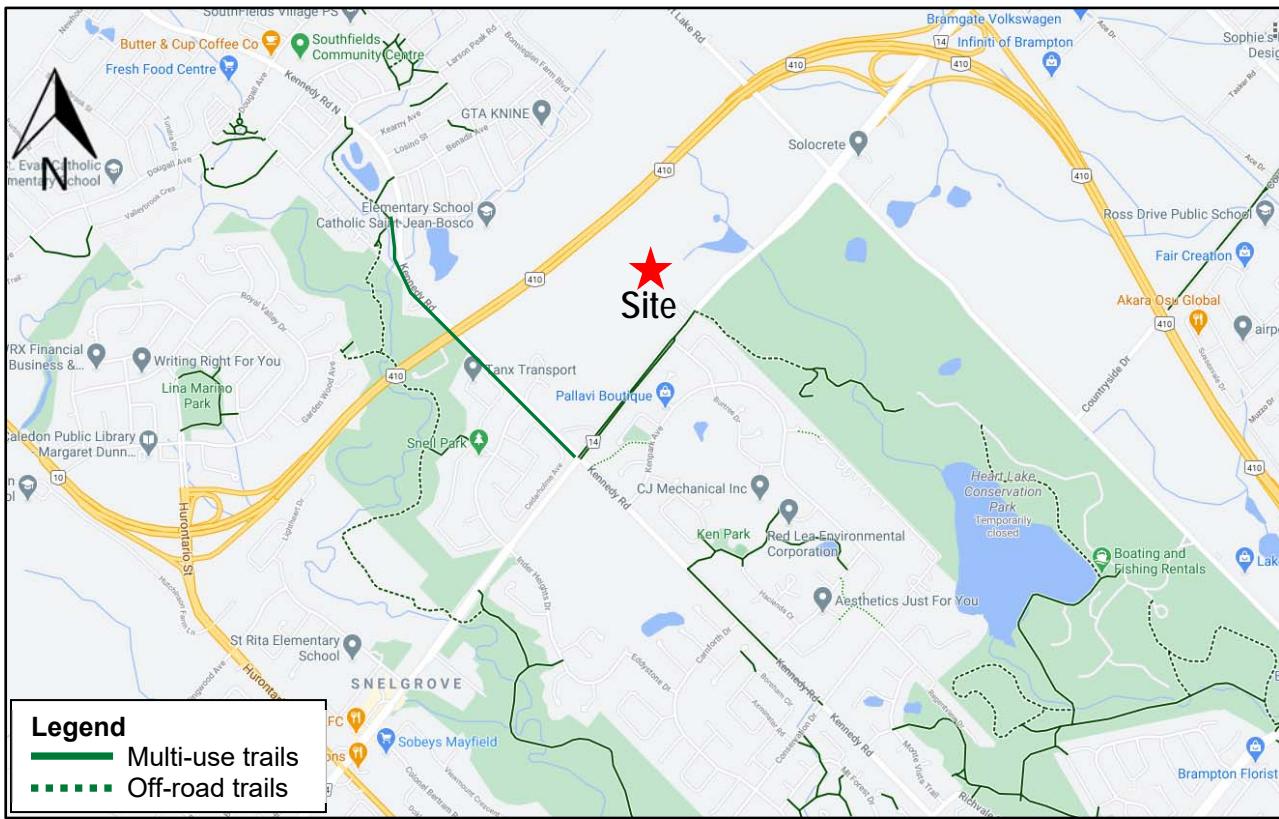
Figure 3 – Existing Lane Configuration and Traffic Control



2.2. Existing Active Transportation Network

Figure 4 illustrates the existing active transportation network in the study area.

Figure 4 – Existing Cycling Network in the Study Area



Source: Google Map

2.3. Existing Active Transportation Assessment

Walking

Currently, sidewalk is available on the east side on Kennedy Road, north and south of Mayfield Road. Sidewalks are currently provided on both sides of Snellview Boulevard and Stonegate Drive. However, no sidewalks are currently provided along Mayfield Road and Heart Lake Road in the area. As part of this Study, Nextrans will assess and identify potential sidewalk improvements to accommodate the proposed development and existing communities in the area.

Cycling

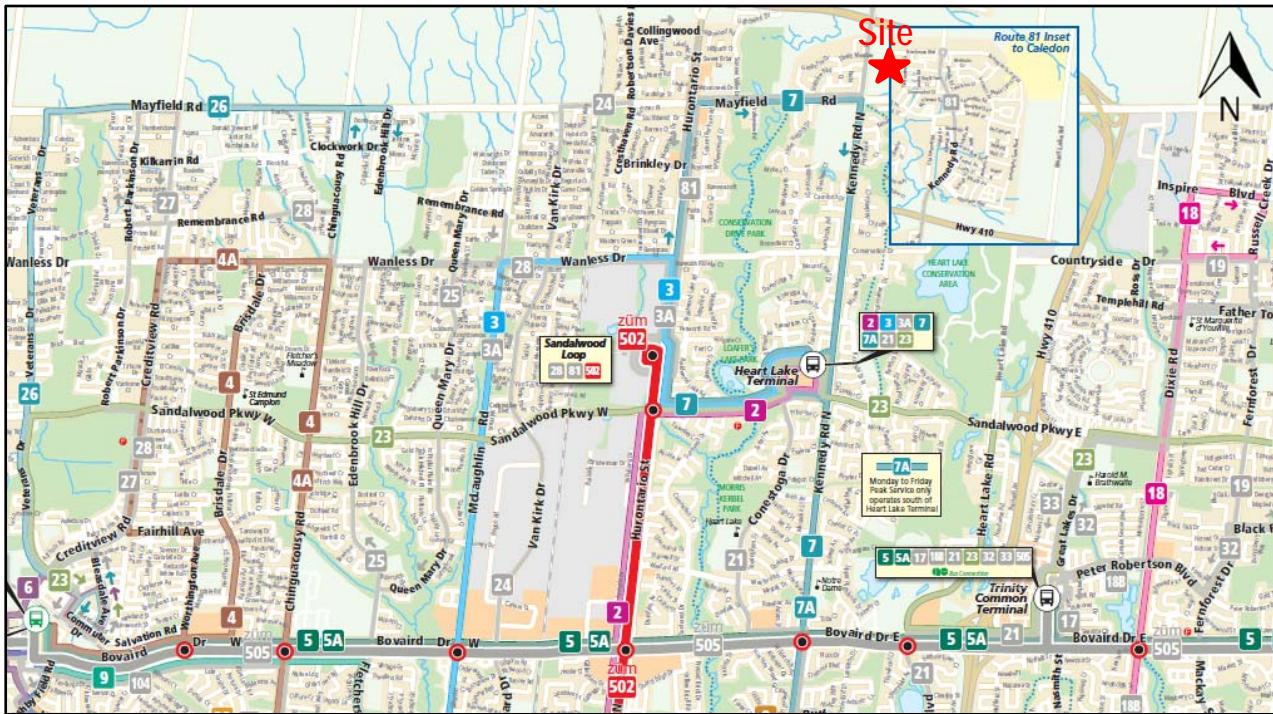
Under the existing conditions, there are no dedicated cycling lanes along Mayfield Road, Kennedy Road and Heart Lake Road. However, there are existing multiuse trails along Mayfield Road from east of Kennedy Road to the east of Stonegate Drive that connects with Heart Lake off-road multiuse trail. There is a multiuse trail on the west side of Kennedy Road from north of Mayfield Drive to Abbotside Way. As part of this Study, Nextrans will assess and identify potential cycling facility improvements to accommodate the proposed development and existing communities in the area.

2.4. Existing Transit Service

Currently, the Town of Caledon does not have its own transit system, it is dependent on the Metrolinx and City of Brampton Transit for inter-regional transit connections and trips. The proposed development is located adjacent to Brampton Transit Bus Routes 81 Hurontario, 7/7A Kennedy and 24 Van Kirk. In addition, the site is located about 8.5

km to the existing Brampton GO Train Station and about 10.0 km to the existing Mount Pleasant GO Train Station. The existing transit network in the area is illustrated in Figure 5.

Figure 5 – Existing Transit Network in the Study Area



Source: Brampton Transit Service Map (July 2020)

Based on the current information provided on the Town of Caledon website at the time of the preparation of this Study (<https://www.caledon.ca/en/town-services/transit.aspx#Near-Caledon-Brampton-Transit>), the following changes to Brampton Transit will be effective as of November 2, 2020:

- Reduced Weekday AM & PM peak service restored, and there is no weeknight or weekend service at this time;
 - AM/PM peak service only: 45-minute frequency
 - First AM trip northbound from Sandalwood Loop: 6 a.m.
 - Last AM trip southbound from Kennedy Rd. and Dougall Ave: 8:28 a.m.
 - First PM trip northbound from Sandalwood Loop: 3 p.m.
 - Last PM trip southbound from Kennedy Rd. and Dougall Ave: 6:58 p.m.

2.3. Existing Transit Assessment

Based on Nextrans review of the existing Brampton Transit Map as of July 2020, as well as Metrolinx GO Expansion project along the Kitchener Line, when Brampton Transit and GO Transit resume to full operation post-pandemic, it is Nextrans' opinion that transit service is excellent in the area there is no noticeable constrain in service at this time. In addition, with the future GO Expansion projects, it will provide viable options for the existing and future residents with longer distance and inter-regional trips.

2.4. Existing Traffic Volumes

Existing traffic volumes at the study area intersections were obtained from Spectrum for the following intersections in the study area (included in **Appendix B**):

- Mayfield Road and Kennedy Road (signalized) – Count date Wednesday March 7, 2018

- Mayfield Road and Heart Lake Road (signalized) – Count date Tuesday November 29, 2016
- Mayfield Road and Hwy 410 Southbound Off-Ramp (signalized) – Count date Wednesday September 11, 2019
- Mayfield Road and Hwy 410 Northbound Off-Ramp (signalized) – Count date Wednesday September 11, 2019
- Mayfield Road and Stonegate Drive (unsignalized) – Count date Tuesday October 30, 2018
- Mayfield Road and Snellview Boulevard/Inder Heights Drive (signalized) – Count date Thursday October 5, 2017

The turning movement counts data provided by the City was conducted during the morning (7:00 a.m. to 9:00 a.m.) and afternoon (4:00 p.m. to 6:00 p.m.) peak periods for all area intersections. Typically, traffic turning movement counts will be undertaken by Nextrans at the study area intersections to capture the most up-to-date turning movement counts in the area. However, given the COVID-19 situation which requires business and school lockdown, any traffic turning movement counts to be undertaken at this time will not provide a meaningful assessment and snapshot of the existing conditions. These turning movement counts cannot be undertaken until schools and businesses are resumed to normal operation.

Nextrans contacted Peel Region and obtained the growth rates for the area under both medium term and longer term. Given the current pandemic situation, it is appropriate to use the older traffic turning movement counts and use the Region provided growth rates to project it to the current 2021 conditions. This approach is consistent with the industry best practices and requirement from other jurisdictions in the Greater Toronto and Hamilton Area. The Region has indicated that the growth rate for Mayfield Road east of Kennedy Road is 1.5% per annum between 2016 and 202. This growth rate is estimated based on multiple sources including Peel Travel Demand forecasting model, ATR and land use/forecasts data.

Nextrans contacted the Town of Caledon for available existing traffic counts at the Kennedy Road/Snellview Boulevard intersection. However, it is Nextrans' understanding that recent traffic counts are not available at this intersection at this time. For purposes of this assessment, the traffic turning movement counts at this intersection will be estimated based on:

- Trip generation for the existing homes in the north-west quadrant of the Kennedy Road/Mayfield Road intersection (approximately 250 single-detached family homes) based on Institute of Transportation Engineers Trip Generation Manual, 10th Edition;
- Existing traffic counts on Kennedy Road north of Mayfield Road; and
- Existing traffic turning movement counts at Mayfield Road/Snellview Boulevard/Inder Heights Drive intersection

Table 1 summarizes the trip generation for the existing Snellview Boulevard subdivision.

Table 1 – Snellview Subdivision Trip Generation

ITE Land Use	Magnitude (units)	Parameters	Morning Peak Hour			Afternoon Peak Hour		
			In	Out	Total	In	Out	Total
Single-Family Detached Housing LUC 210 General Urban/Suburban	250	Trip Rates AM - T = 0.71(X) + 4.80 PM - Ln(T) = 0.96Ln(X) + 0.20	0.18	0.55	0.73	0.62	0.36	0.98
		Total Trips	46	136	182	154	91	245

It is estimated that the existing Snellview subdivision currently generates 182 and 245 two-way auto trips during the morning and afternoon peak periods, respectively. The trip distribution and assignment are based on the existing traffic turning movement counts and 2016 TTS data as included in Appendix E. It is Nextrans' opinion that this approach is reasonable and justified given the COVID-19 situation. Turning movement counts are included in Appendix B, using the methodology noted above. The existing volumes are illustrated in Figures 6A and 6B, with Figures 7A and 7B illustrating the 2021 existing (estimated) traffic volumes for the morning and afternoon peak hours, respectively.

2.5. Existing Traffic Assessment

The existing volumes in Figures 7A and 7B were analyzed using Synchro Version 10 software. It should be noted that the printouts for unsignalized intersections are based on HCM 2000 outputs and the results for signalized intersections

are based on Synchro Lanes, Volumes and Timings so that queues and more detailed information are provided. The detailed results are provided in **Appendix C** and summarized in **Table 2**. The analysis reflects the existing signal timing plans provided by Peel Region.

Table 2 – Existing Levels of Service

Intersection	Key Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		LOS (v/c)	Delay (s)	Queue 95 th (m)	LOS (v/c)	Delay (s)	Queue 95 th (m)
Mayfield Road/ Kennedy Road (Signalized)	Overall	D (1.06)	44		D (0.87)	37	
	EB - L	C (0.52)	24	24	E (0.87)	79	100
	EB - T	E (1.03)	60	259	C (0.57)	34	86
	EB - R	C (0.39)	25	10	B (0.43)	18	41
	WB - L	C (0.52)	30	95	D (0.84)	48	186
	WB - TR	A (0.41)	6	43	C (0.78)	30	151
	NB - L	C (0.16)	27	19	D (0.31)	37	40
	NB - TR	B (0.13)	11	15	C (0.30)	30	47
	SB - L	F (1.06)	85	273	D (0.64)	35	72
	SB - TR	B (0.34)	13	44	C (0.22)	12	23
	Overall	B (0.56)	17		C (0.73)	25	
	EB - L	B (0.08)	19	4	C (0.22)	34	16
Mayfield Road/ Heart Lake Road (Signalized)	EB - T	C (0.50)	21	74	C (0.37)	31	93
	EB - R	A (0.54)	4	15	B (0.16)	11	25
	WB - L	B (0.56)	20	25	B (0.13)	11	10
	WB - R	B (0.31)	14	50	B (0.46)	16	85
	WB - T	A (0.02)	0	0	A (0.05)	3	5
	NB - L	C (0.29)	35	42	D (0.73)	47	113
	NB - T	C (0.02)	33	8	C (0.08)	32	19
	NB - R	A (0.04)	0	1	A (0.03)	0	0
	SB - L	D (0.11)	42	19	D (0.10)	39	16
	SB - T	D (0.20)	43	37	D (0.07)	38	15
	SB - R	A (0.11)	4	5	A (0.06)	0	0
	Overall	B (0.65)	16		A (0.55)	8	
Mayfield Road/ Snellview Blvd/Inder Heights Drive (Signalized)	EB - L	B (0.08)	13	5	B (0.30)	14	16
	EB - TR	B (0.65)	20	152	B (0.51)	12	92
	WB - L	B (0.11)	12	3	A (0.07)	4	1
	WB - T	B (0.54)	13	64	A (0.55)	4	25
	WB - R	A (0.01)	0	0	A (0.02)	0	0
	NB - L	C (0.03)	33	7	D (0.00)	38	2
	NB - TR	A (0.04)	0	0	A (0.02)	0	0
	SB - LTR	B (0.17)	12	17	B (0.12)	19	8
	Overall	B (0.70)	15		A (0.38)	5	
	EB - T	A (0.32)	9	39	A (0.18)	3	12
Mayfield Road/ Hwy 410 SB Off-Ramp (Signalized)	WB - T	A (0.32)	9	39	A (0.38)	4	33
	SB - L	A (0.70)	33	60	D (0.33)	37	19
	SB - R	A (0.19)	8	11	B (0.07)	18	5
	Overall	C (0.94)	27		C (0.82)	25	
	EB - T	B (0.58)	19	106	B (0.30)	15	51
Mayfield Road/ Hwy 410 NB Off-Ramp (Signalized)	WB - T	B (0.45)	17	71	B (0.59)	20	124
	NB - L	D (0.85)	34	85	D (0.82)	36	113
	NB - R	E (0.94)	64	173	D (0.82)	37	122
	EB - L	E (0.02)	48	1	F (0.03)	65	1
	EB - R	B (0.13)	14	3	B (0.06)	10	2
Kennedy Road/ Snellview Boulevard (Unsignalized)	NB - L	B (0.04)	11	1	A (0.07)	9	2
	NB - T	A (0.27)	0	0	A (0.58)	0	0
	SB - T	A (0.45)	0	0	A (0.21)	0	0
	SB - TR	A (0.22)	0	0	A (0.11)	0	0
	EB - TR	A (0.70)	0	0	A (0.47)	0	0
	EB - T	A (0.35)	0	0	A (0.24)	0	0
Mayfield Road/ Stonegate Drive (Unsignalized)	WB - L	C (0.09)	18	2	B (0.17)	13	5
	WB - T	A (0.29)	0	0	A (0.56)	0	0
	NB - LR	D (0.37)	29	13	C (0.17)	23	5

Based on the intersection capacity analysis, under the existing traffic conditions, the following observations are made:

- The signalized intersection of Mayfield Road and Kennedy Road is currently operating at acceptable levels of service during the afternoon peak hour and slightly higher delay during the morning peak hour in the eastbound through and southbound left turn movements. This is due to heavy through and southbound left turn volumes. However, this is expected for this major intersection along Mayfield Road during the peak hours. Signal timing optimization will mitigate these operational issues and will be reviewed under the 2023 Future Total Conditions.
- The signalized intersection of Mayfield Road and Heart Lake Road is currently operating at acceptable levels of service during both the morning peak hour and afternoon peak hours;
- The signalized intersection of Mayfield Road and Snellview Blvd/Inder Heights Drive is currently operating at acceptable levels of service during both the morning peak hour and afternoon peak hours;
- The existing Hwy 410 southbound off-ramp and northbound off-ramp are currently operating at acceptable levels of services; and
- Both of the unsignalized intersections at Kennedy Road/Snellview Blvd and Mayfield Road/Stonegate Drive are currently operating at acceptable levels of service. The eastbound left turn out of Snellview Blvd onto Kennedy Road is currently operating at higher delay due to the heavy through traffic on Kennedy Road. However, the volume is very low and this is a typical condition for an unsignalized intersection along Kennedy Road.

The analysis indicates that no improvements are required under the 2021 traffic conditions based on the existing and estimated traffic volumes.

3.0 TRANSPORTATION PLANNING CONTEXT IN THE AREA

3.1. Land Use Context

A comprehensive review of the general area indicates that the area is relatively new and comprises mostly residential development to the north and south of Hwy 410, as well as automall and employment to the east of Hwy 410. The majority of the existing shopping centres are located south of Mayfield Road along Hurontario Street and Kennedy Road corridors. As the majority of the proposed development is residential, with a proposed neighbourhood commercial, it has similar transportation characteristics as the existing developments to the north and south of the subject site.

3.2. Transportation Planning Context

As indicated, the subject lands are bounded by Highway 410 to the north, Highway 410 southbound off-ramp to the east, Kennedy Road to the west and Mayfield Road to the south, in the Town of Caledon. The area is currently servicing by Highway 410 for northbound and southbound longer distance travel, as well as Kennedy Road, Heart Lake Road and Mayfield Road for shorter distance travel to and from the area. There are proposed road improvements along Mayfield Road, with the proposed widening from its current 4-lane to 6-lane cross-section by 2026 to accommodate east-west traffic in the area.

The proposed development is located adjacent to Brampton Transit Bus Routes 81 Hurontario, 7/7A Kennedy and 24 Van Kirk. In addition, the site is located about 8.5 km to the existing Brampton GO Train Station and about 10.0 km to the existing Mount Pleasant GO Train Station. There are existing sidewalk facilities along Kennedy Road and multiuse trails along Mayfield Road and Kennedy Road.

It is Nextrans' opinion that the area is currently servicing by excellent transportation road network. The transit and active transportation network will be improved and developed better over time as the area developed.

3.3. Hurontario LRT

It is Nextrans' understanding that Metrolinx is partnered with the municipality to build the new 18-km Hurontario LRT (with 19 stops) that services Mississauga and Brampton with better and more convenient way of travel. Based on the project website information (<http://www.metrolinx.com/en/greaterregion/projects/hurontario-lrt.aspx>), Metrolinx and Infrastructure

Ontario (IO) have officially announced the winning bidder for the Hurontario Light Rail Transit project. Mobilinx, the winning team, will design, build, finance, operate and maintain the new transit project for a 30-year term. The release of the winning bidder means Metrolinx and IO are moving forward with one of the largest infrastructure projects in Ontario. Peel Region has welcomed the project with open arms, eagerly awaiting its arrival. Design work will begin immediately with construction to follow. Mobilinx anticipates completion of the LRT in fall 2024. Metrolinx and IO are delivering the Hurontario LRT via a public-private partnership (P3) contract which transfers the appropriate risks to the private sector. While the LRT will be operated and maintained by Mobilinx, it will remain publicly owned by Metrolinx.

As the subject site is located about less than 2.0 km to Hurontario Street, residents can connect with the future Hurontario LRT via a transfer from Route 7/7A Kennedy. It is Nextrans' opinion that this project is critical and will encourage existing and future residents from taking more convenient and sustainable mode of transportation instead of driving single-occupant-vehicles.

4.0 FUTURE BACKGROUND CONDITIONS

4.1. Analysis Horizon

The proposed development is expected to be completed by 2023. For the purposes of this assessment, a five-year horizon (2028) and a ten-year horizon (2033) have been carried out for the study analysis. This is consistent with Peel Region, Town of Caledon, City of Brampton and MTO Traffic Impact Study Guidelines and other background studies conducted in the area.

4.2. Widening of Mayfield Road to Accommodate Growth

It is Nextrans' understanding that Peel Region recently completed the widening of Mayfield Road from 300m east of Bramalea Road to Airport Road, including the intersection of Mayfield Road at Torbram Road.

The Region is also planning to widen Mayfield Road from Heart Lake Road to Chinguacousy Road by 2026 from existing 4-lane cross-section to 6-lane cross-section with 3.0 m multi-use path on the south side of Mayfield Road. However, it should be noted that:

- At the Mayfield Road/Snellview Blvd/Inder Heights Drive intersection, there will be three lanes in the eastbound direction, with the curb lane to be a shared through/right. In the westbound direction, there will be three through lane plus an exclusive right turn lane; and
- At the Mayfield Road/Kennedy Road intersection, there will be three lanes in the eastbound direction plus an exclusive right turn lane. However, in the westbound direction, there will be three through lane with the curb lane to be shared through/right.

Given that the Environmental Study Report (ESR) for this section of Mayfield Road was completed and filed in July, 2014, the traffic volumes estimated in the ESR are quite old. For the purposes of this assessment, Nextrans will estimate the background traffic based on the modelling data using land use forecasts and other historical count information. This forecast and analysis will provide inputs into the future detailed design process for Mayfield Road, as well as any additional improvements at Kennedy Road and Heart Lake Road that could be incorporated into the drawings and potentially construction.

4.3. Future Background Corridor Growth (CAGR)

Nextrans has received the growth rates information from Peel Region and the Town of Caledon. The growth rate information is provided in **Appendix D**. It is anticipated that:

- Mayfield Road – 1.5% growth per annum between 2016 and 2021 (equivalent of 7.5% total for 5 years)
- Mayfield Road – 5.0% growth per annum between 2021 and 2031 (equivalent of 50% total for 10 years)

- Kennedy Road and Heart Lake Road – 2.0% per annum (equivalent of 24% total for 12 years)

Based on various discussion with the Regional staff, these growth rates are estimated based on multiple sources including Peel Travel Demand forecasting model, ATR and land use/forecasts data for each traffic zones (2006 Traffic Zones). These rates also assumed a road widening of Mayfield Road from 2 to 3 lanes in each direction by 2026.

The information above indicates that there will be a significant growth in background traffic in the Study area, for both Mayfield Road, Kennedy Road and Heart Lake Road. For the purposes of this assessment, a 2% growth rate per annum will also applied to Highway 410 ramps, which will be applied to all movements.

It should be noted that these growth rates will be compounded and applied to all movements at the intersections included in the Study Area, with the exception of the Snellview Boulevard and Stonegate Drive as these subdivisions are already completed and no growth is expected in these existing and established neighbourhood.

Since the growth rate forecasts were based on the land use forecasts using population and employment data in each traffic zones, the subject lands population and employment forecasts were also included in the growth rates provided by the Region and the Town. Given that these population and land use forecasts were not taken out as part of the growth rate forecast, the analysis is conservative and may represent slightly over estimation of the traffic volumes in the Study Area. This is acceptable and build in some reserve capacity for future growth of the area.

4.4. Background Development Applications

As indicated in Section 4.3 above, the forecasted growth rates for Mayfield Road and other major roads and highway in the area also included the land use forecast data for the traffic zones in the Study Area and beyond. Therefore, the growth rates provided above also included all the anticipated population and employment growth from the background developments in the area. However, for completeness and address the terms of reference comments from Peel Region, a full review of active developments within the study area was conducted based on the information extracted from the Town of Caledon and City of Brampton Development Portal, as well some information from Peel Region. However, it should be noted that these development site traffic will be applied to the turning movements only and some through traffic, however, most of the through traffic volumes will be captured through very high growth rates provided by Peel Region and Town of Caledon.

The two immediate proposed developments that will impact the turning movements are the proposed residential subdivision (17014B) located at the south-west quadrant of the Kennedy Road/Mayfield Road intersection (currently under appeal) and the "proposed west employment lands countryside villages" located south of Mayfield Road, east of Heart Lake Road. The background traffic volume estimates are provided in [Appendix E](#). There two proposed subdivisions that are located at 2256 Mayfield Road and 2650 Mayfield Road (west of Hurontario Street). These subdivisions are located further away from the study area and it is expected that the site generated traffic will be capture through the very high growth rate along Mayfield Road. The future background traffic volumes for 2023, 2028 and 2033 horizons are provided in [Figures 8A, 8B, 9A, 9B, 10A and 10 B](#).

4.5. Future Background Traffic Assessment

The estimated 2023, 2028 and 2033 future background traffic volumes that are illustrated in [Figures 8A through 10B](#) (background corridor growth + background development traffic) were analyzed using Synchro Version 10 software. The detailed calculations are provided in [Appendix F](#) and summarized in [Table 3](#), [Table 4](#) and [Table 5](#) for 2023, 2028 and 2033 horizons, respectively.

It should be noted that for the 2023 future background horizon, the existing lane configurations will be reflected in the analysis. The signal timing optimization, which will be consistent with the Region's parameters for pedestrian crossing, amber and all red, as well as the crossing times and total cycle length will be maintained, with the exception of the green time allocation and split time for certain critical movements.

For the 2028 and 2033 future background horizons, given that the widening of Mayfield Road is expected to be completed

by 2026, the analysis will reflect the widening of Mayfield Road through the study area. However, additional improvements beyond what have been identified in the ESR will be identified for both horizon years.

As road widening will automatically require signal timing optimization in the 2026 horizon based on the actual traffic counts at that time, however, Nextrans will provide an initial signal timing plan and optimization to assist the Regional staff to review and have an idea the signal timing requirements in the future.

Table 3 – 2023 Future Background Levels of Service

Intersection	Key Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		LOS (v/c)	Delay (s)	Queue 95 th (m)	LOS (v/c)	Delay (s)	Queue 95 th (m)
Mayfield Road/ Kennedy Road (Signalized)	Overall	D (1.06)	47	24	D (0.88)	38	
	EB – L	C (0.53)	24	271	E (0.87)	79	100
	EB – T	E (1.06)	70	10	C (0.59)	35	91
	EB – R	C (0.37)	24	34	B (0.44)	18	40
	WB – L	C (0.53)	30	98	D (0.88)	50	196
	WB – TR	A (0.40)	6	19	C (0.78)	30	152
	NB – L	C (0.15)	27	15	D (0.31)	37	40
	NB – TR	B (0.13)	11	255	C (0.30)	30	46
	SB – L	E (1.03)	77	43	C (0.63)	35	72
	SB – TR	B (0.33)	13		B (0.22)	12	23
	Overall	C (0.97)	20	4	C (0.71)	25	
	EB – L	B (0.08)	19	74	C (0.22)	35	15
Mayfield Road/ Heart Lake Road (Signalized)	EB – T	C (0.51)	21	15	C (0.38)	32	97
	EB – R	A (0.52)	4	69	B (0.15)	12	25
	WB – L	E (0.97)	69	69	B (0.17)	17	12
	WB – R	B (0.31)	14	52	B (0.47)	1	89
	WB – T	A (0.02)	0	0	A (0.05)	3	5
	NB – L	C (0.28)	35	41	D (0.71)	46	109
	NB – T	C (0.02)	33	8	C (0.08)	32	19
	NB – R	A (0.05)	3	3	A (0.08)	5	0
	SB – L	D (0.11)	42	18	D (0.09)	39	6
	SB – T	D (0.19)	43	36	D (0.06)	38	16
	SB – R	A (0.11)	3	4	A (0.05)	0	0
	Overall	B (0.67)	17	5	A (0.57)	8	
Mayfield Road/ Snellview Blvd/Inder Heights Drive (Signalized)	EB – L	B (0.08)	13	159	B (0.30)	14	15
	EB – TR	C (0.67)	20	3	B (0.53)	13	97
	WB – L	B (0.13)	12	65	A (0.11)	4	1
	WB – T	B (0.56)	12	0	A (0.57)	4	24
	WB – R	A (0.01)	0	12	A (0.02)	0	0
	NB – L	C (0.07)	34	3	D (0.02)	38	6
	NB – TR	A (0.06)	3	3	A (0.03)	0	0
	SB – LTR	B (0.16)	12	16	B (0.11)	19	7
	Overall	B (0.68)	14	37	A (0.40)	5	
	EB – T	A (0.30)	8	41	A (0.19)	3	14
	WB – T	A (0.33)	8	58	A (0.40)	4	35
	SB – L	C (0.68)	34	14	D (0.32)	37	18
Mayfield Road/ Hwy 410 NB Off-Ramp (Signalized)	SB – R	B (0.20)	10		B (0.06)	19	5
	Overall	C (0.86)	24	105	C (0.82)	24	
	EB – T	B (0.54)	17	66	B (0.31)	15	55
	WB – T	B (0.40)	15	90	B (0.57)	19	117
	NB – L	D (0.86)	39	125	D (0.82)	37	111
	NB – R	D (0.86)	54		C (0.76)	33	102
Kennedy Road/ Snellview Boulevard (Unsignalized)	EB – L	E (0.02)	46	1	F (0.03)	62	1
	EB – R	B (0.12)	14	3	B (0.06)	10	2
	NB – L	B (0.04)	11	1	A (0.07)	9	2
	NB – T	A (0.26)	0	0	A (0.58)	0	0
	SB – T	A (0.44)	0	0	A (0.21)	0	0
	SB – TR	A (0.22)	0	0	A (0.11)	0	0
Mayfield Road/ Stonegate Drive (Unsignalized)	EB – TR	A (0.75)	0	0	A (0.48)	0	0
	EB – T	A (0.37)	0	0	A (0.25)	0	0
	WB – L	C (0.09)	19	2	B (0.16)	13	5
	WB – T	A (0.31)	0	0	B (0.57)	0	0
	NB – LR	D (0.40)	34	14	C (0.16)	23	5

Table 4 – 2028 Future Background Levels of Service

Intersection	Key Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		LOS (v/c)	Delay (s)	Queue 95 th (m)	LOS (v/c)	Delay (s)	Queue 95 th (m)
Mayfield Road/ Kennedy Road (Signalized)	Overall	C (0.94)	34	59	D (0.99)	45	
	EB – L	E (0.78)	68		E (0.89)	68	110
	EB – T	C (0.89)	34	116	C (0.40)	25	78
	EB – R	A (0.21)	5	9	A (0.11)	5	10
	WB – L	C (0.41)	23	14	B (0.43)	17	32
	WB – TR	C (0.73)	35	114	E (0.99)	57	253
	NB – L	E (0.36)	55	29	D (0.46)	50	51
	NB – TR	C (0.27)	22	23	D (0.42)	40	60
	SB – L	D (0.94)	49	250	E (0.87)	63	113
	SB – TR	B (0.36)	15	53	B (0.28)	15	29
Mayfield Road/ Heart Lake Road (Signalized)	Overall	C (0.90)	28		C (0.78)	22	
	EB – L	C (0.13)	31	6	D (0.43)	39	21
	EB – T	D (0.76)	37	144	C (0.48)	21	91
	EB – R	B (0.63)	12	54	A (0.17)	3	11
	WB – L	E (0.90)	73	104	B (0.23)	13	12
	WB – R	B (0.40)	15	69	B (0.60)	19	124
	WB – T	A (0.02)	0	0	A (0.06)	3	6
	NB – L	D (0.31)	35	44	D (0.78)	51	124
	NB – T	C (0.03)	33	9	C (0.09)	32	21
	NB – R	A (0.06)	3	3	A (0.08)	5	6
	SB – L	D (0.12)	42	20	D (0.10)	39	17
	SB – T	D (0.21)	43	40	D (0.07)	38	16
	SB – R	A (0.12)	4	6	A (0.06)	0	0
Mayfield Road/ Snellview Blvd/Inder Heights Drive (Signalized)	Overall	B (0.60)	15		B (0.51)	12	
	EB – L	B (0.11)	14	6	C (0.43)	23	21
	EB – TR	B (0.60)	18	124	B (0.47)	11	77
	WB – L	B (0.19)	13	3	B (0.15)	11	7
	WB – T	B (0.49)	10	52	B (0.51)	12	90
	WB – R	A (0.01)	0	0	A (0.02)	2	2
	NB – L	C (0.07)	34	12	D (0.02)	38	6
	NB – TR	B (0.06)	16	9	A (0.03)	0	0
	SB – LTR	A (0.16)	9	13	B (0.11)	17	13
	Overall	B (0.70)	14		A (0.51)	6	
Mayfield Road/ Hwy 410 SB Off-Ramp (Signalized)	EB – T	A (0.40)	9	34	A (0.25)	3	19
	WB – T	A (0.43)	10	37	A (0.51)	5	52
	SB – L	C (0.70)	33	51	D (0.35)	37	12
	SB – R	B (0.22)	18	9	C (0.07)	30	7
	Overall	C (0.90)	27		C (0.85)	29	
Mayfield Road/ Hwy 410 NB Off-Ramp (Signalized)	EB – T	C (0.71)	22	152	B (0.42)	18	71
	WB – T	B (0.53)	18	90	C (0.77)	25	167
	NB – L	D (0.90)	39	102	D (0.85)	40	136
	NB – R	E (0.90)	59	159	D (0.82)	41	136
	Overall	F (0.03)	61	1	F (0.05)	90	1
Kennedy Road/ Snellview Boulevard (Unsignalized)	EB – R	B (0.13)	15	3	B (0.06)	11	2
	NB – L	B (0.04)	12	1	A (0.08)	9	2
	NB – T	A (0.29)	0	0	A (0.64)	0	0
	SB – T	A (0.49)	0	0	A (0.23)	0	0
	SB – TR	A (0.24)	0	0	A (0.12)	0	0
	Overall	A (0.57)	0	0	A (0.37)	0	0
Mayfield Road/ Stonegate Drive (Unsignalized)	EB – T	A (0.29)	0	0	A (0.19)	0	0
	WB – L	D (0.15)	29	4	B (0.22)	16	7
	WB – T	A (0.26)	0	0	B (0.48)	0	0
	NB – LR	E (0.44)	39	16	D (0.27)	27	5

Table 5 – 2033 Future Background Levels of Service

Intersection	Key Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		LOS (v/c)	Delay (s)	Queue 95 th (m)	LOS (v/c)	Delay (s)	Queue 95 th (m)
Mayfield Road/ Kennedy Road (Signalized)	Overall	D (1.36)	53	50	F (1.23)	88	
	EB – L	E (0.71)	64		F (0.94)	89	132
	EB – T	C (0.91)	26	158	C (0.52)	24	71
	EB – R	A (0.20)	5	9	A (0.13)	5	10
	WB – L	C (0.46)	22	19	C (0.58)	21	35
	WB – TR	D (0.78)	38	150	F (1.23)	145	355
	NB – L	D (0.36)	51	31	D (0.52)	53	56
	NB – TR	C (0.26)	23	25	D (0.47)	41	67
	SB – L	F (1.36)	203	361	F (1.02)	94	145
	SB – TR	C (0.47)	21	71	B (0.31)	16	32
Mayfield Road/ Heart Lake Road (Signalized)	Overall	C (0.88)	30		C (0.87)	29	
	EB – L	C (0.18)	31	7	B (0.30)	16	10
	EB – T	D (0.88)	40	185	C (0.61)	24	126
	EB – R	B (0.70)	18	83	A (0.18)	3	11
	WB – L	E (0.81)	58	86	B (0.34)	15	13
	WB – R	B (0.46)	11	76	C (0.84)	31	217
	WB – T	A (0.02)	1	2	A (0.07)	2	4
	NB – L	D (0.50)	53	60	E (0.87)	59	158
	NB – T	D (0.04)	41	10	C (0.09)	32	22
	NB – R	A (0.07)	5	4	A (0.08)	6	6
	SB – L	D (0.13)	42	22	D (0.12)	39	18
	SB – T	D (0.24)	44	43	D (0.08)	39	18
	SB – R	B (0.13)	11	12	A (0.06)	0	0
Mayfield Road/ Snellview Blvd/Inder Heights Drive (Signalized)	Overall	B (0.76)	20		A (0.69)	8	
	EB – L	B (0.19)	20	7	B (0.40)	19	13
	EB – TR	C (0.76)	22	185	B (0.58)	13	109
	WB – L	D (0.34)	35	5	A (0.25)	4	1
	WB – T	B (0.63)	16	116	A (0.69)	4	25
	WB – R	A (0.01)	1	0	A (0.02)	0	0
	NB – L	C (0.07)	34	12	D (0.02)	40	6
	NB – TR	B (0.06)	16	9	A (0.03)	0	0
	SB – LTR	C (0.16)	22	22	B (0.11)	15	4
	Overall	B (0.72)	16		A (0.65)	7	
Mayfield Road/ Hwy 410 SB Off-Ramp (Signalized)	EB – T	B (0.53)	12	76	A (0.31)	4	26
	WB – T	B (0.56)	12	81	A (0.65)	6	82
	SB – L	C (0.72)	32	68	D (0.38)	37	21
	SB – R	C (0.24)	21	24	C (0.07)	32	8
	Overall	C (0.95)	34		D (0.96)	42	
Mayfield Road/ Hwy 410 NB Off-Ramp (Signalized)	EB – T	C (0.94)	34	241	C (0.52)	21	103
	WB – T	C (0.69)	22	127	D (0.96)	42	298
	NB – L	D (0.95)	39	115	E (0.94)	55	206
	NB – R	E (0.95)	67	187	E (0.92)	61	214
	Overall	F (0.04)	82	1	F (0.07)	142	2
Kennedy Road/ Snellview Boulevard (Unsignalized)	EB – R	C (0.14)	16	4	B (0.07)	11	2
	NB – L	B (0.05)	13	1	A (0.08)	9	2
	NB – T	A (0.32)	0	0	A (0.71)	0	0
	SB – T	A (0.54)	0	0	A (0.26)	0	0
	SB – TR	A (0.27)	0	0	A (0.13)	0	0
	Overall	A (0.73)	0	0	A (0.47)	0	0
Mayfield Road/ Stonegate Drive (Unsignalized)	EB – TR	A (0.35)	0	0	A (0.24)	0	0
	EB – T	F (0.28)	59	8	C (0.32)	24	11
	WB – L	A (0.33)	0	0	B (0.61)	0	0
	NB – LR	F (1.17)	264	51	F (0.48)	86	16

Based on the intersection capacity analysis, the following observations are made for the 2023, 2028 and 2033 Future Background Conditions:

2023 Future Background Conditions

Under this horizon, no capital improvements on Mayfield Road and other roads in the study area have been assumed. In addition, all existing signal timing plans will be similar to the existing conditions.

- The signalized intersection of Mayfield Road and Kennedy Road is expected to operate at acceptable levels of service during the afternoon peak hour and slightly higher delay during the morning peak hour in the eastbound through and southbound left turn movements. This is due to heavy through and southbound left turn volumes. However, this is expected for this major intersection along Mayfield Road during the peak periods. It is anticipated that signal timing optimization will temporarily mitigate these issues. The signal timing optimization will be provided under the 2023 Future Total Conditions;
- The signalized intersection of Mayfield Road and Heart Lake Road is expected to operate at acceptable levels of service during both the morning peak hour and afternoon peak hours;
- The signalized intersection of Mayfield Road and Snellview Blvd/Inder Heights Drive is expected to operate at acceptable levels of service during both the morning peak hour and afternoon peak hours;
- The Hwy 410 southbound off-ramp and northbound off-ramp are expected to operate at acceptable levels of services; and
- Both of the unsignalized intersections at Kennedy Road/Snellview Blvd and Mayfield Road/Stonegate Drive are expected to operate at acceptable levels of service. The eastbound left turn out of Snellview Blvd onto Kennedy Road and northbound left turn out of Stonegate Drive onto Mayfield Road are expected to operate at higher delay due to the heavy through traffic on Kennedy Road and Mayfield Road. However, the volume is very low and this is a typical condition for an unsignalized intersection along Kennedy Road and Mayfield Road.

The analysis indicates that no improvements are required under the 2023 future background traffic conditions based on the estimated traffic volumes.

2028 Future Background Conditions

Under this horizon, it is assumed that the planned improvements on Mayfield Road are completed with the lane configurations identified in the approved ESR. In addition, all existing signal timing plans will be optimized based on these new improvements.

- The signalized intersection of Mayfield Road and Kennedy Road is expected to operate at acceptable levels of service during the morning and afternoon peak hours. However, during the afternoon peak hour, the westbound shared through/right and southbound left turn movements are expected to operate near or at capacity. This is due to heavy turning volumes. Although this may be acceptable in a short-term, it should be mitigated if possible. Under the 2033 Future Background Conditions, Nextrans will test the intersection operations with the proposed physical improvements for this intersection;
- The signalized intersection of Mayfield Road and Heart Lake Road is expected to operate at acceptable levels of service during both the morning peak hour and afternoon peak hours;
- The signalized intersection of Mayfield Road and Snellview Blvd/Inder Heights Drive is expected to operate at acceptable levels of service during both the morning peak hour and afternoon peak hours;
- The Hwy 410 southbound off-ramp and northbound off-ramp are expected to operate at acceptable levels of services; and
- Both of the unsignalized intersections at Kennedy Road/Snellview Blvd and Mayfield Road/Stonegate Drive are expected to operate at acceptable levels of service. The eastbound left turn out of Snellview Blvd onto Kennedy Road and northbound left turn out of Stonegate Drive onto Mayfield Road are expected to operate at higher

delay due to the heavy through traffic on Kennedy Road and Mayfield Road. However, the volume is very low and this is a typical condition for an unsignalized intersection along Kennedy Road and Mayfield Road.

2033 Future Background Conditions

Under this horizon, it is assumed that the planned improvements on Mayfield Road are completed with the lane configurations identified in the approved ESR. In addition, all existing signal timing plans will be optimized based on these new improvements.

- The signalized intersection of Mayfield Road and Kennedy Road is expected to operate at higher delay and v/c without the southbound double left turn and westbound exclusive right turn lanes. However, with the southbound double left and westbound exclusive right turn lanes, this intersection is expected to operate at acceptable levels of service during the morning and afternoon peak hours. The intersection operations with these proposed improvements are summarized in **Table 6** below;
- The signalized intersection of Mayfield Road and Heart Lake Road is expected to operate at acceptable levels of service during both the morning peak hour and afternoon peak hours;
- The signalized intersection of Mayfield Road and Snellview Blvd/Inder Heights Drive is expected to operate at acceptable levels of service during both the morning peak hour and afternoon peak hours;
- The Hwy 410 southbound off-ramp and northbound off-ramp are expected to operate at acceptable levels of services; and
- Both of the unsignalized intersections at Kennedy Road/Snellview Blvd and Mayfield Road/Stonegate Drive are expected to operate at acceptable levels of service but with higher delay for the eastbound left turn out of Snellview Blvd onto Kennedy Road and northbound left turn out of Stonegate Drive onto Mayfield Road due to the heavy through traffic on Kennedy Road and Mayfield Road. Traffic signal warrant analysis and other improvements will be examined under the Future Total Conditions.

The findings indicate that the southbound double left turn and westbound exclusive right turn lanes should be provided for the Mayfield Road/Kennedy Road intersection by 2028. It is recommended that Peel Region considers these improvements as part of the Mayfield Road detailed design and construction as planned for 2026.

Table 6 – 2033 Future Background Levels of Service with Improvements

Intersection	Key Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		LOS (v/c)	Delay (s)	Queue 95 th (m)	LOS (v/c)	Delay (s)	Queue 95 th (m)
Mayfield Road/ Kennedy Road (Signalized) <i>With WB exclusive right turn lane and SB double left turn lane</i>	Overall	C (0.91)	27		D (0.95)	41	
	EB – L	C (0.60)	34	34	E (0.88)	79	117
	EB – T	C (0.91)	26	158	C (0.53)	26	76
	EB – R	A (0.20)	5	9	A (0.13)	6	11
	WB – L	C (0.46)	22	19	C (0.59)	23	37
	WB – T	C (0.57)	32	109	D (0.95)	53	230
	WB – R	B (0.47)	14	60	D (0.91)	43	220
	NB – L	D (0.36)	51	31	D (0.50)	51	55
	NB – TR	C (0.26)	23	25	D (0.44)	40	66
	SB – L	C (0.70)	31	97	C (0.50)	32	45
	SB – TR	C (0.47)	21	71	B (0.30)	15	31

5.0 SITE TRAFFIC

5.1. Proposed Development

As indicated, the proposed development consists of approximately 1,087 residential dwelling units of mixed types and approximately 1.47 ha of commercial development area. The anticipated breakdowns are as follows:

- Low density (detached, semi-detached and street townhouses) – 364 dwelling units

- Medium density (townhouses) – 345 dwelling units
- Medium-high density (townhouses and apartments) – 378 dwelling units
- Commercial (63 jobs/ha) – 93 jobs

The 2016 Transportation Tomorrow Survey (TTS), the *Trip Generation Manual, 10th Edition* published by the Institute of Transportation Engineers (ITE) and information was reviewed to estimate the modal split, trip distribution and trip generation for the proposed development.

5.2. Modes of Travel Assessment in the Area

Table 7 summarizes the travel mode split information based on the review of the 2016 Transportation Tomorrow Survey data for Traffic Zones 3007, 3008, 3009 and 3010. The 2016 TTS data extraction is included in **Appendix G**.

Table 7 – Modal Split based on 2016 TTS Data for Traffic Zones

Time	Trips Made by Traffic Zones				
	Auto Driver	Auto Passenger	Transit	Cycle	Walk
AM Peak Period (6:00AM – 9:00AM)	81%	12%	5%	0%	2%
PM Peak Period (4:00PM – 7:00PM)	81%	15%	4%	0%	0%

Based on the information above, as expected, the predominant mode of travel in the area is auto trips, which accounts for 81% during the morning and afternoon peak periods, respectively. The non single-occupant-vehicle mode accounts for approximately 19% during the morning and afternoon peak periods, respectively. Although this is a great trend for a new area, however, the auto driver mode is still very high, which is not sustainable and does not meet the sustainable objective of the Town and the Region's Official Plan policies and directions. In addition, there is none or very little bicycle trips, despite there are existing cycling facilities.

For the purposes of this assessment, a moderate 5% modal split (all non-auto modes) will be utilized for the proposed development. This assessment is reasonable given that the analysis horizon years will be 2028 and 2033.

5.3. Site Trip Generation

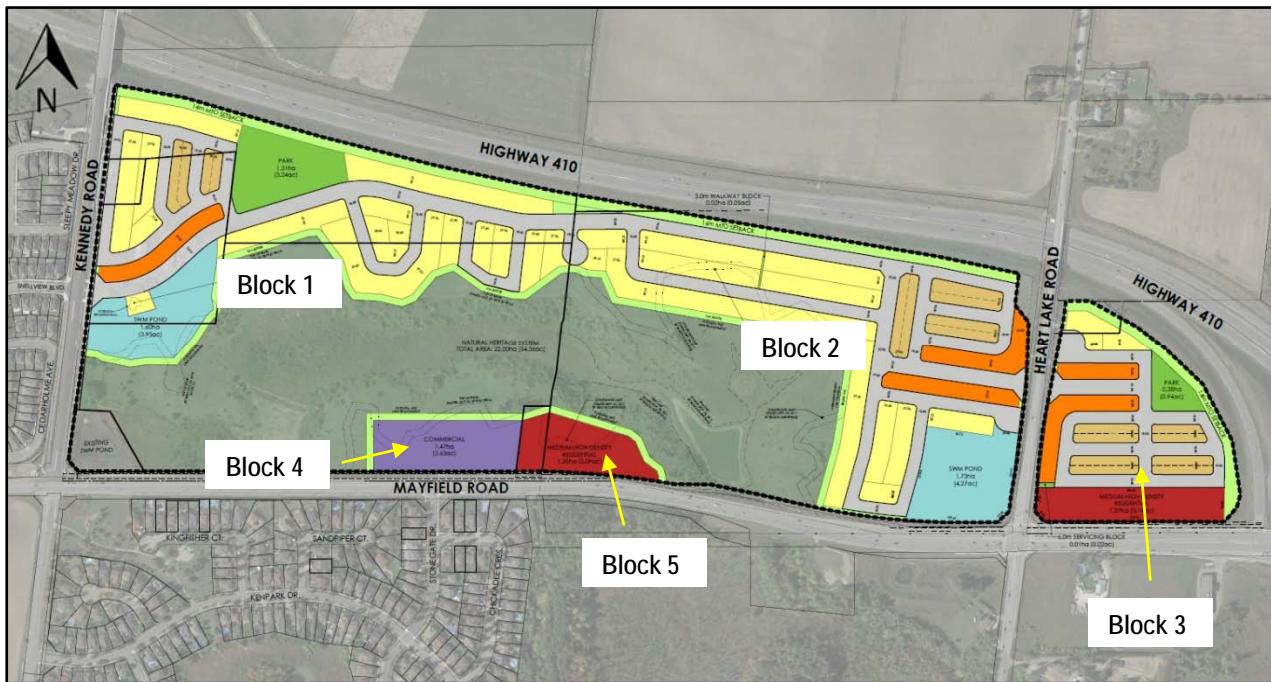
The trip generation forecasts were undertaken using the information contained in the *Trip Generation Manual, 10th Edition* published by the Institute of Transportation Engineers (ITE). For the purposes of this assessment, the following ITE Land Use Codes (LUC) will be utilized in this Study:

- LUC 221 "Multifamily Housing Mid-Rise General Urban/Suburban"
- LUC 210 "Single-Family Detached Housing General Urban/Suburban"
- LUC 220 "Multifamily Housing Low-Rise General Urban/Suburban"
- LUC 820 "Shopping Center General Urban/Suburban"

Fitted curve equations or average rates, where appropriate, will be utilized for the respective land use.

Figure 11A below illustrates the estimated the numbers of proposed units, for the purposes of trip generation, trip distribution and assignment.

Figure 61A – Estimated Numbers of Units (Trip Generation, Trip Distribution and Assignment Only)

**Block 1:**

- Detached/Semi-Detached/Town: ~180 units
- Back-to-back townhouses: ~50 units
- Dual Frontage Town: ~24 units

Block 2:

- Detached/Semi-Detached/Town: ~180 units
- Back-to-back townhouses: ~75 units
- Dual Frontage Town: ~48 units

Block 3:

- Detached/Semi-Detached/Town: ~4 units
- Back-to-back townhouses: ~100 units
- Dual Frontage Town: ~48 units
- Medium-high density: ~189 units

Block 4:

- Number of job: ~ 93

Block 5:

- Medium-high density: ~ 189 units

The site trip generation is summarized in Tables 8, 9, 10, 11 and 12 for each block, respectively.

Table 8 – Site Trip Generation for Block 1

ITE Land Use	Magnitude (units)	Parameters	Morning Peak Hour			Afternoon Peak Hour		
			In	Out	Total	In	Out	Total
Multifamily Housing (Low-Rise) LUC 220 General Urban/Suburban	254 units	Trip Rates AM - $\ln(T) = 0.95\ln(X) - 0.51$ PM - $\ln(T) = 0.89\ln(X) - 0.02$	0.11	0.35	0.46	0.33	0.2	0.53
		Total Trips	27	89	116	85	50	135
		Mode	AM	PM				
		Transit	5%	5%	1	4	5	4
		New Auto Trips	26	85	111	81	47	128

Table 9 – Site Trip Generation for Block 2

ITE Land Use	Magnitude (units)	Parameters	Morning Peak Hour			Afternoon Peak Hour		
			In	Out	Total	In	Out	Total
Multifamily Housing (Low-Rise) LUC 220 General Urban/Suburban	303 units	Trip Rates AM - $\ln(T) = 0.95\ln(X) - 0.51$ PM - $\ln(T) = 0.89\ln(X) - 0.02$	0.1	0.35	0.45	0.33	0.19	0.52
		Total Trips	32	105	137	100	58	158
		Mode	AM	PM				
		Transit	5%	5%	2	5	7	5
		New Auto Trips	30	100	130	95	55	150

Table 10 – Site Trip Generation for Block 3

ITE Land Use	Magnitude (units)	Parameters	Morning Peak Hour			Afternoon Peak Hour			
			In	Out	Total	In	Out	Total	
Multifamily Housing (Mid-Rise) LUC 221 General Urban/Suburban	189	Trip Rates AM - $\ln(T) = 0.98\ln(X) - 0.98$ PM - $\ln(T) = 0.96\ln(X) - 0.63$	0.09	0.25	0.34	0.26	0.17	0.43	
		Total Trips	17	47	64	50	32	82	
		Mode	AM	PM					
		Transit	5%	5%	1	2	3	3	
		New Auto Trips	16	45	61	47	30	77	
Multifamily Housing (Low-Rise) LUC 220 General Urban/Suburban	152 units	Trip Rates AM - $\ln(T) = 0.95\ln(X) - 0.51$ PM - $\ln(T) = 0.89\ln(X) - 0.02$	0.11	0.36	0.47	0.36	0.21	0.57	
		Total Trips	16	55	71	54	32	86	
		Mode	AM	PM					
		Transit	5%	5%	1	3	4	3	
		New Auto Trips	15	52	67	51	30	81	
<i>Total Trips</i>			33	102	135	104	64	168	
<i>Transit Modal Split (10%)</i>			2	5	7	6	4	10	
<i>Total New Auto Trips</i>			31	97	128	98	60	158	

Table 11 – Site Trip Generation for Block 4

ITE Land Use	Magnitude (employees)	Parameters	Morning Peak Hour			Afternoon Peak Hour		
			In	Out	Total	In	Out	Total
Shopping Centre LUC (820) General Urban/Suburban	93	Trip Rates (Average)	0.35	0.20	0.55	0.81	0.81	1.62
		Total New Auto Trips	33	18	51	75	76	151

Table 12 – Site Trip Generation for Block 5

ITE Land Use	Magnitude (units)	Parameters	Morning Peak Hour			Afternoon Peak Hour		
			In	Out	Total	In	Out	Total
Multifamily Housing (Mid-Rise) LUC 221 General Urban/Suburban	189 units	Trip Rates AM - $\ln(T) = 0.98\ln(X) - 0.98$ PM - $\ln(T) = 0.96\ln(X) - 0.63$	0.09	0.25	0.34	0.26	0.17	0.43
		Total Trips	17	47	64	50	32	82
		Mode	AM	PM				
		Transit	5%	5%	1	2	3	5
		New Auto Trips	16	45	61	47	30	77

Based on the analysis noted above, the proposed development is expected to generate:

- 387 total two-way trips (115 inbound and 272 outbound) and 559 total two-way trips (329 inbound and 230 outbound) during the AM and PM peak hours, respectively;
- 370 two-way auto trips (110 inbound and 260 outbound) and 536 two-way auto trips (315 inbound and 221 outbound) during the AM and PM peak hours, respectively; and
- 17 two-way transit trips (5 inbound and 12 outbound) and 23 two-way transit trips (14 inbound and 9 outbound) during the AM and PM peak hours, respectively.

5.4. Site Trip Distribution and Assignment

The 2016 Transportation Tomorrow Survey (TTS) data was reviewed for Traffic Zones 3007, 3008, 3009 and 3010 in order to estimate the general trip distribution for the proposed development. Table 13 summarizes the planning district/traffic zones distribution based on the 2016 TTS data, with Table 14 summarizing the site trip assignment based on the 2016 TTS data and the existing traffic turning movement counts for the existing intersections in the area.

Table 13 – Trip Distribution for Residential Component

Mode	Caledon	Brampton	Mississauga	Toronto	York Region	Halton	Waterloo	Hamilton
Auto	16%	40%	18%	16%	6%	2%	1%	3%
Transit	33%	19%	0%	48%	0%	0%	0%	0%

Table 14 – Site Trip Distribution

General Direction (To/From)	Auto		General Direction (To/From)	Transit	
	Inbound	Outbound		Inbound	Outbound
East (via Mayfield Road)	5%	5%	NA	NA	NA
West (via Mayfield Road)	30%	30%	NA	NA	NA
North (via Hwy 410/Kennedy Road/Heart Lake Road/Hurontario Street)	5%	5%	North (via Hurontario Street/Kennedy Road)	0%	0%
South (via Hwy 410/Kennedy Road/Heart Lake Road/Hurontario Street)	60%	60%	South (via Hurontario Street/Kennedy Road)	100%	100%

Figures 11B and 11C illustrate the proposed development generated traffic volumes. It should be noted that the auto site trip distribution and assignment have been taken into consideration the 2016 TTS information, existing turning movement and intersection operations.

6.0 FUTURE TOTAL TRAFFIC CONDITIONS

6.1. Future Total Traffic Assessment for Auto Mode

The future total traffic volumes for 2023, 2028 and 2033 horizons are provided in Figures 12A, 12B, 13A, 13B, 14A and 14B. These traffic volumes were analyzed using Synchro Version 10 software. The detailed calculations are provided in Appendix H and summarized in Tables 15, 16 and 17.

Table 15 – 2023 Future Total Levels of Service

Intersection	Key Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		LOS (v/c)	Delay (s)	Queue 95 th (m)	LOS (v/c)	Delay (s)	Queue 95 th (m)
Mayfield Road/ Kennedy Road (Signalized)	Overall	D (1.02)	36		D (0.99)	43	
	EB - L	B (0.49)	18	19	F (0.99)	99	131
	EB - T	D (0.98)	42	250	D (0.66)	39	101
	EB - R	C (0.62)	34	26	C (0.58)	21	52
	WB - L	C (0.47)	26	93	E (0.93)	55	211
	WB - TR	A (0.36)	6	39	C (0.79)	32	157
	NB - L	D (0.34)	55	27	D (0.33)	37	40
	NB - TR	C (0.29)	22	24	C (0.38)	29	57
	SB - L	E (1.02)	74	263	D (0.73)	41	74
	SB - TR	B (0.43)	19	62	B (0.26)	12	27
Mayfield Road/ Heart Lake Road (Signalized)	Overall	C (0.82)	23		C (0.74)	25	
	EB - L	C (0.15)	26	8	D (0.56)	54	38
	EB - T	C (0.56)	30	103	C (0.39)	32	99
	EB - R	A (0.55)	7	27	B (0.16)	12	25
	WB - L	D (0.82)	39	69	B (0.17)	12	12
	WB - R	B (0.32)	14	53	B (0.49)	17	92
	WB - T	A (0.06)	2	4	A (0.15)	2	9
	NB - L	D (0.30)	35	42	D (0.74)	48	113
	NB - T	C (0.04)	34	12	C (0.12)	33	27
	NB - R	A (0.05)	3	3	A (0.08)	5	6
	SB - L	D (0.39)	48	54	D (0.27)	43	36
	SB - T	D (0.25)	44	45	D (0.10)	39	21
	SB - R	A (0.21)	9	15	A (0.12)	4	6
Mayfield Road/ Snellview Blvd/ Inder Heights Drive (Signalized)	Overall	B (0.69)	17		A (0.60)	9	
	EB - L	B (0.09)	13	5	B (0.33)	16	16
	EB - TR	C (0.69)	21	166	B (0.57)	13	110
	WB - L	B (0.14)	12	4	A (0.13)	4	1
	WB - T	B (0.60)	14	83	A (0.60)	4	25
	WB - R	A (0.01)	0	0	A (0.02)	0	0
	NB - L	C (0.07)	34	12	D (0.02)	38	6
	NB - TR	A (0.06)	4	4	A (0.03)	0	0
	SB - LTR	B (0.16)	12	16	B (0.11)	20	7
	Overall	B (0.68)	14		A (0.43)	5	
Mayfield Road/ Hwy 410 SB Off-Ramp (Signalized)	EB - T	A (0.31)	8	38	A (0.20)	3	14
	WB - T	A (0.35)	8	43	A (0.43)	4	40
	SB - L	C (0.68)	34	58	D (0.32)	37	18
	SB - R	B (0.21)	12	15	C (0.06)	23	6
	Overall	C (0.85)	25		C (0.84)	26	
Mayfield Road/ Hwy 410 NB Off-Ramp (Signalized)	EB - T	B (0.54)	17	107	B (0.33)	17	55
	WB - T	B (0.40)	15	67	C (0.60)	21	119
	NB - L	D (0.85)	40	96	D (0.84)	38	129
	NB - R	D (0.85)	53	125	C (0.79)	35	120
	Overall	E (0.02)	44	1	D (0.02)	34	0
Kennedy Road/ Snellview Boulevard/ Site Access #1 (Unsignalized)	EB - TR	B (0.12)	14	3	B (0.06)	10	2
	WB - L	F (0.68)	75	30	F (0.71)	132	26
	WB - TR	A (0.02)	10	0	B (0.02)	12	0
	NB - L	A (0.04)	1	1	A (0.07)	9	2
	NB - TR	A (0.10)	0	0	A (0.25)	0	0
	SB - L	A (0.00)	8	0	B (0.02)	11	1
	SB - TR	A (0.22)	0	0	A (0.11)	0	0

Mayfield Road/ Stonegate Drive/ Site Access #3 (Unsignalized)	EB - L	B (0.04)	11	1	C (0.23)	21	7
	EB - TR	A (0.38)	0	0	A (0.26)	0	0
	WB - L	C (0.09)	19	2	B (0.17)	13	5
	WB - TR	A (0.23)	0	0	A (0.42)	0	0
	NB - LTR	E (0.51)	48	20	F (0.39)	65	13
	SB - L	F (1.94)	979	34	F (11.32)	--	--
	SB - TR	B (0.07)	13	2	C (0.24)	24	7
Heart Lake Rd/ Site Access #2 (Unsignalized)	EB - L	B (0.00)	11	0	B (0.00)	12	0
	EB - TR	A (0.10)	10	3	A (0.06)	9	2
	WB - L	B (0.18)	13	5	B (0.12)	14	3
	WB - TR	B (0.01)	11	0	B (0.01)	12	0
	NB - L	A (0.02)	8	1	A (0.05)	8	1
	NB - TR	A (0.05)	0	0	A (0.13)	0	0
	SB - L	A (0.00)	7	0	A (0.00)	7	0
	SB - TR	A (0.10)	0	0	A (0.05)	0	0

Table 16 – 2028 Future Total Levels of Service

Intersection	Key Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		LOS (v/c)	Delay (s)	Queue 95 th (m)	LOS (v/c)	Delay (s)	Queue 95 th (m)
Mayfield Road/ Kennedy Road (Signalized)	Overall	D (1.00)	35		D (1.03)	51	
	EB - L	F (0.92)	81	45	F (0.98)	88	140
	EB - T	C (0.90)	34	101	C (0.39)	22	73
	EB - R	A (0.21)	5	9	A (0.11)	4	9
	WB - L	D (0.66)	37	36	C (0.66)	28	40
	WB - TR	C (0.66)	30	110	E (1.03)	68	264
	NB - L	E (0.40)	58	29	E (0.59)	64	55
	NB - TR	C (0.31)	22	26	D (0.65)	49	80
	SB - L	E (1.00)	64	280	E (0.92)	70	107
	SB - TR	B (0.43)	17	66	B (0.32)	16	33
Mayfield Road/ Heart Lake Road (Signalized)	Overall	C (0.91)	29		C (0.82)	26	
	EB - L	C (0.21)	32	10	C (0.58)	30	24
	EB - T	D (0.77)	37	148	C (0.50)	21	94
	EB - R	B (0.65)	14	59	A (0.18)	3	11
	WB - L	E (0.91)	74	104	B (0.23)	13	12
	WB - R	B (0.41)	15	70	C (0.69)	26	152
	WB - T	A (0.06)	3	5	A (0.17)	3	11
	NB - L	D (0.34)	36	46	D (0.82)	54	136
	NB - T	C (0.04)	34	12	C (0.13)	33	29
	NB - R	A (0.06)	3	3	A (0.08)	5	6
	SB - L	D (0.40)	48	56	D (0.28)	43	37
	SB - T	D (0.27)	44	49	D (0.10)	39	21
	SB - R	A (0.21)	9	15	A (0.12)	4	6
Mayfield Road/ Snellview Blvd/ Inder Heights Drive (Signalized)	Overall	B (0.61)	15		B (0.53)	12	
	EB - L	B (0.12)	15	6	C (0.47)	27	24
	EB - TR	B (0.61)	18	128	B (0.50)	12	84
	WB - L	B (0.20)	15	3	B (0.17)	12	7
	WB - T	B (0.52)	12	62	B (0.53)	12	95
	WB - R	A (0.01)	0	0	A (0.02)	2	2
	NB - L	C (0.07)	34	12	D (0.02)	38	6
	NB - TR	B (0.06)	16	9	A (0.03)	0	0
	SB - LTR	B (0.16)	12	15	B (0.11)	17	13
Mayfield Road/ Hwy 410 SB Off-Ramp (Signalized)	Overall	B (0.70)	14		A (0.54)	6	
	EB - T	A (0.41)	9	53	A (0.25)	3	19
	WB - T	A (0.45)	10	59	A (0.54)	5	58
	SB - L	C (0.70)	33	63	D (0.35)	37	20
	SB - R	B (0.22)	19	21	C (0.08)	31	8
Mayfield Road/ Hwy 410 NB Off-Ramp (Signalized)	Overall	C (0.90)	27		C (0.88)	31	
	EB - T	C (0.72)	22	154	B (0.43)	19	72
	WB - T	B (0.53)	18	90	C (0.80)	27	171
	NB - L	D (0.90)	40	109	D (0.88)	41	152
	NB - R	E (0.90)	59	159	D (0.86)	44	164

Kennedy Road/ Snellview Boulevard/ Site Access #1 (Unsignalized)	EB - L	F (0.03)	56	1	E (0.02)	41	1
	EB - TR	B (0.13)	15	3	B (0.06)	11	2
	WB - L	F (0.83)	116	39	F (0.91)	212	33
	WB - TR	A (0.02)	10	0	B (0.02)	13	0
	NB - L	B (0.04)	12	1	A (0.08)	9	2
	NB - TR	A (0.11)	0	1	A (0.27)	0	0
	SB - L	A (0.00)	8	0	B (0.02)	11	1
	SB - TR	A (0.24)	0	0	A (0.12)	0	0
Mayfield Road/ Stonegate Drive/ Site Access #3 (Unsignalized)	EB - L	B (0.05)	13	1	E (0.37)	37	13
	EB - TR	A (0.29)	0	0	A (0.38)	0	0
	WB - L	D (0.15)	30	4	C (0.23)	17	7
	WB - TR	A (0.33)	0	0	A (0.58)	0	0
	NB - LTR	F (0.70)	87	30	F (----)	--	--
	SB - L	F (2.44)	--	36	F (----)	--	--
	SB - TR	B (0.06)	12	2	B (0.08)	14	2
Heart Lake Rd/ Site Access #2 (Unsignalized)	EB - L	B (0.00)	11	0	B (0.00)	12	0
	EB - TR	A (0.10)	10	3	A (0.06)	9	2
	WB - L	B (0.18)	14	5	B (0.13)	14	4
	WB - TR	B (0.01)	11	0	B (0.01)	12	0
	NB - L	A (0.02)	8	0	A (0.05)	8	1
	NB - TR	A (0.05)	0	0	A (0.14)	0	0
	SB - L	A (0.00)	7	0	A (0.00)	8	0
	SB - TR	A (0.11)	0	0	A (0.06)	0	0

Table 17 – 2033 Future Total Levels of Service

Intersection	Key Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		LOS (v/c)	Delay (s)	Queue 95 th (m)	LOS (v/c)	Delay (s)	Queue 95 th (m)
Mayfield Road/ Kennedy Road (Signalized)	Overall	E (1.29)	71		F (1.31)	106	
	EB - L	F (1.29)	200	90	E (0.94)	73	139
	EB - T	F (1.14)	101	278	C (0.49)	20	76
	EB - R	B (0.24)	14	16	A (0.12)	3	7
	WB - L	D (0.71)	44	40	D (0.88)	54	63
	WB - TR	C (0.81)	35	143	F (1.31)	179	377
	NB - L	E (0.47)	62	33	D (0.44)	36	43
	NB - TR	D (0.34)	26	30	D (0.54)	41	80
	SB - L	F (1.12)	102	327	F (1.30)	195	176
	SB - TR	B (0.47)	19	79	C (0.42)	23	44
	Overall	D (0.97)	35		C (0.90)	31	
Mayfield Road/ Heart Lake Road (Signalized)	EB - L	D (0.31)	35	9	D (0.63)	39	32
	EB - T	D (0.97)	48	160	C (0.63)	24	130
	EB - R	B (0.73)	19	55	A (0.19)	3	12
	WB - L	E (0.92)	76	111	B (0.35)	16	13
	WB - R	B (0.51)	16	94	C (0.88)	34	224
	WB - T	A (0.06)	3	5	A (0.17)	3	11
	NB - L	D (0.39)	38	51	E (0.90)	64	170
	NB - T	C (0.04)	34	13	C (0.14)	33	30
	NB - R	A (0.06)	4	4	A (0.08)	6	6
	SB - L	D (0.43)	49	58	D (0.30)	43	38
	SB - T	D (0.30)	46	53	D (0.11)	39	23
	SB - R	B (0.24)	16	23	A (0.13)	5	7
Mayfield Road/ Snellview Blvd/ Inder Heights Drive (Signalized)	Overall	B (0.77)	18		A (0.54)	3	
	EB - L	C (0.22)	22	7	A (0.30)	5	3
	EB - TR	C (0.77)	23	190	A (0.47)	3	49
	WB - L	C (0.34)	27	3	A (0.17)	2	1
	WB - T	B (0.66)	12	84	A (0.54)	3	26
	WB - R	A (0.01)	0	0	A (0.01)	0	0
	NB - L	C (0.07)	34	12	E (0.07)	62	7
	NB - TR	B (0.06)	16	9	A (0.09)	1	0
Mayfield Road/ Hwy 410 SB Off-Ramp (Signalized)	Overall	C (0.16)	21	20	C (0.35)	25	3
	EB - T	B (0.72)	16		A (0.69)	7	
	WB - T	B (0.53)	12	77	A (0.32)	4	26
	SB - L	B (0.57)	12	85	A (0.69)	7	91
	SB - R	C (0.72)	32	68	D (0.38)	38	22

Mayfield Road/ Hwy 410 NB Off-Ramp (Signalized)	Overall	C (0.95)	35		D (0.98)	46	
	EB - T	D (0.95)	35	257	C (0.53)	22	104
	WB - T	C (0.69)	22	128	D (0.98)	46	302
	NB - L	D (0.95)	41	123	E (0.98)	62	230
	NB - R	E (0.95)	67	187	E (0.98)	72	240
Kennedy Road/ Snellview Boulevard/ Site Access #1 (Unsignalized)	EB - L	F (0.04)	73	1	E (0.02)	50	1
	EB - TR	C (0.14)	16	4	B (0.07)	11	2
	WB - L	F (1.04)	193	49	F (1.19)	350	39
	WB - TR	B (0.02)	10	1	B (0.02)	14	1
	NB - L	B (0.05)	13	1	A (0.08)	9	2
	NB - TR	A (0.12)	0	0	A (0.29)	0	0
	SB - L	A (0.00)	9	0	B (0.03)	12	1
	SB - TR	A (0.27)	0	0	A (0.13)	0	0
	EB - L	C (0.08)	16	2	F (0.70)	103	28
Mayfield Road/ Stonegate Drive/ Site Access #3 (Unsignalized)	EB - TR	A (0.37)	0	0	A (0.25)	0	0
	WB - L	F (0.29)	60	9	C (0.34)	25	12
	WB - TR	A (0.22)	0	0	A (0.40)	0	0
	NB - LTR	F (---)	--	76	F (---)	--	--
	SB - L	F (---)	--	--	F (---)	--	--
	SB - TR	B (0.08)	14	2	F (0.27)	28	8
	EB - L	B (0.00)	11	0	B (0.00)	12	0
Heart Lake Rd/ Site Access #2 (Unsignalized)	EB - TR	A (0.10)	10	3	A (0.06)	10	2
	WB - L	B (0.19)	14	6	B (0.13)	15	4
	WB - TR	B (0.01)	11	0	B (0.01)	12	0
	NB - L	A (0.02)	8	0	A (0.05)	8	1
	NB - TR	A (0.05)	0	0	A (0.15)	0	0
	SB - L	A (0.00)	7	0	A (0.00)	8	0
	SB - TR	A (0.13)	0	0	A (0.06)	0	0

Based on the intersection capacity analysis, the following observations are made for the 2023, 2028 and 2033 Future Total Conditions:

2023 Future Total Conditions

Under this horizon, no capital improvements on Mayfield Road and other roads in the study area have been assumed. In addition, all existing signal timing plans will be similar to the existing conditions.

- The signalized intersection of Mayfield Road and Kennedy Road is expected to operate at acceptable levels of service during the afternoon peak hour with slightly higher delay and v/c ratios. With the signal timing optimization, it is anticipated that the intersections will operate at acceptable levels of service, as summarized in Table 18 below.
- The signalized intersection of Mayfield Road and Heart Lake Road is expected to operate at acceptable levels of service during both the morning peak hour and afternoon peak hours;
- The signalized intersection of Mayfield Road and Snellview Blvd/Inder Heights Drive is expected to operate at acceptable levels of service during both the morning peak hour and afternoon peak hours;
- The Hwy 410 southbound off-ramp and northbound off-ramp are expected to operate at acceptable levels of services; and
- The unsignalized intersection at Kennedy Road/Snellview Blvd/Site Access #1 is expected to operate at acceptable levels of service. The eastbound left turn out of Snellview Blvd onto Kennedy Road is expected to operate at higher delay due to the heavy through traffic on Kennedy Road. However, the volume is very low and this is a typical condition for an unsignalized intersection along Kennedy Road.
- The unsignalized intersection at Heart Lake Road/Site Access #2 is expected to operate at acceptable levels of service. It is assumed that this is a full intersection with exclusive southbound and northbound left turn lanes, and eastbound and westbound left turn lanes with shared through/right lanes. No traffic signals are required under this horizon.

- The unsignalized intersection at Mayfield Road/Stonegate Drive/Site Access #3 is expected to operate at acceptable levels of service for the major movements, with the exceptions of the southbound left turn and northbound left turn out of minor approaches. It is Nextrans' opinion that traffic signal should be installed for this intersection by 2023 as part of the proposed development. The intersection operations with proposed traffic signals, as summarized in **Table 18**, indicate that the intersection is expected to operate well.

The analysis indicates that signal timing optimization for the Mayfield Road/Kennedy Road intersection and traffic signals are required for the Mayfield Road/Stonegate Drive/Site Access #3 intersection by 2023.

Table 18 – 2023 Future Total Levels of Service with Improvements/Signal Optimization

Intersection	Key Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		LOS (v/c)	Delay (s)	Queue 95 th (m)	LOS (v/c)	Delay (s)	Queue 95 th (m)
Mayfield Road/ Kennedy Road (Signalized) <i>With signal timing optimization</i>	Overall	D (1.00)	38		D (0.91)	40	
	EB - L	B (0.50)	19	20	E (0.89)	67	115
	EB - T	D (1.00)	47	254	C (0.61)	34	129
	EB - R	D (0.62)	40	33	C (0.55)	22	41
	WB - L	C (0.48)	33	88	D (0.91)	54	218
	WB - TR	A (0.37)	9	30	C (0.79)	33	150
	NB - L	D (0.34)	55	27	D (0.35)	41	43
	NB - TR	C (0.29)	22	24	C (0.40)	33	61
	SB - L	E (1.00)	68	259	D (0.79)	50	87
	SB - TR	B (0.42)	18	61	B (0.27)	14	29
	Overall	C (0.91)	23		A (0.69)	7	
	EB - L	B (0.12)	11	7	C (0.56)	27	37
Mayfield Road/ Stonegate Drive/ Site Access #3 (Signalized) <i>With new traffic signals</i>	EB - TR	C (0.91)	28	250	A (0.45)	4	59
	WB - L	D (0.46)	43	19	A (0.30)	6	13
	WB - TR	B (0.57)	15	99	A (0.69)	7	135
	NB - LTR	C (0.17)	21	22	B (0.18)	18	11
	SB - L	C (0.07)	32	13	D (0.32)	55	24
	SB - TR	A (0.07)	0	0	C (0.28)	29	19

2028 Future Total Conditions

Under this horizon, it is assumed that the planned improvements on Mayfield Road are completed with the lane configurations identified in the approved ESR. In addition, all existing signal timing plans will be optimized based on these new improvements.

- The signalized intersection of Mayfield Road and Kennedy Road is expected to operate higher delays and v/c ratios. With the proposed southbound double left turn and westbound exclusive right turn lane, it is anticipated that the intersections will operate at acceptable levels of service, as summarized in **Table 19** below.
- The signalized intersection of Mayfield Road and Heart Lake Road is expected to operate at acceptable levels of service during both the morning peak hour and afternoon peak hours;
- The signalized intersection of Mayfield Road and Snellview Blvd/Inder Heights Drive is expected to operate at acceptable levels of service during both the morning peak hour and afternoon peak hours;
- The Hwy 410 southbound off-ramp and northbound off-ramp are expected to operate at acceptable levels of services; and
- The unsignalized intersection at Kennedy Road/Snellview Blvd/Site Access #1 is expected to operate at acceptable levels of service. The eastbound left turn out of Snellview Blvd onto Kennedy Road is expected to operate at higher delay due to the heavy through traffic on Kennedy Road. However, the volume is very low and this is a typical condition for an unsignalized intersection along Kennedy Road.
- The unsignalized intersection at Heart Lake Road/Site Access #2 is expected to operate at acceptable levels of service. It is assumed that this is a full intersection with exclusive southbound and northbound left turn lanes, and eastbound and westbound left turn lanes with shared through/right lanes. No traffic signals are required under this horizon.

- The unsignalized intersection at Mayfield Road/Stonegate Drive/Site Access #3 is expected to operate at acceptable levels of service for the major movements, with the exceptions of the southbound left turn and northbound left turn out of minor approaches. It is Nextrans' opinion that traffic signal should be installed for this intersection by 2023 as part of the proposed development. The intersection operations with proposed traffic signals, as summarized in **Table 19**, indicate that the intersection is expected to operate well.

The findings indicate that the southbound double left turn and westbound exclusive right turn lanes should be provided for the Mayfield Road/Kennedy Road intersection by 2028, and traffic signals are required for the Mayfield Road/Stonegate Drive/Site Access #3 intersection before 2028.

Table 19 – 2028 Future Total Levels of Service with Improvements

Intersection	Key Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		LOS (v/c)	Delay (s)	Queue 95 th (m)	LOS (v/c)	Delay (s)	Queue 95 th (m)
Mayfield Road/ Kennedy Road (Signalized) With WB exclusive right turn and southbound double left turn	Overall	C (0.75)	23		C (0.95)	34	
	EB – L	C (0.57)	20	20	E (0.95)	78	136
	EB – T	C (0.75)	20	53	C (0.40)	23	76
	EB – R	A (0.18)	2	6	A (0.11)	3	7
	WB – L	D (0.66)	43	38	C (0.68)	31	41
	WB – T	C (0.40)	29	69	D (0.75)	40	154
	WB – R	A (0.37)	5	21	C (0.79)	28	146
	NB – L	E (0.40)	58	29	C (0.34)	32	38
	NB – TR	C (0.32)	26	29	D (0.53)	41	74
	SB – L	C (0.62)	30	87	C (0.49)	32	42
	SB – TR	C (0.49)	22	75	B (0.36)	19	37
	Overall	A (0.60)	6		A (0.66)	8	
Mayfield Road/ Stonegate Drive/ Site Access #3 (Signalized) With new traffic signals	EB – L	A (0.10)	4	4	B (0.38)	16	14
	EB – TR	A (0.60)	5	92	A (0.40)	4	46
	WB – L	C (0.37)	22	13	B (0.45)	17	28
	WB – TR	A (0.37)	4	40	A (0.66)	10	146
	NB – LTR	D (0.40)	37	27	A (0.16)	7	6
	SB – L	D (0.21)	52	16	D (0.32)	55	24
	SB – TR	A (0.15)	7	5	A (0.22)	5	5

2033 Future Total Conditions

Under this horizon, it is assumed that the planned improvements on Mayfield Road are completed with the lane configurations identified in the approved ESR. In addition, all existing signal timing plans will be optimized based on these new improvements.

- The signalized intersection of Mayfield Road and Kennedy Road is expected to operate higher delays and v/c ratios. With the proposed southbound double left turn and westbound exclusive right turn lane, it is anticipated that the intersections will operate at acceptable levels of service, as summarized in **Table 20** below.
- The signalized intersection of Mayfield Road and Heart Lake Road is expected to operate at acceptable levels of service during both the morning peak hour and afternoon peak hours;
- The signalized intersection of Mayfield Road and Snellview Blvd/Inder Heights Drive is expected to operate at acceptable levels of service during both the morning peak hour and afternoon peak hours;
- The Hwy 410 southbound off-ramp and northbound off-ramp are expected to operate at acceptable levels of services; and
- The unsignalized intersection at Kennedy Road/Snellview Blvd/Site Access #1 is expected to operate at higher delay for the eastbound and westbound left turns out of Snellview Boulevard and Site Access #1. This is due to the heavy through traffic on Kennedy Road. It is Nextrans' opinion that traffic signal should be installed for this intersection by 2033 as part of the proposed development. The intersection operations with proposed traffic signals, as summarized in **Table 20**, indicate that the intersection is expected to operate well.

- The unsignalized intersection at Heart Lake Road/Site Access #2 is expected to operate at acceptable levels of service. It is assumed that this is a full intersection with exclusive southbound and northbound left turn lanes, and eastbound and westbound left turn lanes with shared through/right lanes. No traffic signals are required under this horizon.
- The unsignalized intersection at Mayfield Road/Stonegate Drive/Site Access #3 is expected to operate at acceptable levels of service for the major movements, with the exceptions of the southbound left turn and northbound left turn out of minor approaches. It is Nextrans' opinion that traffic signal should be installed for this intersection by 2023 as part of the proposed development. The intersection operations with proposed traffic signals, as summarized in Table 20, indicate that the intersection is expected to operate well.

Table 20 – 2033 Future Background Levels of Service with Improvements

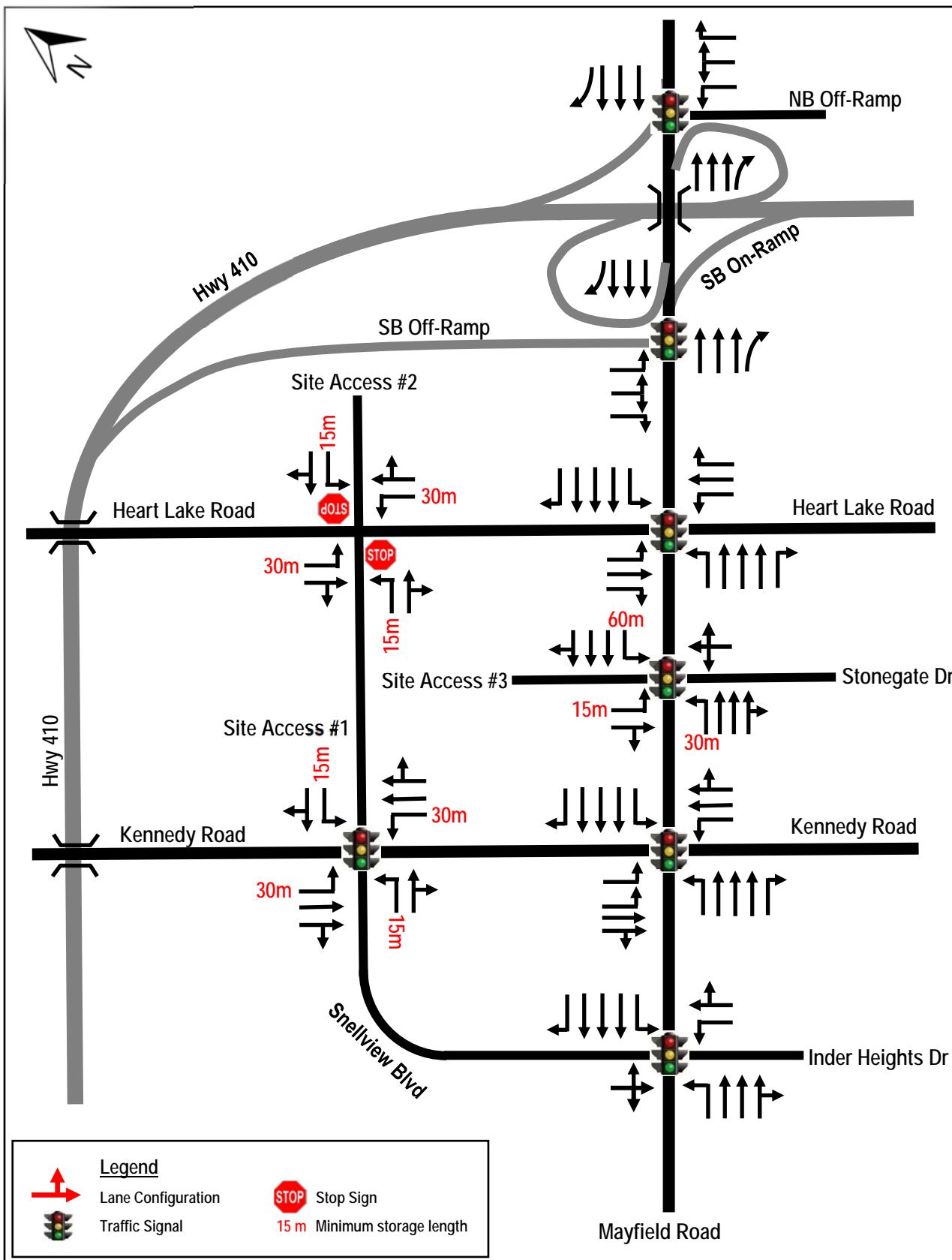
Intersection	Key Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		LOS (v/c)	Delay (s)	Queue 95 th (m)	LOS (v/c)	Delay (s)	Queue 95 th (m)
Mayfield Road/ Kennedy Road (Signalized) With WB exclusive right turn and southbound double left turn	Overall	C (0.88)	23		D (0.95)	35	
	EB - L	C (0.72)	30	29	E (0.94)	73	139
	EB - T	B (0.88)	20	92	C (0.49)	20	76
	EB - R	A (0.19)	3	6	A (0.12)	3	7
	WB - L	E (0.71)	71	44	D (0.88)	41	42
	WB - T	B (0.47)	11	31	D (0.95)	42	225
	WB - R	A (0.39)	2	4	C (0.89)	28	209
	NB - L	D (0.39)	50	30	D (0.44)	36	43
	NB - TR	C (0.27)	25	30	D (0.54)	41	80
	SB - L	D (0.85)	44	104	D (0.67)	41	47
	SB - TR	C (0.59)	29	97	C (0.42)	23	44
	Overall	C (0.95)	25		B (0.80)	10	
	EB - L	B (0.23)	14	4	C (0.43)	27	18
	EB - TR	C (0.95)	24	190	A (0.49)	3	40
Mayfield Road/ Stonegate Drive/ Site Access #3 (Signalized) With new traffic signals	WB - L	E (0.53)	68	17	D (0.70)	43	58
	WB - TR	C (0.58)	26	178	B (0.80)	13	263
	NB - LTR	C (0.20)	29	27	B (0.19)	13	9
	SB - L	D (0.09)	42	15	E (0.30)	64	27
	SB - TR	B (0.08)	14	10	B (0.26)	11	10
	Overall	A (0.52)	8		A (0.48)	6	
	EB - L	C (0.01)	26	2	C (0.01)	30	2
	EB - TR	B (0.17)	11	10	A (0.11)	1	0
	WB - L	C (0.40)	34	26	C (0.24)	33	18
Kennedy Road/ Snellview Boulevard/ Site Access #1 (Signalized) With new traffic signals	WB - TR	A (0.03)	0	0	A (0.03)	0	0
	NB - L	A (0.11)	6	5	A (0.13)	5	8
	NB - TR	A (0.24)	5	25	A (0.48)	6	57
	SB - L	A (0.01)	5	1	A (0.05)	4	2
	SB - TR	A (0.52)	7	76	A (0.25)	4	24

Based on the findings identified above, it is recommended that:

- The southbound double left turn and westbound exclusive right turn lanes should be provided for the Mayfield Road/Kennedy Road intersection before or by 2028;
- Traffic signals should be provided for the Kennedy Road/Site Access #1 intersection by 2033;
- Full turning lanes at the intersection of Heart Lake Road/Site Access #2; and
- Traffic signals should be provided for the Mayfield Road/Stonegate Drive/Site Access #3 intersection by 2023
- Signal timing plans should be optimized for all intersections based on the future traffic volumes for each horizon year, 2023, 2028 and 2033. The Region and the Town should monitor the traffic volumes at these intersections in the future to appropriately optimize the traffic signal timing plans.

The proposed improvements are summarized in Figure 15 below.

Figure 15 – Proposed Improvements and Intersection Control Devices



6.2. Traffic Signal Warrant Analysis

Nextrans has conducted a traffic signal warrant analysis for the Mayfield Road/Stonegate Drive/Site Access #3 and Kennedy Road/Snellview Blvd/Site Access #1 intersections based on the 2023, 2028 and 2033 future total forecast volumes and Justification 7 of the Ontario Traffic Manual Book 12. The traffic signal warrant analysis as outlined in Appendix I indicates that traffic signals are not numerically warranted at these two intersections.

However, based on the intersection operation analysis, it is recommended that:

- Traffic signals should be provided for the Mayfield Road/Stonegate Drive/Site Access #3 intersection by 2023; and
- Traffic signals should be provided for the Kennedy Road/Site Access #1 intersection by 2033

6.3. Active Transportation Assessment

Walking

Currently, sidewalk is available on the east side on Kennedy Road, north and south of Mayfield Road. Sidewalks are currently provided on both sides of Snellview Boulevard and Stonegate Drive. However, no sidewalks are currently provided along Mayfield Road and Heart Lake Road in the area.

As part of the capital road improvement for Mayfield Road, a 3.0 m multi-use path will be provided along both sides of Mayfield Road to the west of Kennedy Road, but only on the south side of Mayfield Road to the east of Kennedy Road. Nextrans recommends that the proposed 3.0 multi-use path should continue on the north side of Mayfield Road from Kennedy Road to Heart Lake Road. This should be included in the detailed design and construction of Mayfield Road.

Cycling

Under the existing conditions, there are no dedicated cycling lanes along Mayfield Road, Kennedy Road and Heart Lake Road. However, there are existing multiuse trails along Mayfield Road from east of Kennedy Road to the east of Stonegate Drive that connects with Heart Lake off-road multiuse trail. There is a multiuse trail on the west side of Kennedy Road from north of Mayfield Drive to Abbotside Way.

As indicated above, as part of the capital road improvement for Mayfield Road, a 3.0 m multi-use path will be provided along both sides of Mayfield Road to the west of Kennedy Road, but only on the south side of Mayfield Road to the east of Kennedy Road. Nextrans recommends that the proposed 3.0 multi-use path should continue on the north side of Mayfield Road from Kennedy Road to Heart Lake Road. This should be included in the detailed design and construction of Mayfield Road.

It is also recommended that the proposed development provides at least 10 short-term bicycle parking spaces and 40 long-term bicycle parking spaces (about 10% of the total numbers of units) for the medium-high density component of the proposed development. This provision will encourage residents to use more sustainable modes of transportation instead of driving single-occupant-vehicles.

6.4. Transit Mode Assessment

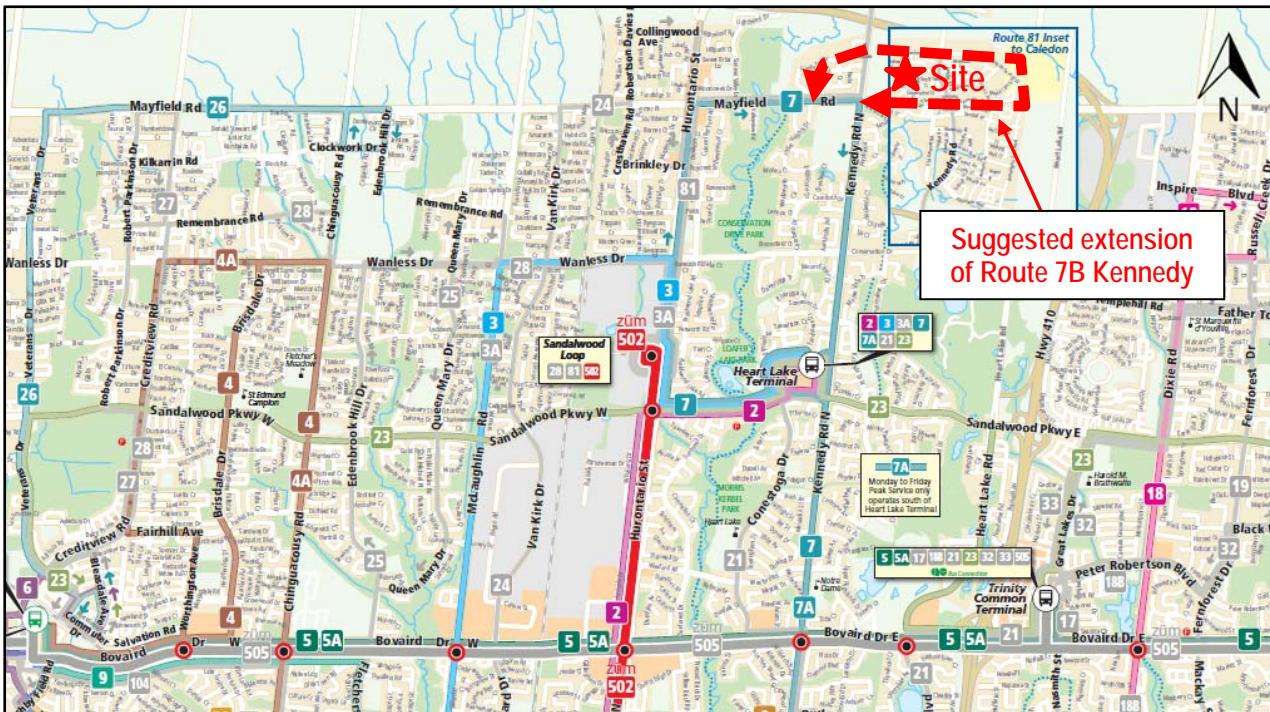
As indicated, the proposed development is expected to generate 17 two-way transit trips (5 inbound and 12 outbound) and 23 two-way transit trips (14 inbound and 9 outbound) during the AM and PM peak hours, respectively.

As indicated in Section 2.4 of the Study, currently, the Town of Caledon does not have its own transit system, it is dependent on the Metrolinx and City of Brampton Transit for inter-regional transit connections and trips. The proposed development is located adjacent to Brampton Transit Bus Routes 81 Hurontario, 7/7A Kennedy and 24 Van Kirk. In addition, the site is located about 8.5 km to the existing Brampton GO Train Station and about 10.0 km to the existing Mount Pleasant GO Train Station.

Given that a very low (to be conservative for intersection capacity analysis) transit modal split was assumed for the proposed development, the site generated transit trips can be accommodated by the existing transit services without any issues.

However, in order to promote more sustainable trips for the proposed developments and the area in general, it is recommended that the Town of Caledon to work with the City of Brampton Transit to consider extending the existing Kennedy Bus Route 7 to service Mayfield Road and Heart Lake Road to the east Snellview Boulevard to the west. This proposed bus route could be a branch of Kennedy Route, such as 7B, as illustrated in Figure 16 below.

Figure 16 – Suggested Transit Service Extension



Source: Brampton Transit Service Map (July 2020)

7.0 SITE PLAN REVIEW

7.1. Waste Management Plan

As indicated, the proposed development consists of approximately 1,087 residential dwelling units of mixed types and approximately 1.47 ha (93 employees) of commercial development area.

Given that the medium-high density, commercial site and townhouse components will require separate site plan applications, the site-specific waste management plan will be provided at that time.

Loading Space Requirement

Similar to above, loading requirements will be assessed for each building in the next submission stage.

Garbage Truck Turning Movement Templates

Vehicular turning templates to confirm and demonstrate the accessibility for the proposed loading spaces and external/internal roads and intersections will be provided at the subsequent stage of the proposed development.

7.2. Proposed Development Access

The following access arrangement will be provided to accommodate each block of the proposed development and the recommended lane configurations and traffic control types based on the findings of this Study:

- One full moves intersection onto Kennedy Road, opposite the existing Snellview Boulevard. This proposed intersection is located approximately 285 m from centreline of the Mayfield Road/Kennedy Road intersection. The lane configurations and traffic control type include:
 - Traffic signals should be provided by 2033 horizon, based on the intersection capacity analysis
 - One exclusive northbound and southbound left turn lanes with minimum of 30 m storage length
 - One exclusive westbound left turn lane with 15 m storage, a shared through/right and one inbound lane
 - Convert the existing eastbound exclusive right turn lane on Snellview Boulevard to a shared through/right lane
- One full moves intersection onto Heart Lake Road is located approximately 215 m from the centreline of Mayfield Road/Heart Lake Road intersection. The lane configurations and traffic control type include:
 - A full moves intersection with stop signs on the east-west direction
 - One southbound and one northbound left turn lane with minimum of 30 m storage length and a shared northbound and southbound through/right lane
 - One westbound and one eastbound exclusive left turn lanes with minimum of 15 m storage and a shared westbound and eastbound through/right lane
- One access onto Mayfield Road to accommodate the proposed commercial and the proposed medium-high density parcels. This proposed access will be located opposite Stonegate Drive. The lane configurations and traffic control type include:
 - Require traffic signals by 2023 with the proposed completion of the commercial/medium-high density parcels
 - One exclusive westbound left turn with minimum of 60 m storage length and one exclusive eastbound left turn with minimum of 30 m storage
 - One exclusive southbound left turn with 15 m storage and a shared through/right, as well as one inbound lane be provided for the proposed Site Access #3

The analysis indicates that the proposed traffic control types and lane configurations are appropriate for the proposed development accesses. The proposed development accesses are expected to operate at acceptable levels of service for all horizon years considered in the analysis.

7.2.1. Traffic Calming Review

Based on Nextrans' courtesy review of the area context and future plans for the area, it is Nextrans' opinion that traffic calming should be reviewed as part of the larger study for the area. As for the proposed development, Nextrans recommended that the proposed development design should minimize the pavement width and curb radii to discourage speeding and to support pedestrian and cyclist crossing all internal roads and intersections.

7.3. Safety Analysis

7.3.1. Sightlines

Proposed Site Access #1/Snellview Blvd at Kennedy Road

The proposed Site Access #1 will be located opposite the existing Snellview Boulevard, **Figure 17** illustrates the

proposed Site Access #1/Snellview Boulevard at Kennedy Road. Based on this information, it is anticipated that sightline should not be an issue at the proposed access location.

Figure 17 – Existing Kennedy Road and Proposed Access Location



Source: Google Streetview

Proposed Site Access #2/Heart Lake Road

Based on Nextrans' courtesy review of the proposed Access #2 location, the existing Heart Lake Road at the proposed access location is relative flat with no horizontal curb and gradual up slope toward Hwy 410 overpass and gradual down slope toward Mayfield Road. **Figure 18** illustrates the approximate location of the proposed Access #2 at Heart Lake Road. Based on this information, it is anticipated that sightline should not be an issue at the proposed access location.

Figure 18 – Existing Heart Lake Road and Proposed Access Location



Source: Google Streetview

Proposed Site Access #3/Stonigate Drive/Mayfield Road

The proposed Site Access #3 will be located opposite the existing Stonigate Drive. **Figure 19** illustrates the approximate location of the proposed Access #3 at Mayfield Road. Based on this information, it is anticipated that sightline should not be an issue at the proposed access location.

Figure 19 – Existing Mayfield Road and Proposed Access Location



Source: Google Streetview

It should be noted that detailed sightline analysis can be provided once the proposed access locations and geometries are finalized, if necessary.

7.3.2. Pedestrian and Cycling Safety

To support Vision Zero and to ensure pedestrian and cycling safety, it is recommended that the proposed development provides appropriate daylight triangles as required by the Town of Caledon on Kennedy Road and Heart Lake Road, as well as Peel Region's requirements on Mayfield Road.

As there are inconsistent posted speed limits on Mayfield Road, Kennedy Road and Heart Lake Road, it is recommended that the Region and the Town consider providing one consistent posted speed limits through this area. This is important and this area will be urbanized as part of the Mayfield Road widening project. The suggested posted speed limits are:

- 60 km/h for Mayfield Road
- 50 km/h for Kennedy Road;
- 50 km/h for Heart Lake Road; and
- Maximum of 40 km/h or less for all internal roads

8.0 PARKING ASSESSMENT

8.1. Vehicle Parking Requirement

Table 21 below summarizes the vehicle parking requirements for the proposed development, based on Section 5 of the Town of Caledon current Zoning By-law (in effect).

Table 21 – Town of Caledon Zoning By-law Parking Requirements

Unit Type	No. of Unit	Parking Rates (Off-Street)	Parking Requirement
Residential	364 units (detached, semi-detached, duplex and link)	2 spaces/unit	728 spaces
	345 units (townhouse)	1.5 spaces/unit plus 0.25 visitor parking spaces	518 spaces 86 visitor spaces
	378 units (apartment)	1.0 space/unit	378 spaces
Non-residential	3.63 acre	1 space/20 m ²	To be confirmed
Total			1,710 spaces residential

Based the applicable Zoning By-law requirement, the proposed development will require to provide approximately 1,710 vehicle parking spaces for residential component. The non-residential component will be confirmed at the subsequent application stage. It is Nextrans understanding that the proposed development will meet this requirement.

8.2. Bicycle Parking

It is Nextrans' understanding that the Town of Caledon currently does not have bicycle requirements in the current Zoning By-law. In order to support and encourage active transportation use, Nextrans recommends that the proposed development provide at least 10 short-term bicycle parking spaces and 40 long-term bicycle parking spaces (about 10% of the total numbers of units) for the medium-high density component of the proposed development.

9.0 TRANSPORTATION DEMAND MANAGEMENT

Transportation Demand Management (TDM) is a co-ordinated series of actions aimed at maximizing the people moving capability of the transportation system. Intended to reduce single-occupant auto use, potential TDM measures include: TDM supportive land use, bicycle and pedestrian programs and facilities, public transit improvements, preferential treatments for buses and ridesharing, where appropriate.

The following TDM incentives are recommended for the proposed residential development, based on Nextrans' review of the Town of Caledon and Region of Peel TDM Strategy:

- Given that parking management is the best TDM measures, the proposed development should implement the minimum parking rates based on the Town of Caledon applicable Zoning By-law to support TDM and minimize the numbers of single-occupant-vehicle trips;
- Provide sidewalks in all proposed internal roads;
- Provide direct shared pedestrian/bicycle connections from the proposed medium-high density blocks to Mayfield Road and Heart Lake Road, where appropriate;
- The Town and the Region to implement a multi-use path along the north side of Mayfield Road, between Kennedy Road and Heart Lake Road;
- The Town of Caledon to work with the City of Brampton to bring transit to the proposed development area via the extension of the existing Kennedy Bus Route 7/7A;
- Provide bicycle parking spaces based on the Town Zoning By-law requirements; and
- Provide information package for new residents. The information package should include Brampton Transit and Metrolinx GO Transit bus route and GO train schedules, as well as community and cycling maps. The Information Package can be distributed at the sale office

10.0 CONCLUSIONS / FINDINGS

10.1. Study Conclusions

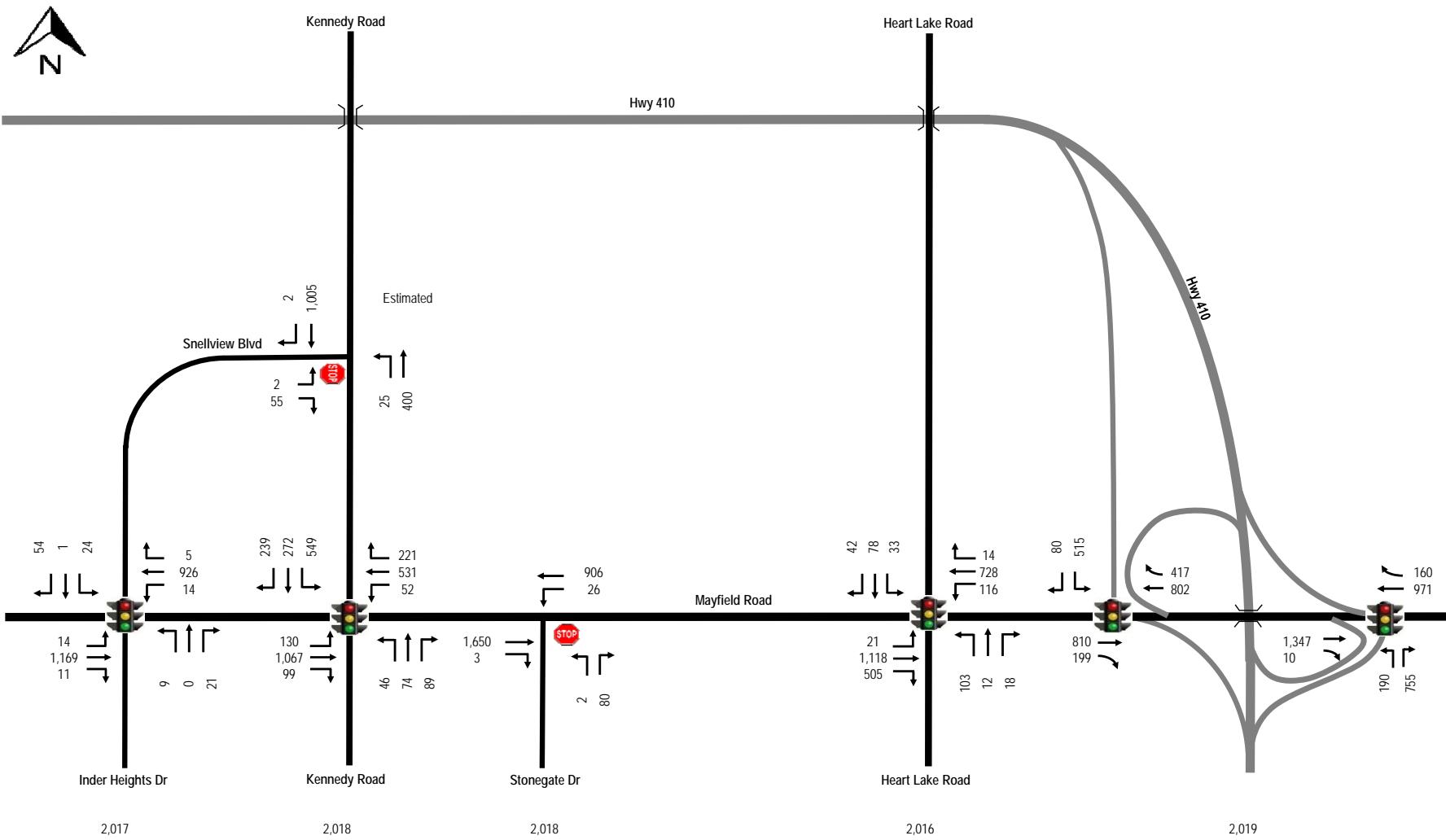
The findings and conclusions of the analysis are as follows:

- The proposed development is expected to generate:
 - 387 total two-way trips (115 inbound and 272 outbound) and 559 total two-way trips (329 inbound and 230 outbound) during the AM and PM peak hours, respectively;
 - 370 two-way auto trips (110 inbound and 260 outbound) and 536 two-way auto trips (315 inbound and 221 outbound) during the AM and PM peak hours, respectively; and
 - 17 two-way transit trips (5 inbound and 12 outbound) and 23 two-way transit trips (14 inbound and 9 outbound) during the AM and PM peak hours, respectively.
- The intersection capacity analysis indicates that under the existing 2021 conditions, all intersections are currently operating at acceptable levels of service, no improvements are required at this time.
- Under the future background conditions with the planned widening of Mayfield Road from its existing 4-lane cross-section west of Heart Lake Road to a 6-lane cross-section, all intersections are expected to operate at acceptable levels of service. However, for the Mayfield Road/Kennedy Road intersection, a westbound exclusive right turn lane and southbound double left turn lanes are required by 2028. It is recommended that these improvements to be included as part of the Mayfield Road improvements.
- Under the future total conditions with the planned widening of Mayfield Road from its existing 4-lane cross-section west of Heart Lake Road to a 6-lane cross-section, the majority of the intersections are expected to operate at acceptable levels of service. However, for the Mayfield Road/Kennedy Road intersection, a westbound exclusive right turn lane and southbound double left turn lanes are required by 2028. For the Mayfield Road/Stonigate Drive/Site Access #3, a traffic signal will be required by 2023 to improve operation and help facilitate pedestrian and cyclist crossing from the south side to the north side of Mayfield Road, although traffic signals are not numerically warranted. It is recommended that all of these improvements to be included as part of the Mayfield Road improvements.
- The analysis indicates that the transit passenger demands generated by the proposed development per transit vehicle is very low due to limited transit opportunities in the area under the existing conditions. However, it is suggested that the Town of Caledon should work with Brampton Transit to extend the existing Kennedy Bus Route 7/7A to service this future area.
- Based the applicable Zoning By-law requirement, the proposed development will require to provide approximately 1,710 vehicle parking spaces are required for the residential components, however, the commercial component parking requirements will be determined at the subsequent stage of the development. It is Nextrans understanding that the proposed development will meet this requirement.
- The Town of Caledon currently does not have bicycle requirements in the current Zoning By-law. In order to support and encourage active transportation use, Nextrans recommends that the proposed development provides at least 10 short-term bicycle parking spaces and 40 long-term bicycle parking spaces (about 10% of the total numbers of units) for the medium-high density component of the proposed development. This provision will encourage the future residents to take sustainable mode of transportation instead of driving single-occupant-vehicles.
- The vehicle turning movement templates will be provided at the subsequent development stages.

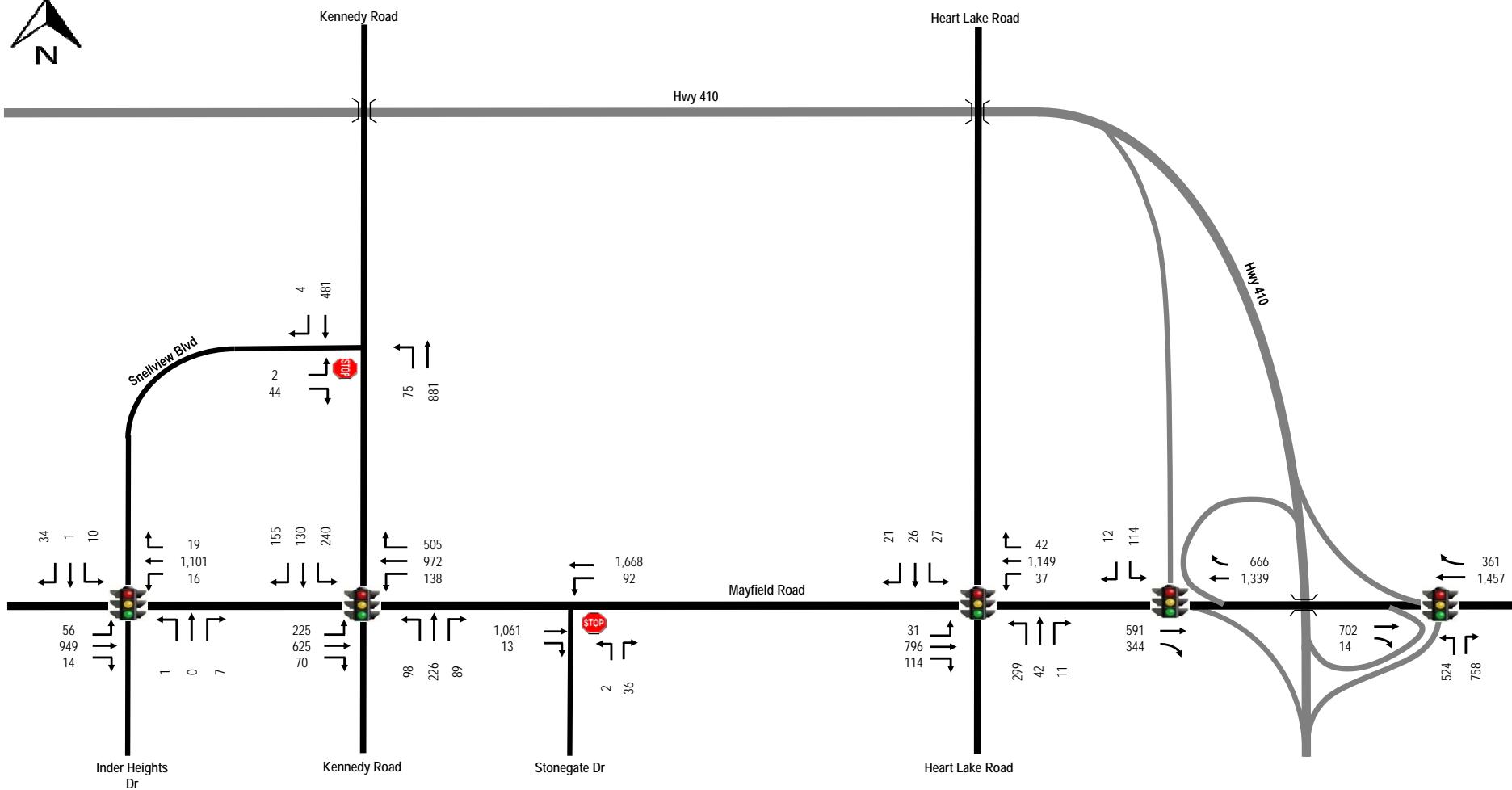
10.2. Study Recommendations

Based on the findings of this Study, the following recommendations are provided:

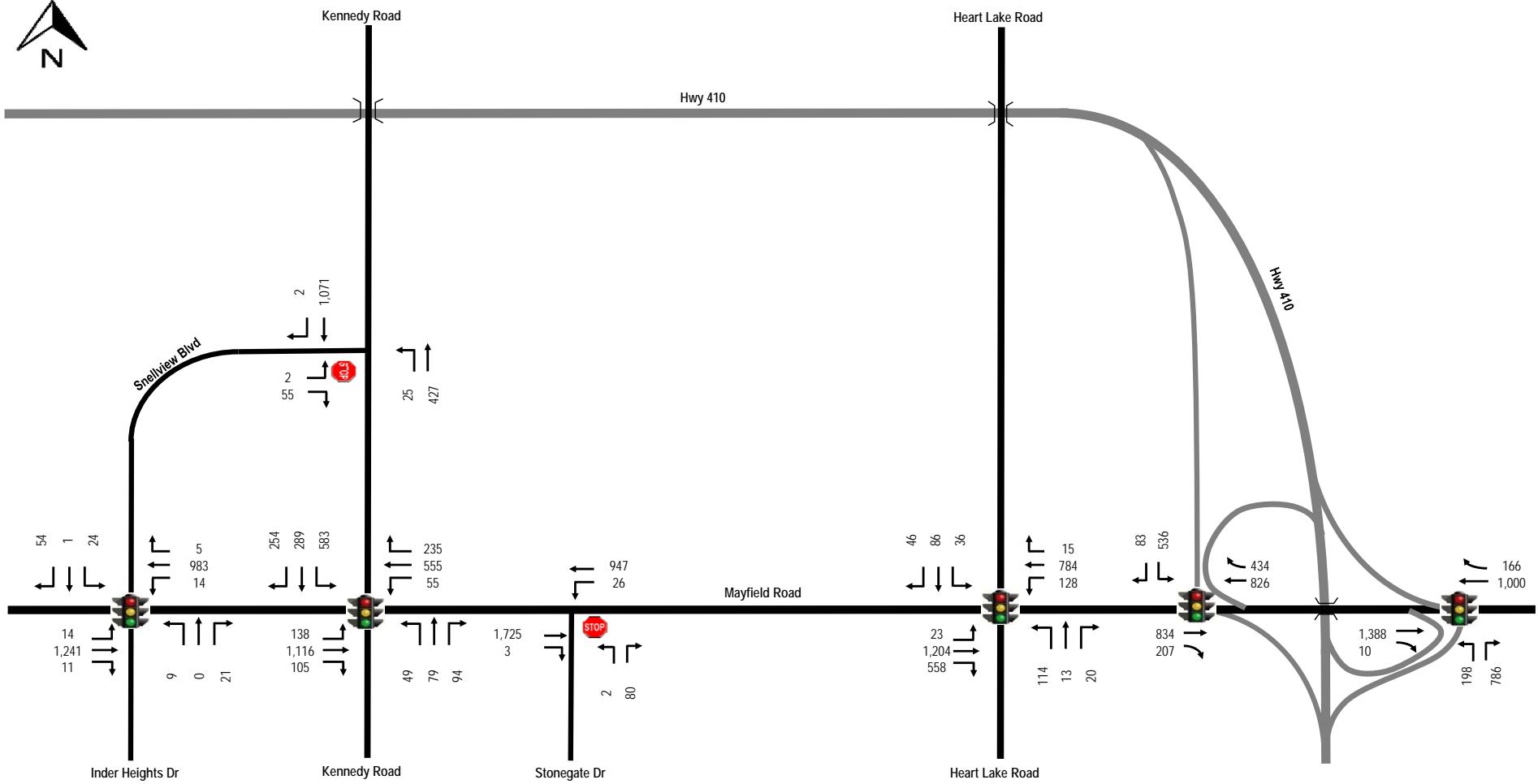
- Intersection improvements:
 - Provide traffic signals at the Kennedy Road/Snellview Boulevard/Site Access #1 intersection by 2033 or the completion of the proposed development. The proposed lane configurations include:
 - One exclusive northbound and southbound left turn lanes with minimum of 30 m storage length
 - One exclusive westbound left turn lane with 15 m storage, a shared through/right and one inbound lane
 - Convert the existing eastbound exclusive right turn lane on Snellview Boulevard to a shared through/right lane
 - Provide a full moves intersection at the Heart Lake Road/Site Access #2. Provide a full moves intersection at the Heart Lake Road/Site Access #2 with stop signs on the east-west direction. The lane configurations include:
 - One southbound and one northbound left turn lane with minimum of 30 m storage length and a shared northbound and southbound through/right lane
 - One westbound and one eastbound exclusive left turn lanes with minimum of 15 m storage and a shared westbound and eastbound through/right lane
 - Provide traffic signals the Mayfield Road/Stonigate Drive/Site Access #3 intersection by 2023 or the completion of the proposed commercial/medium-high density residential blocks. The proposed lane configurations include:
 - One exclusive westbound left turn with minimum of 60 m storage length and one exclusive eastbound left turn with minimum of 30 m storage
 - One exclusive southbound left turn with 15 m storage and a shared through/right, as well as one inbound lane be provided for the proposed Site Access #3
 - Provide westbound exclusive right turn and southbound double left turn lanes at the Mayfield Road/Kennedy Road intersection as part of the Mayfield Road widening project (2026).
- The proposed development implements the TDM measures and incentives identified in this report to support active transportation and transit and to reduce the numbers of single-occupant-vehicle trips to and from the proposed development;
- The proposed development provides at least 10 short-term bicycle parking spaces and 40 long-term bicycle parking spaces (about 10% of the total numbers of units) for the medium-high density component of the proposed development.
- The Town and the Region should provide 3.0 multi-use path on the north side of Mayfield Road from Kennedy Road to Heart Lake Road. This should be included in the detailed design and construction of Mayfield Road.
- The proposed development provides direct shared pedestrian and cycling connections to Mayfield Road and Heart Lake Road for the medium-high density components



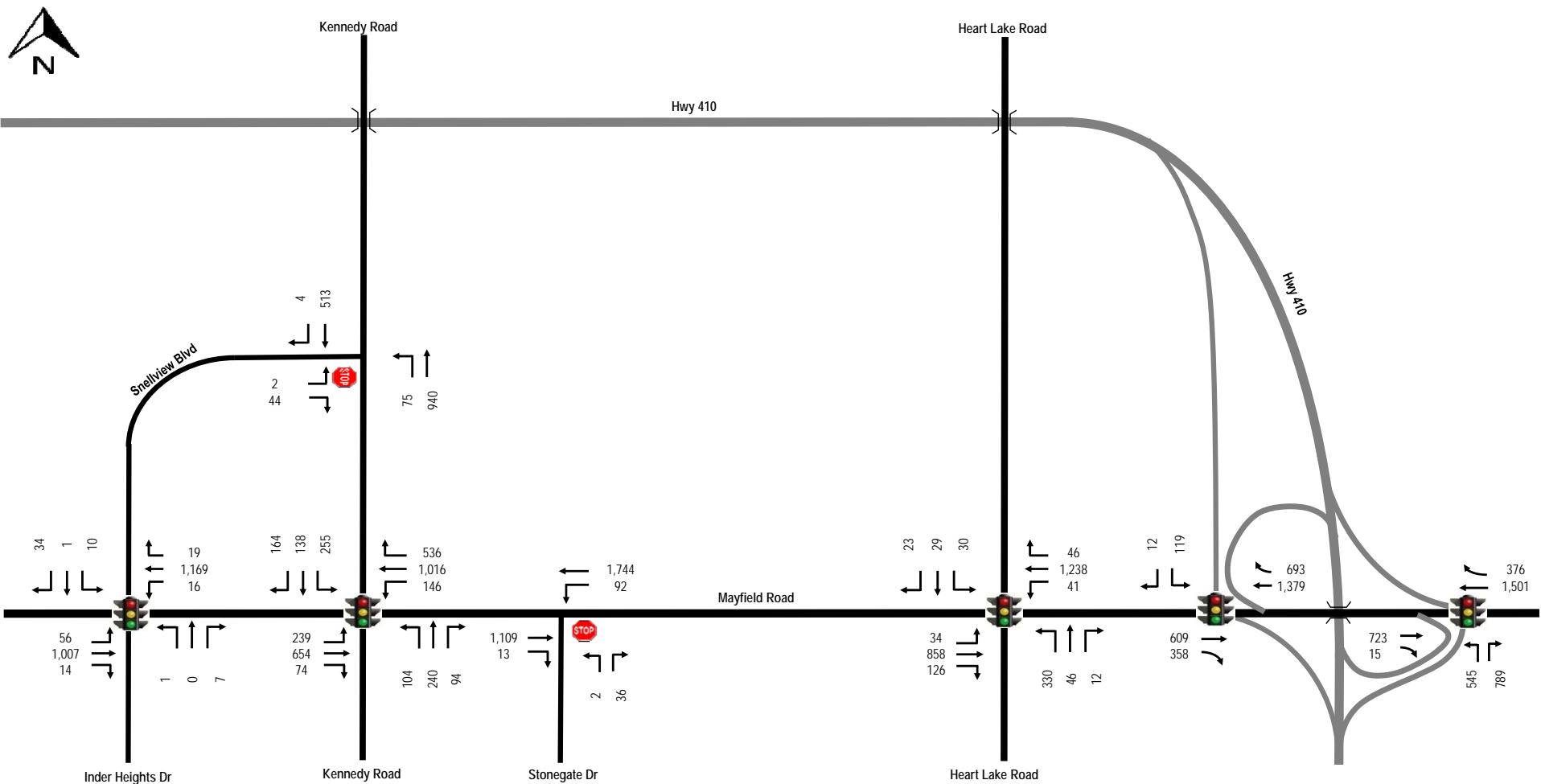
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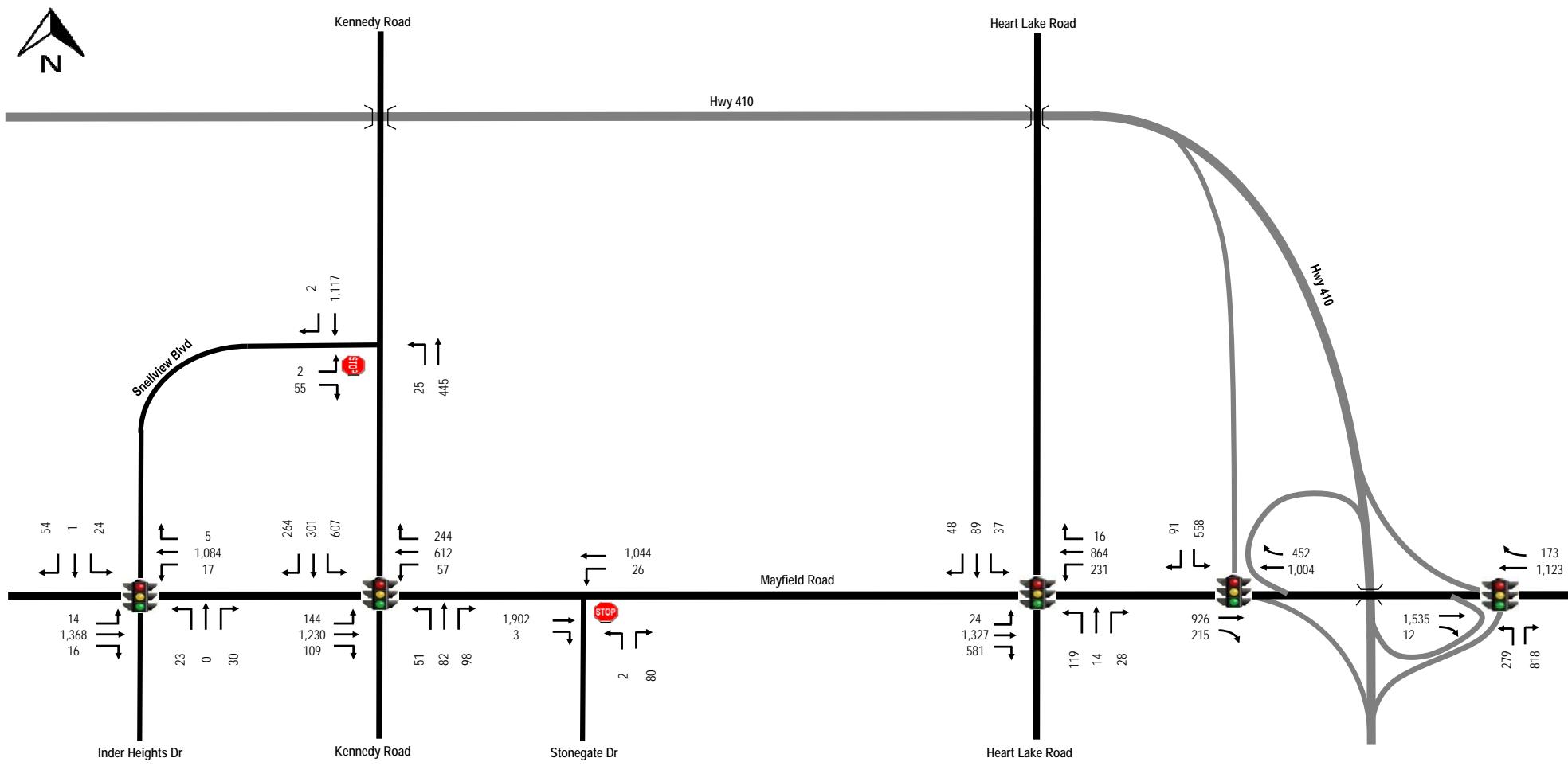
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Legend: XX Peak Hour Traffic Volumes

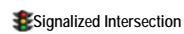
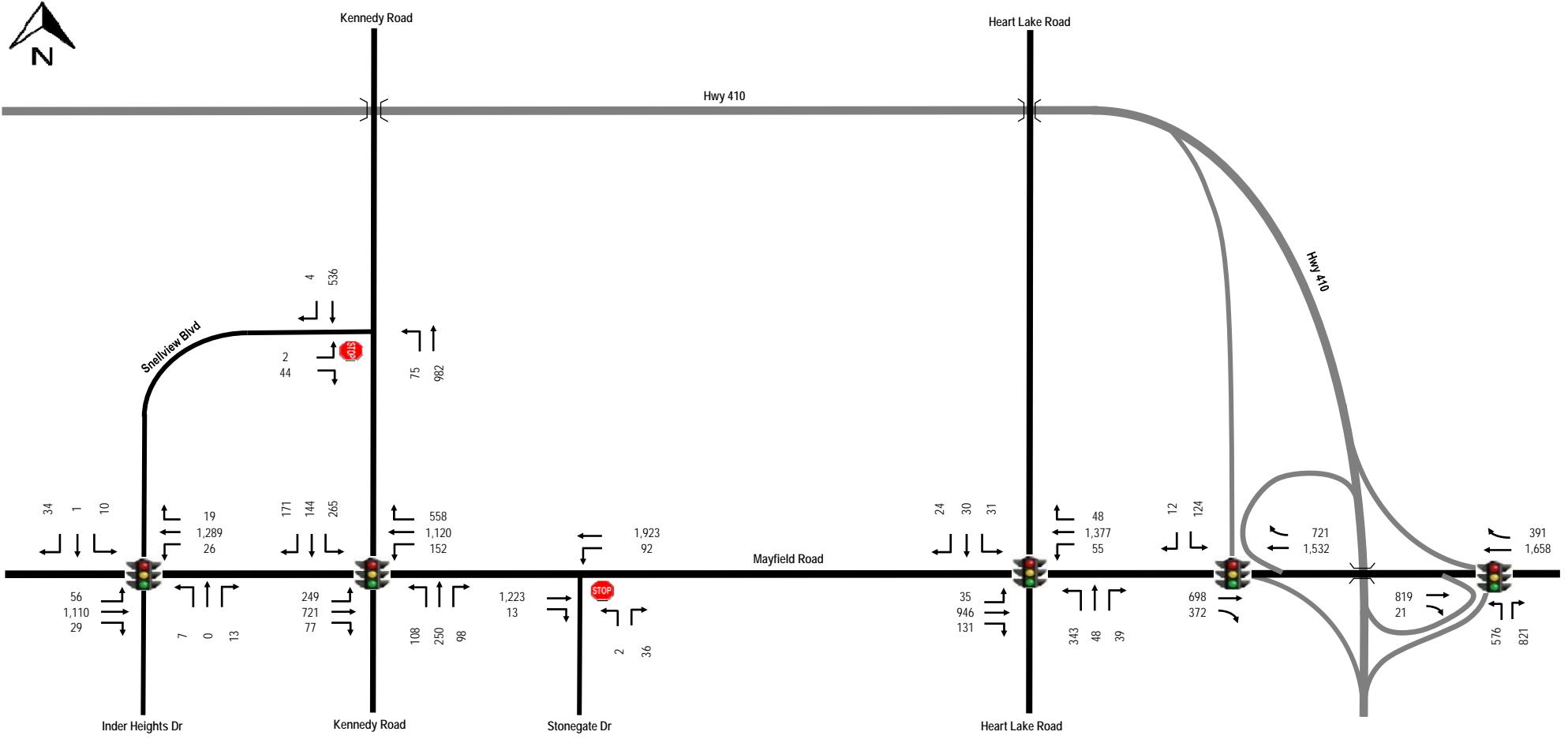
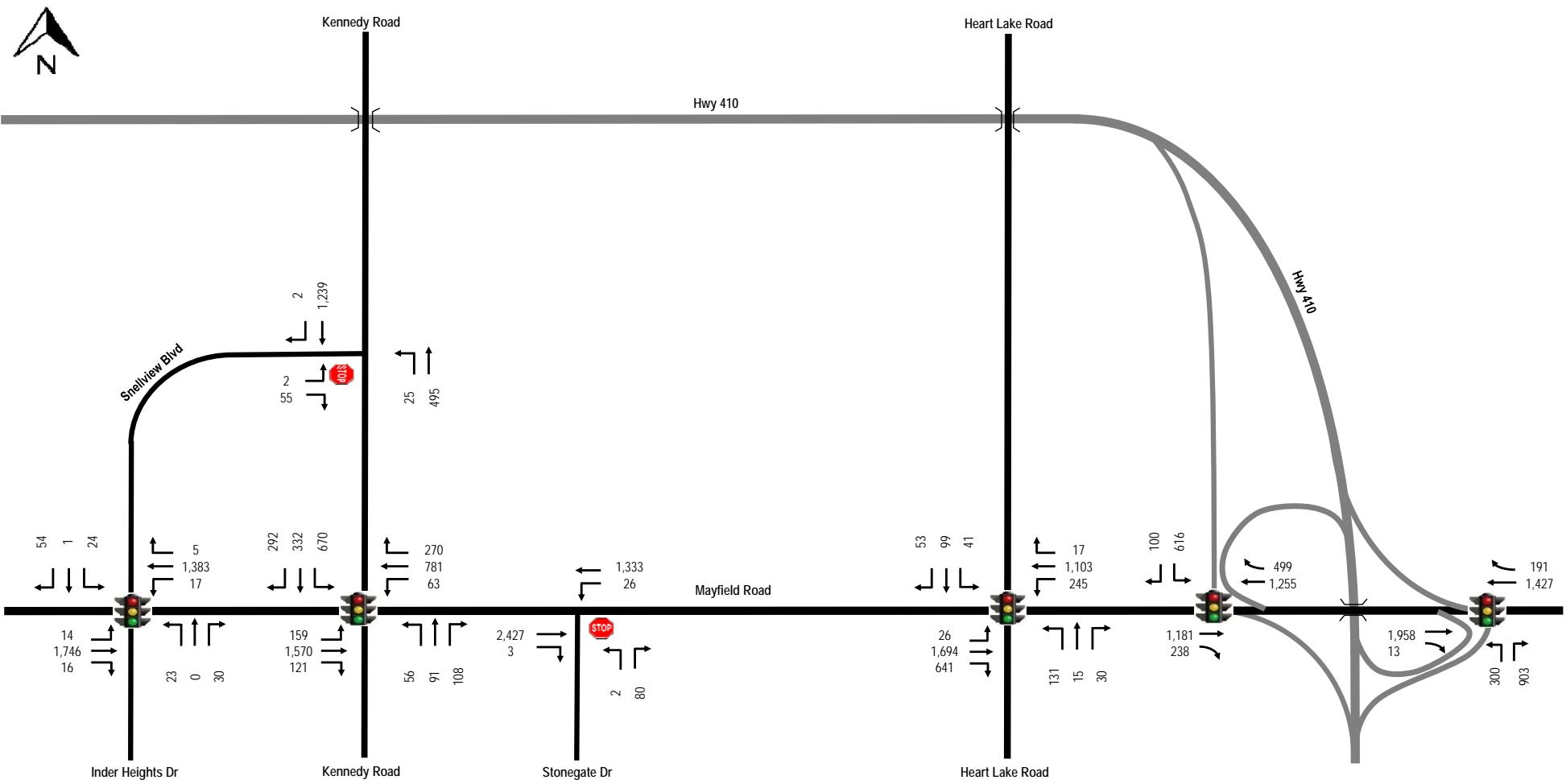


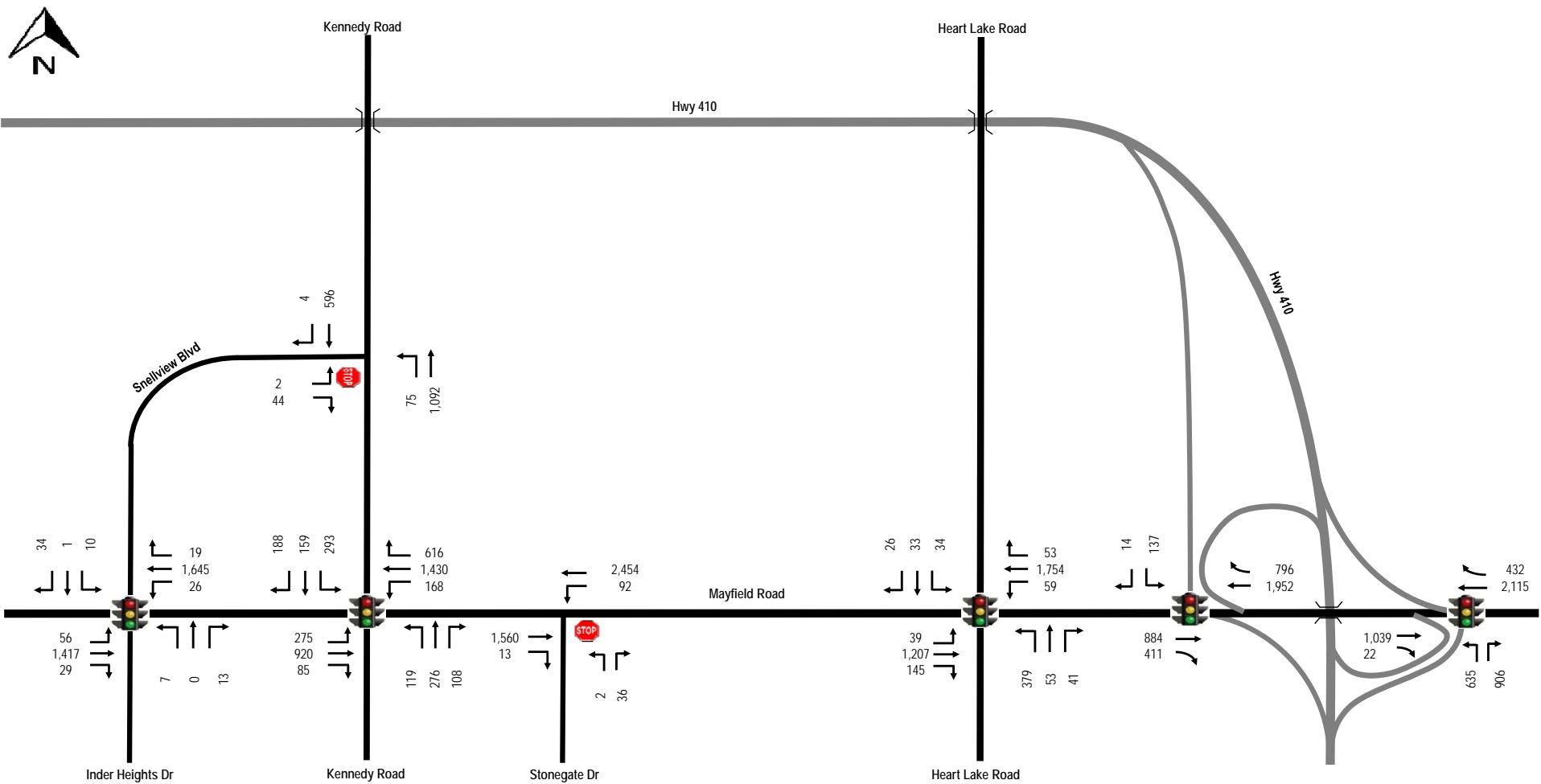
Figure 8A - 2023 Future Background Traffic Volumes
AM Peak Hour



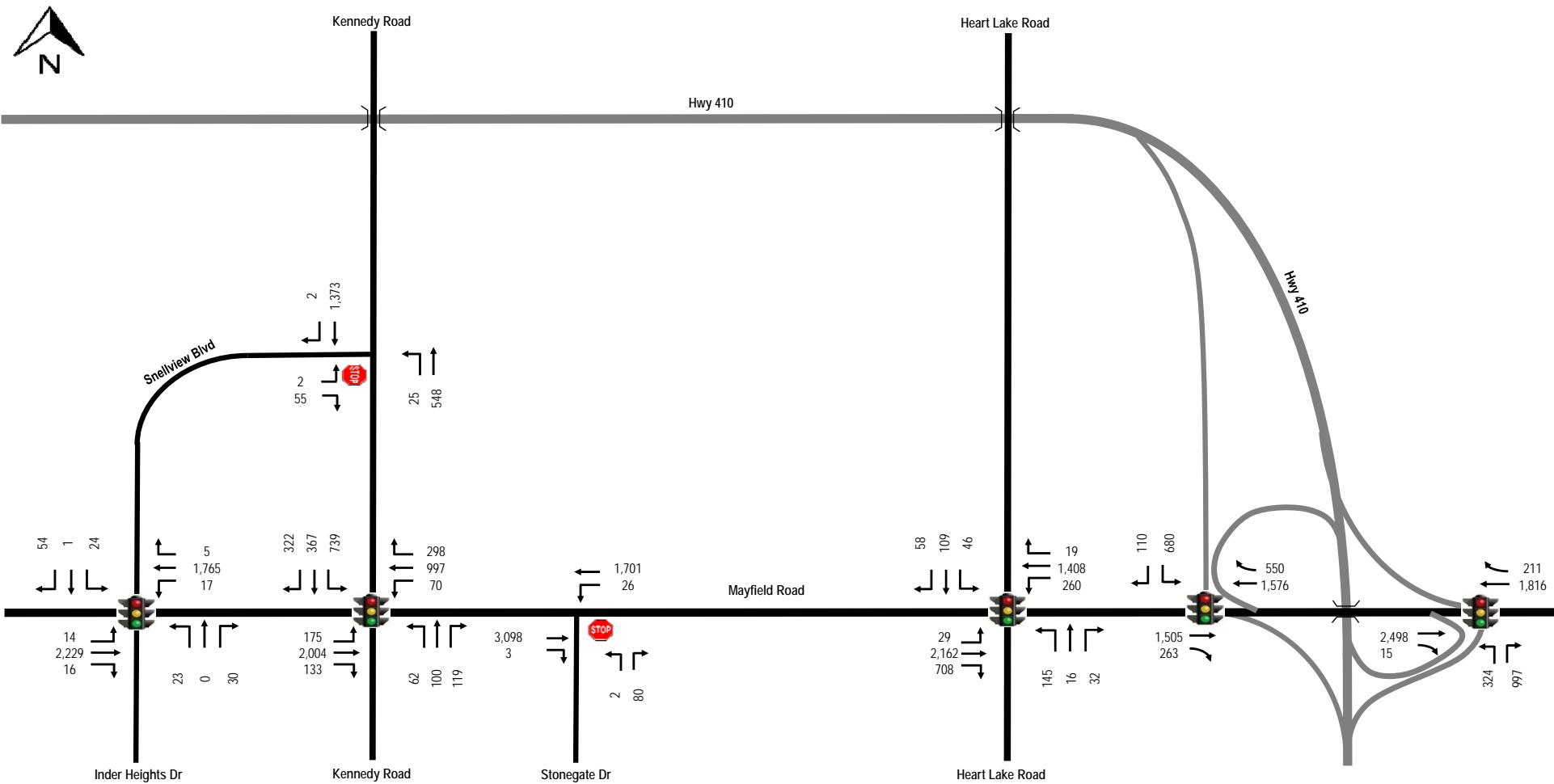
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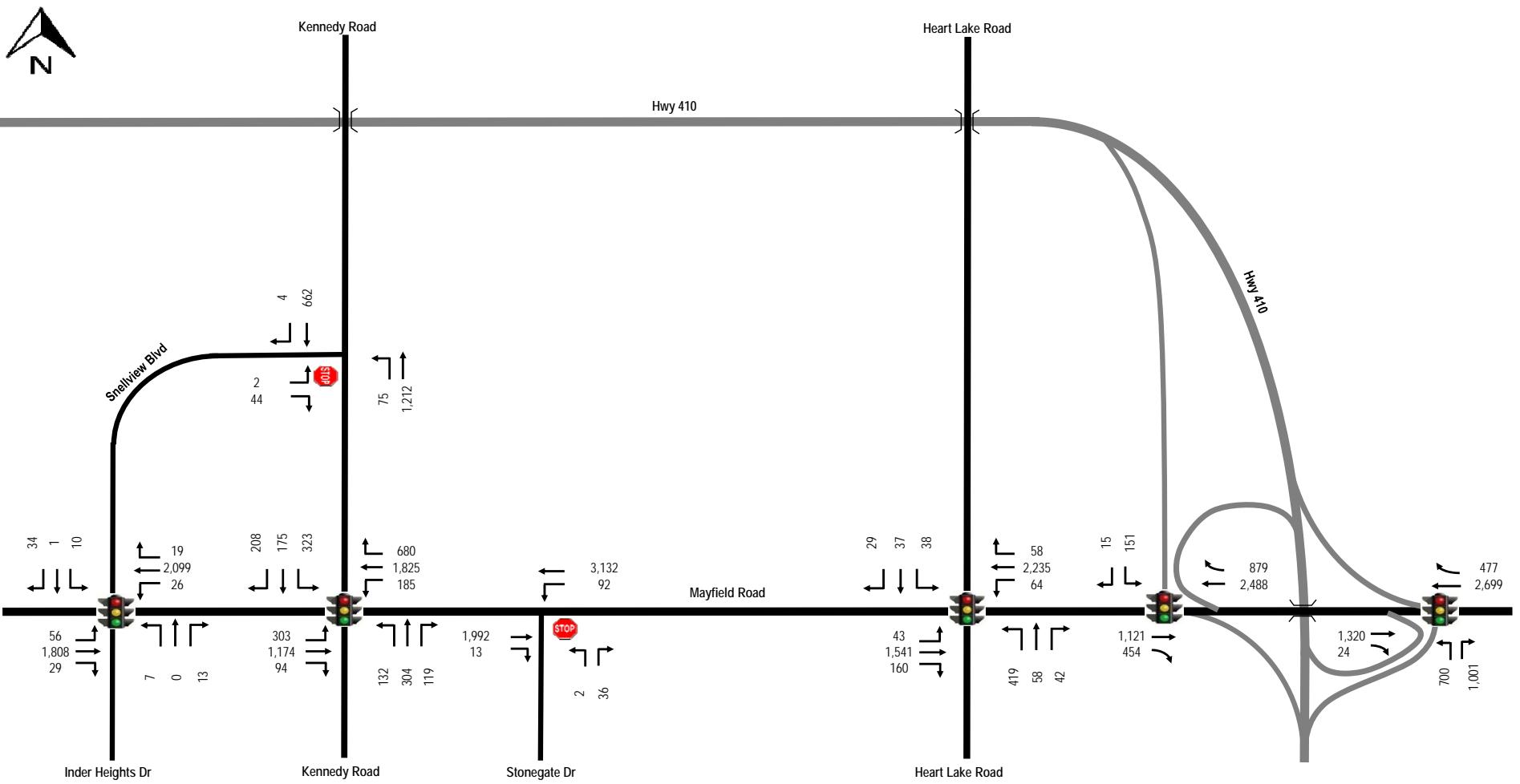
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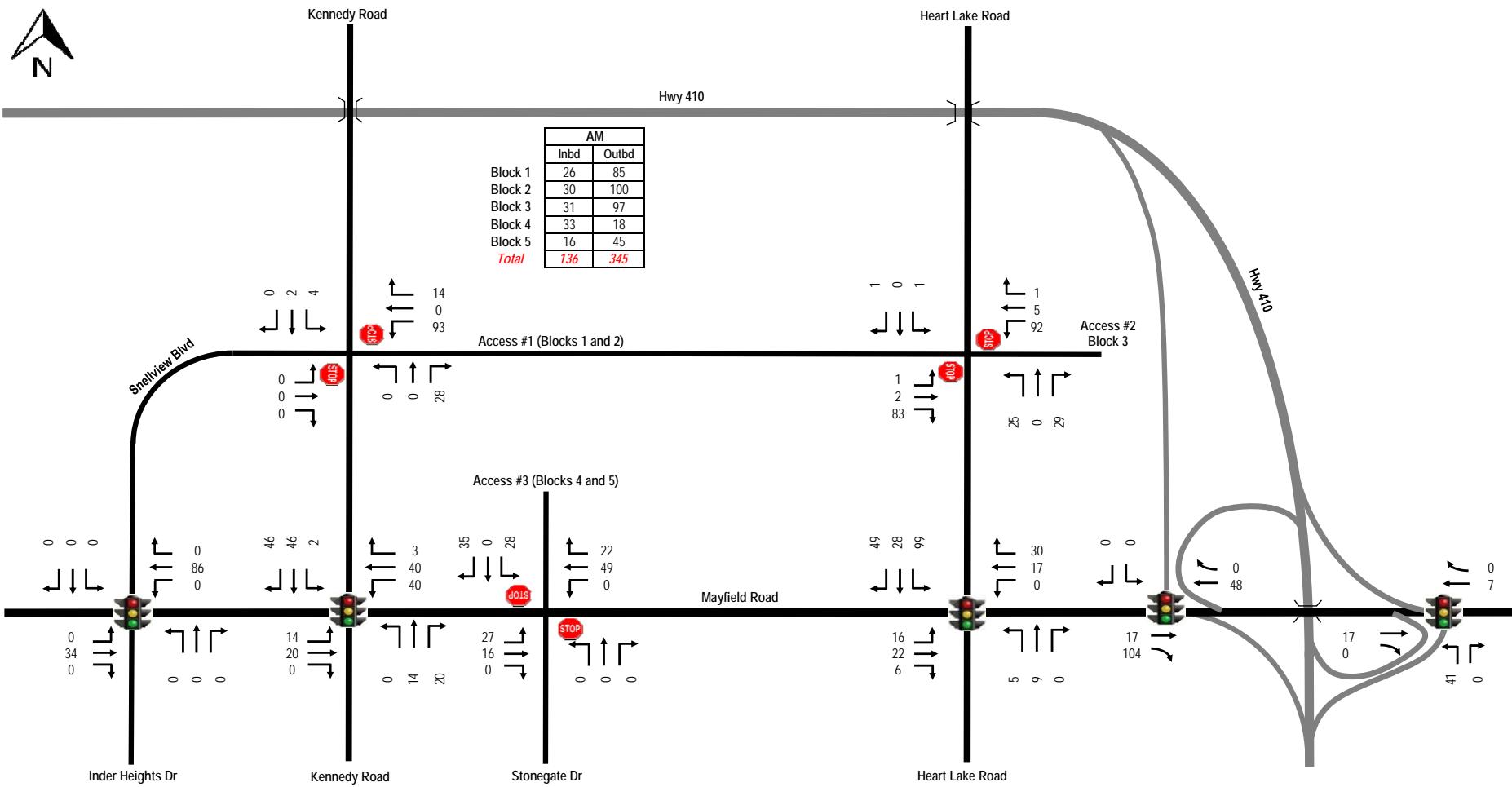


Figure 11B - Site Traffic Volumes
AM Peak Hour

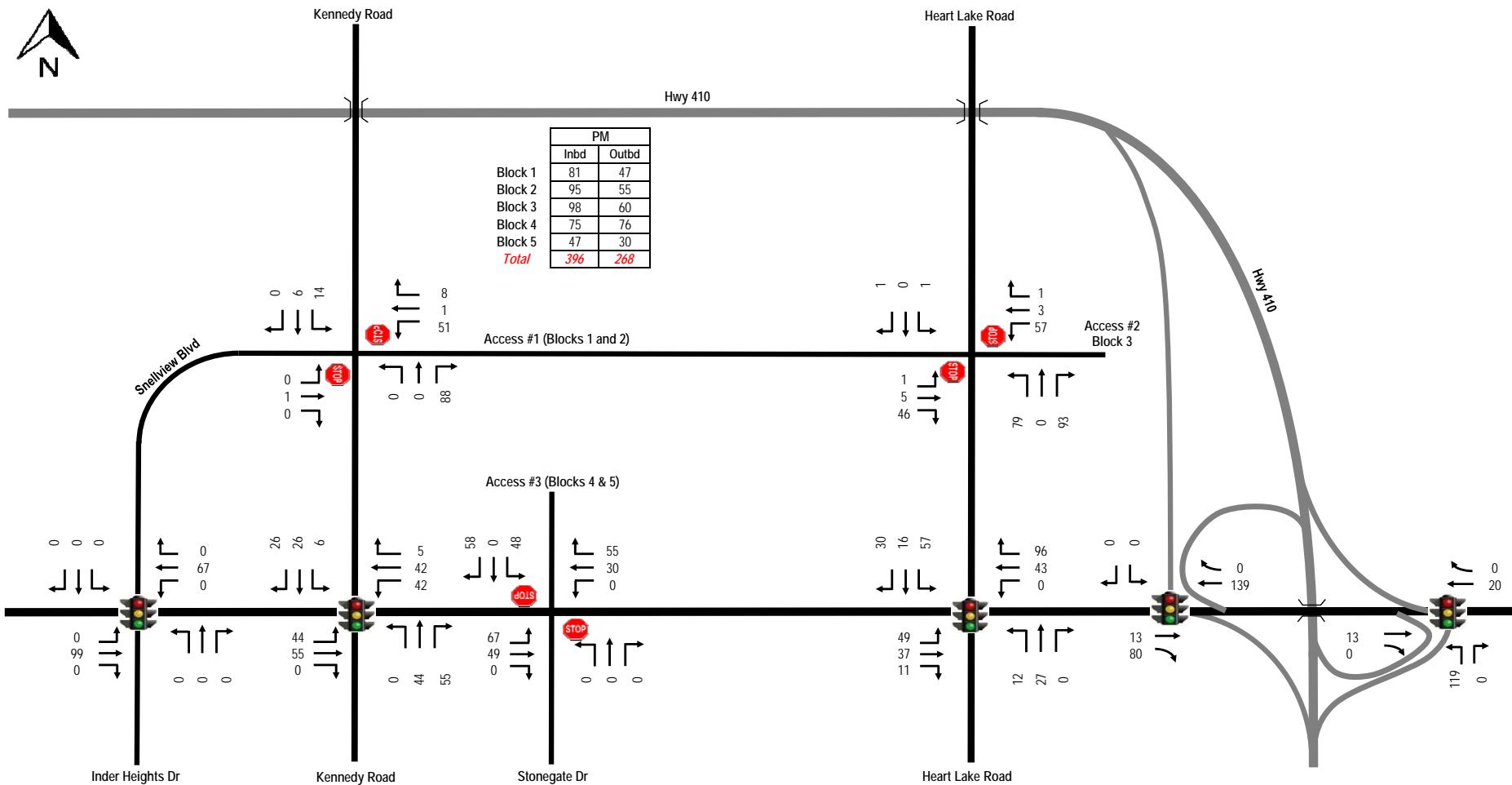
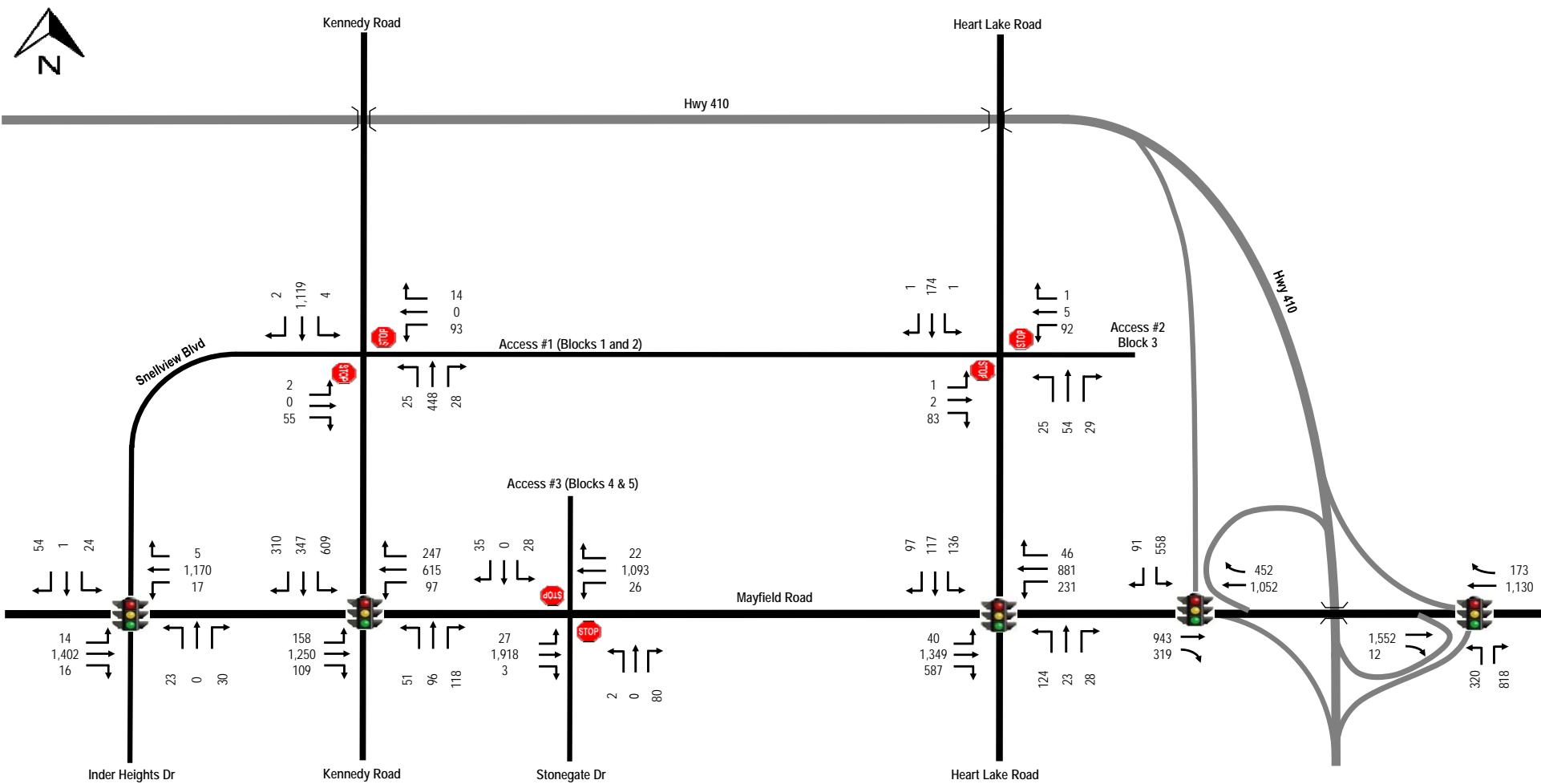
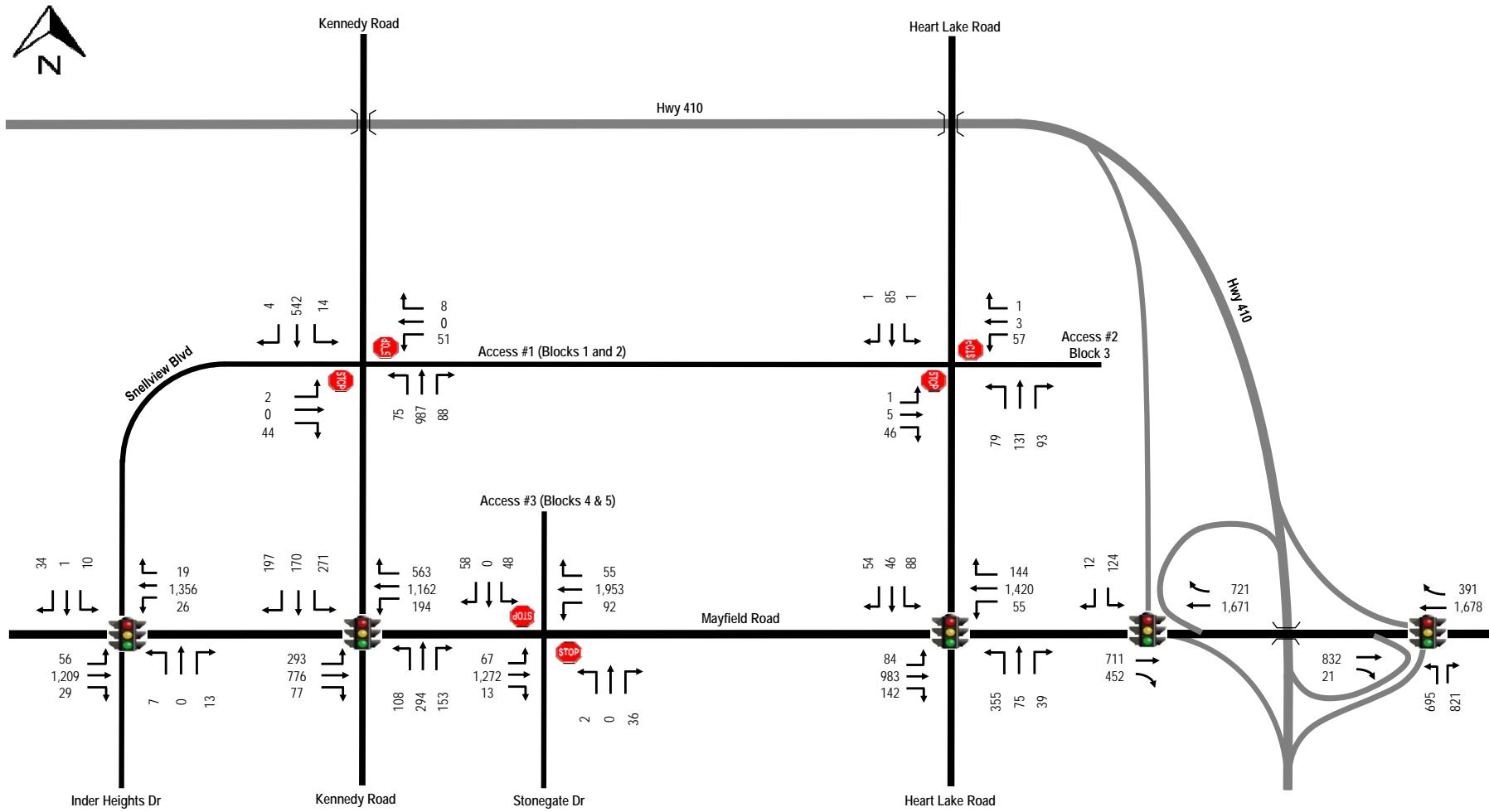


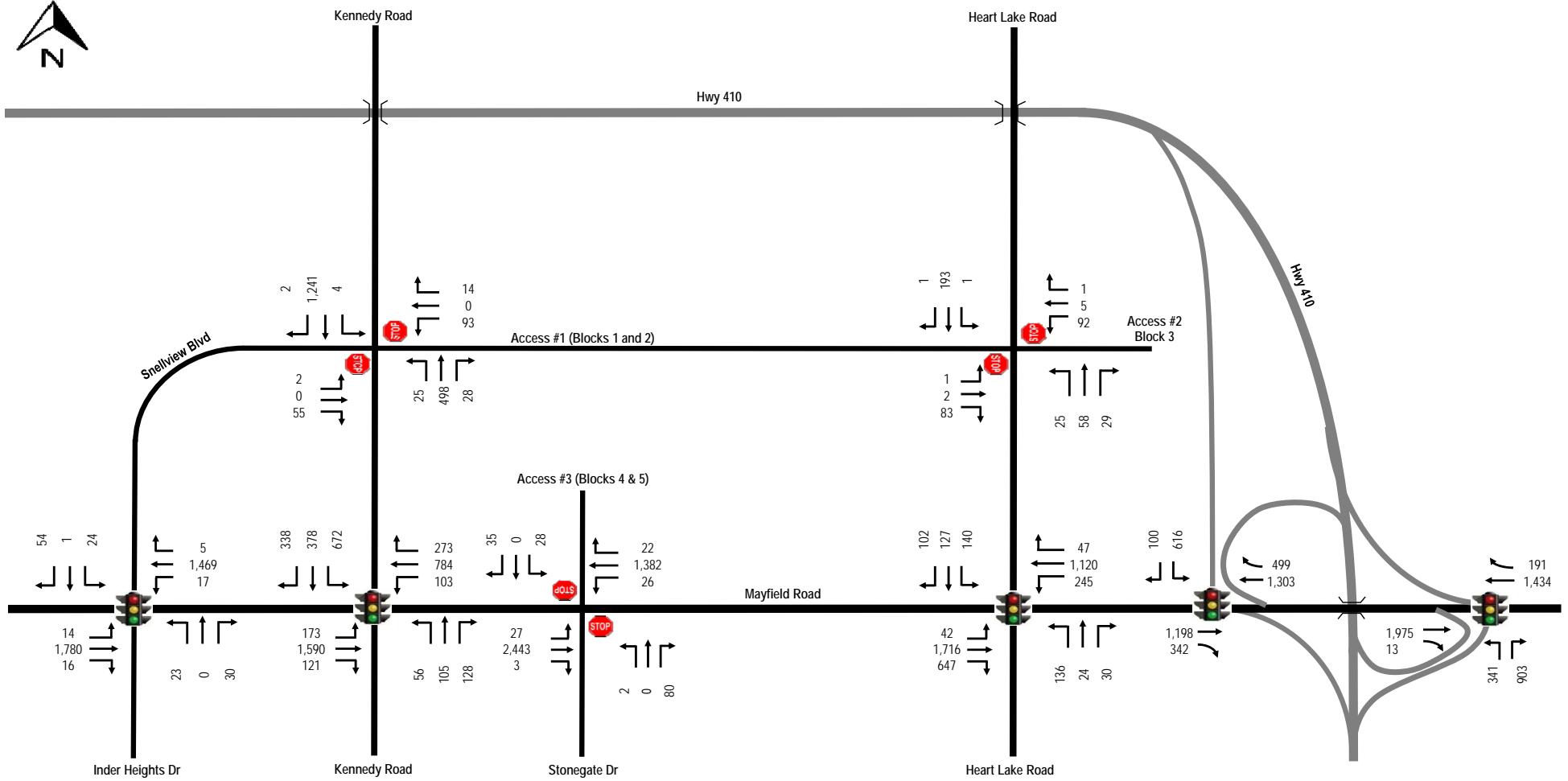
Figure 11C - Site Traffic Volumes
PM Peak Hour



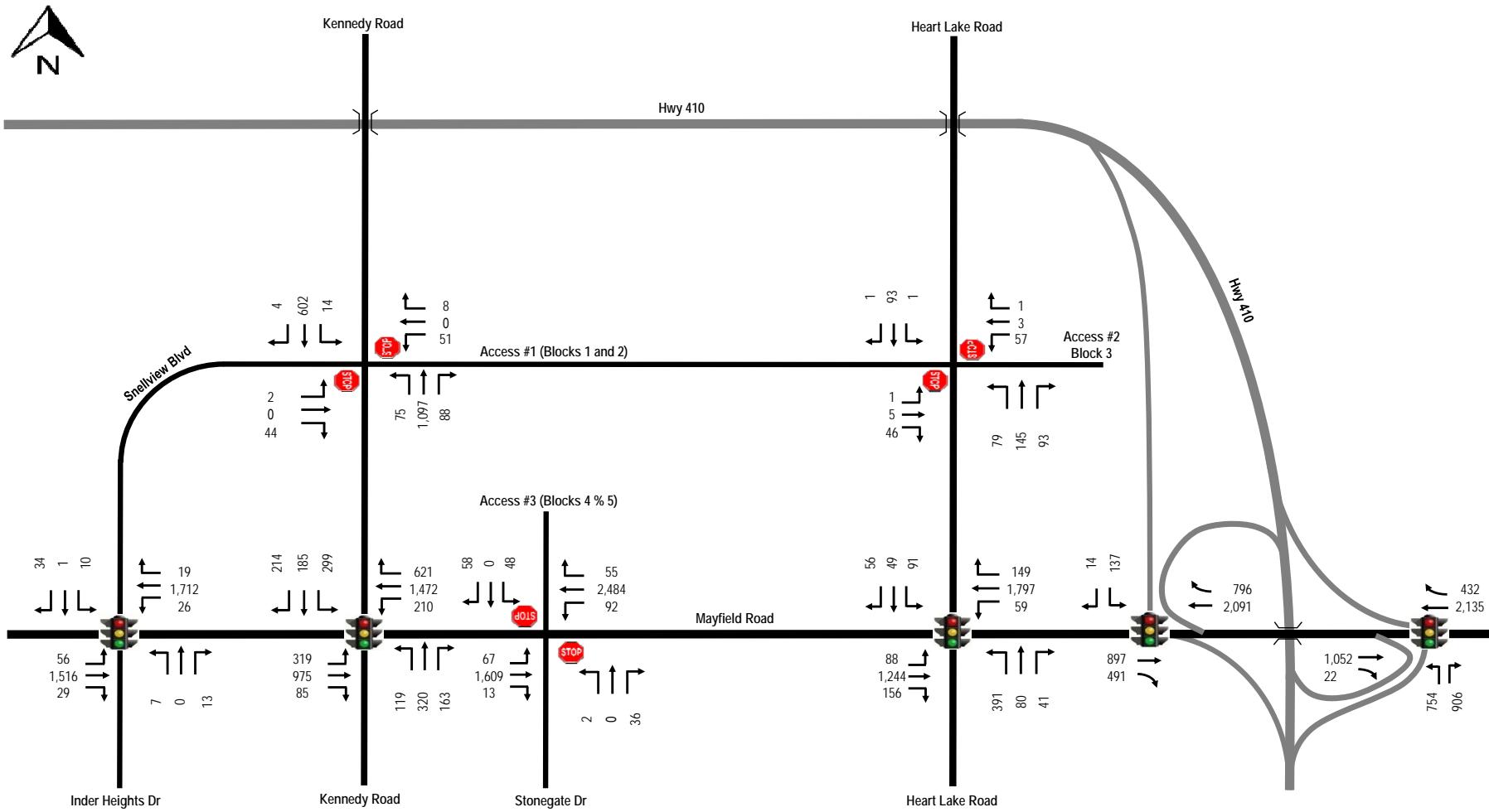
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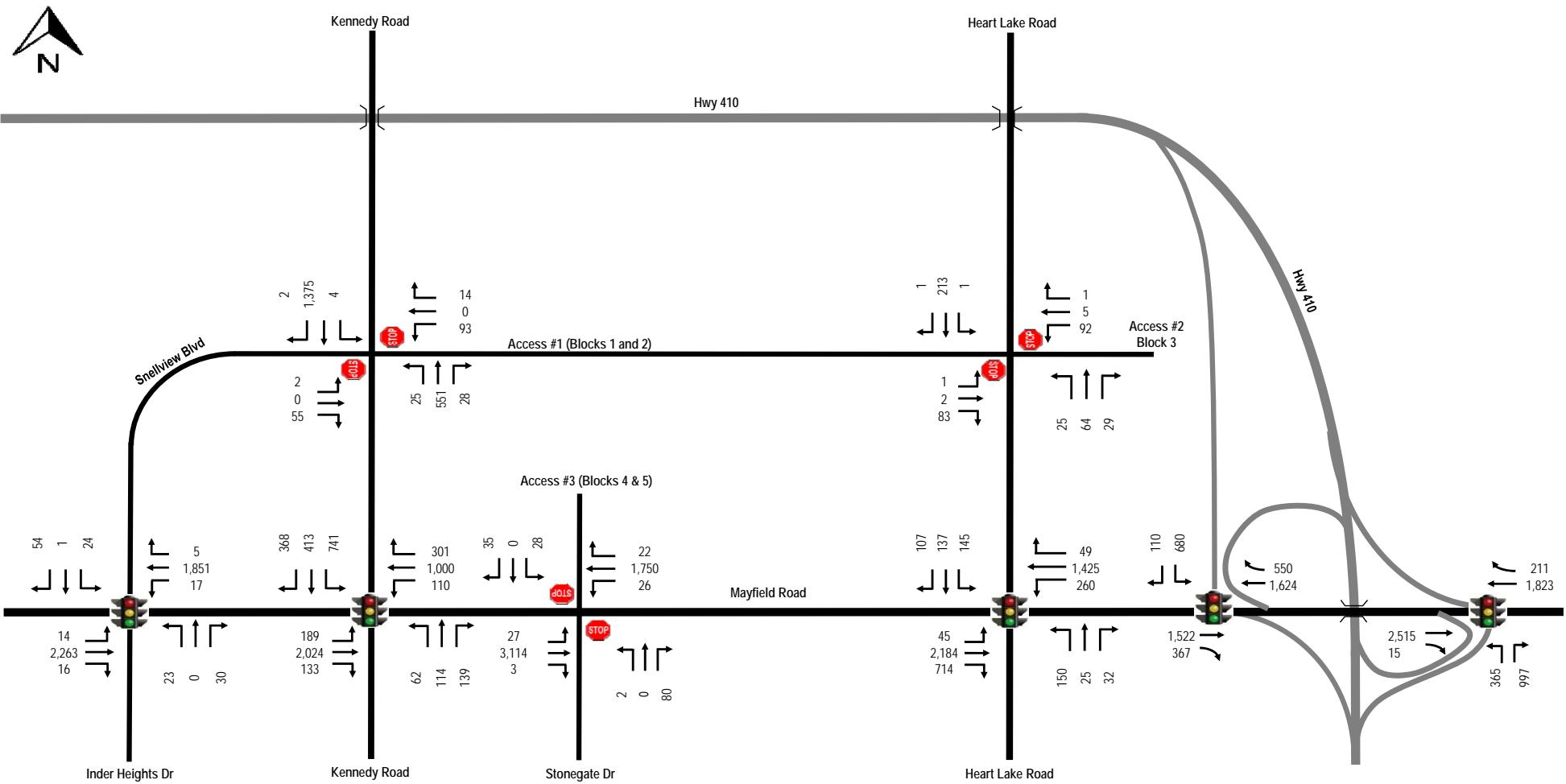
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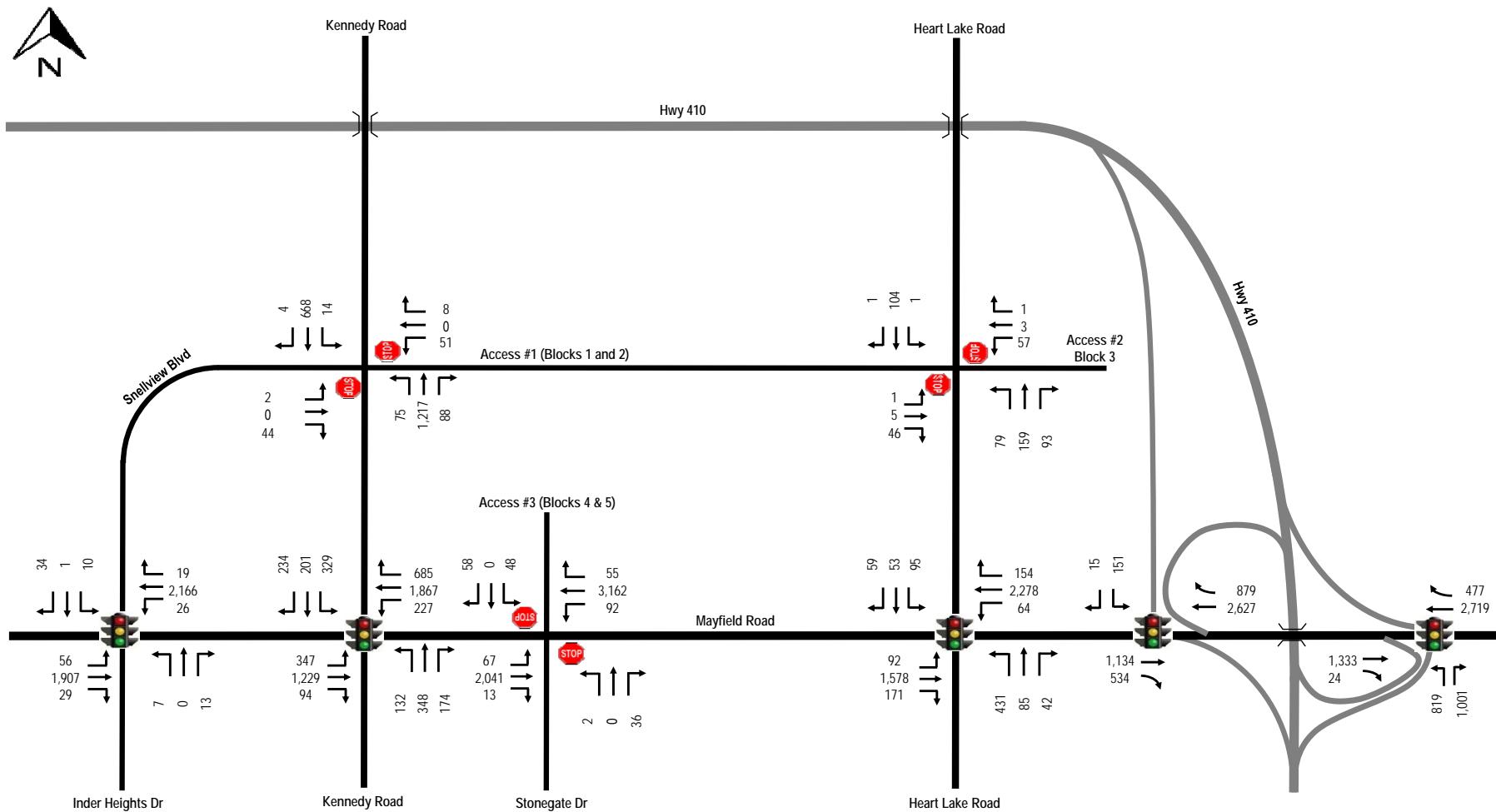
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Appendix A

Study Terms of Reference and Comments

From: Shan, Rosalie <rosalie.shan@peelregion.ca>
Sent: Friday, February 26, 2021 2:16 PM
To: Sam Nguyen <sam@nextrans.ca>
Cc: Barnes, Catherine <catherine.barnes@peelregion.ca>; Hamdani, Hashim <hashimali.hamdani@peelregion.ca>
Subject: RE: Transportation Impact Assessment - Proposed Scope of Work for Snell's Hollow

Hi Sam ,

This is Rosalie from Traffic Development, sorry for the late reply.

Thank you for the circulation. Please see the traffic comments below in red and the [link](#) here for the detailed Region of Peel TIS formatting and contact information for background traffic (growth rate, AADT, signal timing, etc.) on Regional Road. Let me know if you have any questions or concerns.

In addition, may I know the planning status of the site? In my end, I can only locate a pre consultation application 20-001C, planning drawing as below. Would you please provide us some information on this?



**SNELL'S HOLLOW
PRELIMINARY DEVELOPMENT CONCEPT PLAN
TOWN OF CALEDON**

DRAFT FOR DISCUSSION PURPOSES ONLY

Regards,
Rosalie Shan
Technical Analyst
Traffic Development & Permits
Region of Peel
10 Peel Centre Drive Suite B, 4th Floor
Brampton, ON L6T 4B9
905 791-7800 Ext. 7999



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From: Sam Nguyen <sam@nextrans.ca>
Sent: February 25, 2021 3:08 PM
To: Hamdani, Hashim <hashimali.hamdani@peelregion.ca>
Cc: Carrick, Sean <sean.carrick@peelregion.ca>; Shan, Rosalie <rosalie.shan@peelregion.ca>; Barnes, Catherine <catherine.barnes@peelregion.ca>
Subject: RE: Transportation Impact Assessment - Proposed Scope of Work for Snell's Hollow

CAUTION: EXTERNAL MAIL. DO NOT CLICK ON LINKS OR OPEN ATTACHMENTS YOU DO NOT TRUST.

Hi Hashim,

I would like to follow up with you on the TOR.

Sam (Trang) Nguyen
Transportation Analyst

o: 905-503-2563 ext. 207
e: sam@nextrans.ca
w: www.nextrans.ca

NexTrans Consulting Engineers
A Division of NextEng Consulting Group Inc.
520 Industrial Parkway South, Suite 201
Aurora ON L4G 6W8

From: Sam Nguyen <sam@nextrans.ca>
Sent: January 22, 2021 11:29 AM
To: Carrick, Sean <sean.carrick@peelregion.ca>
Cc: Hamdani, Hashim <hashimali.hamdani@peelregion.ca>
Subject: RE: Transportation Impact Assessment - Proposed Scope of Work for Snell's Hollow

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Thank you, please see attached. I don't have additional information yet.

Sam (Trang) Nguyen
Transportation Analyst

o: 905-503-2563 ext. 207
c: 416-904-1461
e: sam@nextrans.ca
w: www.nextrans.ca

NexTrans Consulting Engineers
A Division of NextEng Consulting Group Inc.

From: Sam Nguyen <sam@nextrans.ca>
Sent: January 21, 2021 5:00 PM
To: Carrick, Sean <sean.carrick@peelregion.ca>
Subject: Transportation Impact Assessment - Proposed Scope of Work for Snell's Hollow

CAUTION: EXTERNAL MAIL. DO NOT CLICK ON LINKS OR OPEN ATTACHMENTS YOU DO NOT TRUST.

Dear Sean,

Nextrans has been retained to undertake a TIS to support the proposed resident development for the lands located north of Mayfield Road, south of Hwy 410, east of Kennedy Road and west of Heart Lake Road, in the Town of Caledon. The following is a proposed scope of the TIS that takes into consideration of the Region, the Town of Caledon and MTO Traffic Impact Study Guidelines and contexts of the area/proposed development:

1. The Study will be consistent with the Region, MTO and Town of Caledon TIS Guidelines.
2. Transportation improvements in the area will be consistent with the Region and Town of Caledon Transportation Master Plans, as well as MTO future plans, where appropriate.
3. Study Area intersection – Nextrans will request the following intersection turning movement counts from the Region/Caledon. The existing turning movement counts will be adjusted for the 2020 conditions using background growth rates. If turning movement counts are not available, Nextrans may undertake the counts now and adjust for COVID-19 pandemic conditions using background growth rates, AADT, ATR, modelling data and/or first principle trip generation. - Agree
 1. Kennedy Road/Mayfield Road;
 2. Heart Lake Road/Mayfield Road;
 3. Hwy 410 Southbound Off-ramp/Mayfield Road;
 4. Snellview Blvd/Mayfield Road;
 5. Snellview Blvd/Kennedy Road N;
 6. Stonegate Drive/Mayfield Road; and
 7. All proposed development accesses
4. Horizon Year
 - a. Project completion by 2023 and assumed analysis horizon year 2028 (5 year horizon)
5. Background Developments and Growth Rate
 - a. Background corridor through traffic growth – we have received growth rates from the Region for Mayfield Road. Can the Town provide us with growth rates for Kennedy Road and Heart Lake Road?

Please contact Town of Caledon to obtain those information.

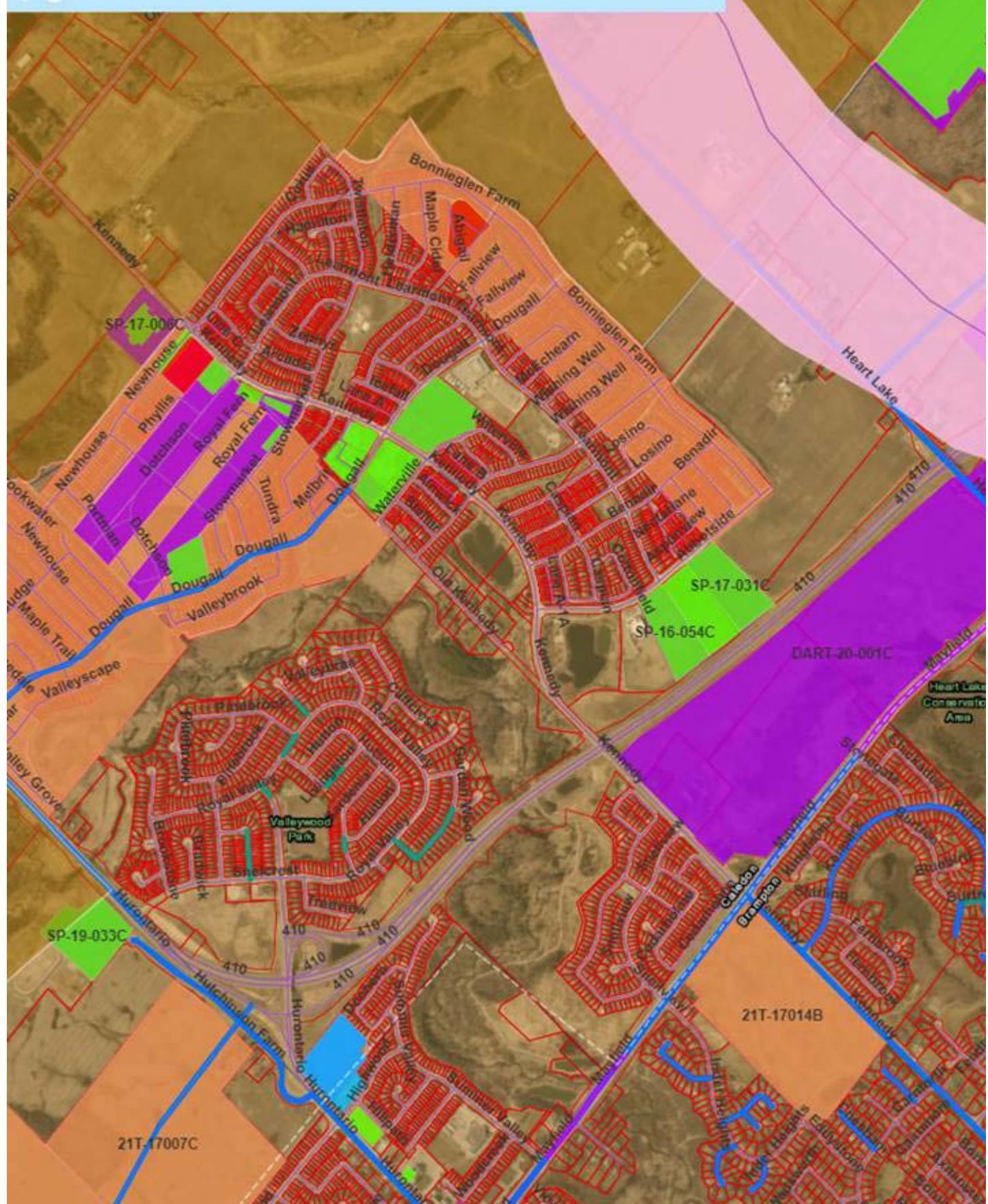
b. The following background development will be included in the study, based on the development applications record on the Town's website:

1. 2256 Mayfield Road
2. 2650 Mayfield Road

Please contact Town of Caledon Planning for surrounding active planning applications.

For Brampton side, please contact City of Planning for surrounding active planning applications.

Please see the map below for some active subdivision application in the study area (from East to west T-11005B,11006B,12006B,1009B,17014B, 16008C,17001C) for your information



4. Trip Generation - **Agree**

ITE Trip Generation Manual 10th Edition

- a. Multimodal trip generation using 2016 TTS modal split data, where appropriate

5. Trip Distribution - **Agree**

Extract 2016 TTS data based on the surrounding traffic zones where appropriate

4. Transportation Assessment - **Agree**

Transportation assessment for existing conditions;

- a. Transportation assessment for future background conditions based on forecast conditions; and
- b. Future total assessment:
 - Future Total Traffic Assessment for Auto Mode
 - Future non-auto mode assessment
 - Proposed Access assessment
 - Vehicular and Bicycle Parking Assessment
 - Internal Site Circulation assessment

7. Transit, Active Transportation and TDM -- **Agree**

Conduct a review of the existing and proposed future transit network in the area. Based on these findings, appropriate recommendations will be provided to ensure adequate walking distances to/from the proposed development to transit stations/stops.

- a. Review the existing and proposed future active transportation network in the area. Based on these findings, Nextrans will identify missing gaps and additional interconnections and connections from the proposed development to adjacent land uses, the City and the Region's facilities, as well as to transition stations/stops.

A Transportation Demand Management (TDM) assessment will be undertaken to identify specific measures and programs to reduce single-occupant-vehicle trips to/from the proposed development. These TDM measures and programs may include but not limited to, Carpooling, Auto Share, Bike racks, Parking management strategies, etc. The TDM report will be completed and included as part of this Study for submission purposes submitted in accordance with the Town and the Region requirements. – **Agree**

It is noted NO access is proposed to Regional Road under this application. The study shall identify if any improvements are required at the two intersections (Heart Lake, Kennedy Road) to support the development.

Thanks,

Sam (Trang) Nguyen
Transportation Analyst

o: 905-503-2563 ext. 207
c: 416-904-1461
e: sam@nextrans.ca
w: www.nextrans.ca

NexTrans Consulting Engineers
A Division of NextEng Consulting Group Inc.
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Aurora ON L4G 6W8

From: Arash Olia <Arash.Olia@aledon.ca>
Sent: Thursday, February 25, 2021 3:17 PM
To: Sam Nguyen <sam@nextrans.ca>
Subject: RE: Transportation Impact Assessment - Proposed Scope of Work for Snell's Hollow

You can assume 2%

Arash Olia, Ph.D., P.Eng.
Manager, Transportation Engineering
Engineering Services Department

Office: 905.584.2272 x.4073
Cell: 416.452.7091
Email: arash.olia@aledon.ca

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

From: Sam Nguyen <sam@nextrans.ca>
Sent: Thursday, February 25, 2021 3:06 PM
To: Arash Olia <Arash.Olia@aledon.ca>
Subject: RE: Transportation Impact Assessment - Proposed Scope of Work for Snell's Hollow

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Hi Arash,

Do you have appropriate growth rates for Kennedy Road and Heart Lake Road?

Thank you

Sam (Trang) Nguyen
Transportation Analyst

o: 905-503-2563 ext. 207

e: sam@nextrans.ca

w: www.nextrans.ca

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520 Industrial Parkway South, Suite 201
Aurora ON L4G 6W8

From: Arash Olia <Arash.Olia@aledon.ca>
Sent: Friday, January 22, 2021 7:36 PM
To: Sam Nguyen <sam@nextrans.ca>
Subject: RE: Transportation Impact Assessment - Proposed Scope of Work for Snell's Hollow

Hi Sam,

Here are my comments:

1. Please review the parking as per the Town's Zoning By-law; and
2. Please conduct the traffic signal warrant analysis at the development accesses at Kennedy Road and Heart Lake Road.

Thanks,

Arash Olia, Ph.D., P.Eng.
Manager, Transportation Engineering
Engineering Services Department

Office: 905.584.2272 x.4073

Cell: 416.452.7091

Email: arash.olia@aledon.ca

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From: Sam Nguyen <sam@nextrans.ca>
Sent: Friday, January 22, 2021 9:14 AM
To: Arash Olia <Arash.Olia@aledon.ca>
Subject: RE: Transportation Impact Assessment - Proposed Scope of Work for Snell's Hollow

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the contents to be safe.

Hi Arash,

Please see attached. And yes I did send email to Region of Peel, waiting for response.

Thanks,

Sam (Trang) Nguyen
Transportation Analyst

o: 905-503-2563 ext. 207
c: 416-904-1461
e: sam@nextrans.ca
w: www.nextrans.ca

NexTrans Consulting Engineers
A Division of NextEng Consulting Group Inc.
520 Industrial Parkway South, Suite 201
Aurora ON L4G 6W8

From: Arash Olia <Arash.Olia@aledon.ca>
Sent: Thursday, January 21, 2021 6:29 PM
To: Sam Nguyen <sam@nextrans.ca>
Subject: RE: Transportation Impact Assessment - Proposed Scope of Work for Snell's Hollow

Hi Sam,

Do you have the site plan? Also, have you circulated the TOR with the Region of Peel?

Thanks,

Arash Olia, Ph.D., P.Eng.
Manager, Transportation Engineering
Engineering Services Department

Office: 905.584.2272 x.4073

Cell: 416.452.7091

Email: arash.olia@aledon.ca

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From: Sam Nguyen <sam@nextrans.ca>
Sent: Thursday, January 21, 2021 4:45 PM
To: Arash Olia <Arash.Olia@aledon.ca>
Subject: Transportation Impact Assessment - Proposed Scope of Work for Snell's Hollow

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Dear Arash,

Nextrans has been retained to undertake a TIS to support the proposed resident development for the lands located north of Mayfield Road, south of Hwy 410, east of Kennedy Road and west of Heart Lake Road, in the Town of Caledon. The following is a proposed scope of the TIS that takes into consideration of the Region, the Town of Caledon and MTO Traffic Impact Study Guidelines and contexts of the area/proposed development:

1. The Study will be consistent with the Region, MTO and Town of Caledon TIS Guidelines.

2. Transportation improvements in the area will be consistent with the Region and Town of Caledon Transportation Master Plans, as well as MTO future plans, where appropriate.
3. Study Area intersection – Nextrans will request the following intersection turning movement counts from the Region/Caledon. The existing turning movement counts will be adjusted for the 2020 conditions using background growth rates. If turning movement counts are not available, Nextrans may undertake the counts now and adjust for COVID-19 pandemic conditions using background growth rates, AADT, ATR, modelling data and/or first principle trip generation.
 1. Kennedy Road/Mayfield Road;
 2. Heart Lake Road/Mayfield Road;
 3. Hwy 410 Southbound Off-ramp/Mayfield Road;
 4. Snellview Blvd/Mayfield Road;
 5. Snellview Blvd/Kennedy Road N;
 6. Stonegate Drive/Mayfield Road; and
 7. All proposed development accesses
4. Horizon Year
 - a. Project completion by 2023 and assumed analysis horizon year 2028 (5 year horizon)
5. Background Developments and Growth Rate
 - a. Background corridor through traffic growth – we have received growth rates from the Region for Mayfield Road. Can the Town provide us with growth rates for Kennedy Road and Heart Lake Road?
 - b. The following background development will be included in the study, based on the development applications record on the Town's website:
 1. 2256 Mayfield Road
 2. 2650 Mayfield Road
4. Trip Generation
 - a. ITE Trip Generation Manual 10th Edition
 - b. Multimodal trip generation using 2016 TTS modal split data, where appropriate
5. Trip Distribution
 - a. Extract 2016 TTS data based on the surrounding traffic zones where appropriate
6. Transportation Assessment
 - a. Transportation assessment for existing conditions;
 - b. Transportation assessment for future background conditions based on forecast conditions; and
 - c. Future total assessment:
 - Future Total Traffic Assessment for Auto Mode
 - Future non-auto mode assessment
 - Proposed Access assessment
 - Vehicular and Bicycle Parking Assessment
 - Internal Site Circulation assessment
7. Transit, Active Transportation and TDM

- a. Conduct a review of the existing and proposed future transit network in the area. Based on these findings, appropriate recommendations will be provided to ensure adequate walking distances to/from the proposed development to transit stations/stops.
- b. Review the existing and proposed future active transportation network in the area. Based on these findings, Nextrans will identify missing gaps and additional interconnections and connections from the proposed development to adjacent land uses, the City and the Region's facilities, as well as to transition stations/stops.
- c. A Transportation Demand Management (TDM) assessment will be undertaken to identify specific measures and programs to reduce single-occupant-vehicle trips to/from the proposed development. These TDM measures and programs may include but not limited to, Carpooling, Auto Share, Bike racks, Parking management strategies, etc. The TDM report will be completed and included as part of this Study for submission purposes submitted in accordance with the Town and the Region requirements.

Thanks,

Sam (Trang) Nguyen
Transportation Analyst

o: 905-503-2563 ext. 207
 c: 416-904-1461
 e: sam@nextrans.ca
 w: www.nextrans.ca

NexTrans Consulting Engineers
A Division of NextEng Consulting Group Inc.
 520 Industrial Parkway South, Suite 201
 Aurora ON L4G 6W8

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Appendix B

Existing Traffic Data and Signal Timing Plans



Turning Movement Count (19 . KENNEDY RD N & MAYFIELD RD) CustID: 01415126 MioID: 502452

Start Time	N Approach KENNEDY RD						E Approach MAYFIELD RD						S Approach KENNEDY RD N						W Approach MAYFIELD RD						Int. Total (15 min)		Int. Total (1 hr)	
	Left N.E	Thru N:S	Right N.W	U-Turn N:N	Peds N:	Approach Total	Left E:S	Thru E:W	Right E:N	U-Turn E:E	Peds E:	Approach Total	Left S:W	Thru S:N	Right S:E	U-Turn S:S	Peds S:	Approach Total	Left W:N	Thru W:E	Right W:S	U-Turn W:W	Peds W:	Approach Total				
07:00:00	166	44	40	0	0	250	7	105	47	0	0	159	8	6	17	0	0	31	13	214	13	0	3	240		680		
07:15:00	142	70	46	0	0	258	11	134	55	0	1	200	4	10	18	0	1	32	28	223	17	0	1	268		758		
07:30:00	146	64	50	0	0	260	7	112	48	0	0	167	10	15	37	0	0	62	24	265	24	0	0	313		802		
07:45:00	166	67	58	0	1	291	13	144	61	0	0	218	11	10	38	0	1	59	30	328	21	0	2	379		947	3187	
08:00:00	141	74	65	0	0	280	16	150	63	0	0	229	10	22	19	0	0	51	39	231	27	0	3	297		857	3364	
08:15:00	96	67	66	0	0	229	16	125	49	0	0	190	15	27	20	0	0	62	37	243	27	0	1	307		788	3394	
08:30:00	114	107	46	0	0	267	11	120	49	0	0	180	11	23	34	0	0	68	20	202	28	0	0	250		765	3357	
08:45:00	86	62	56	0	0	204	18	127	42	0	0	187	11	13	19	0	0	43	22	201	21	0	2	244		678	3088	
BREAK																												
11:00:00	47	20	25	0	0	92	5	54	34	0	1	93	8	14	15	0	1	37	22	98	15	0	1	135		357		
11:15:00	57	24	28	0	0	109	6	72	46	0	0	124	12	23	11	0	0	46	26	86	12	0	0	124		403		
11:30:00	58	25	22	0	0	105	6	83	48	0	1	137	8	22	11	0	0	41	18	101	10	0	0	129		412		
11:45:00	57	20	35	0	0	112	9	79	36	0	1	124	14	16	16	0	0	46	22	85	12	0	0	119		401	1573	
12:00:00	55	20	30	1	0	106	10	74	42	0	0	126	5	23	11	0	0	39	23	83	13	0	0	119		390	1606	
12:15:00	44	18	35	0	0	97	3	83	39	0	0	125	9	25	13	0	0	47	38	97	10	0	0	145		414	1617	
12:30:00	59	15	40	0	0	114	5	76	45	0	0	126	6	23	9	0	0	38	34	89	11	0	0	134		412	1617	
12:45:00	60	15	18	0	0	93	14	86	46	0	0	146	7	20	9	0	0	36	28	79	13	0	1	120		395	1611	
13:00:00	52	16	19	0	0	87	8	83	43	0	0	134	7	22	10	0	0	39	26	78	13	0	1	117		377	1598	
13:15:00	55	22	28	0	0	105	9	107	49	0	0	165	8	15	16	0	0	39	26	108	14	0	1	148		457	1641	
13:30:00	56	17	20	0	0	93	17	82	45	0	0	144	7	18	7	0	0	32	30	114	14	0	2	158		427	1656	
13:45:00	49	14	23	0	0	86	9	84	46	0	0	139	16	12	5	0	0	33	20	104	10	0	1	134		392	1653	
BREAK																												
15:00:00	78	25	51	0	0	154	20	174	114	0	2	308	24	30	19	0	2	73	21	114	16	0	0	151		686		
15:15:00	74	25	43	0	0	142	13	196	93	0	0	302	16	44	10	0	0	70	38	108	27	0	0	173		687		
15:30:00	56	28	44	0	0	128	13	182	104	0	0	299	26	44	29	0	0	99	45	145	18	0	2	208		734		
15:45:00	53	27	42	0	0	122	23	190	114	0	2	327	28	57	22	0	1	107	57	159	18	0	1	234		790	2897	
16:00:00	61	32	20	0	0	113	26	224	89	0	0	339	20	49	16	0	0	85	61	136	13	0	3	210		747	2958	
16:15:00	68	30	31	0	0	129	26	218	112	0	0	356	24	52	16	0	0	92	47	100	21	0	6	168		745	3016	
16:30:00	59	36	33	0	0	128	25	253	120	0	0	398	20	43	22	0	0	85	62	148	17	0	0	227		838	3120	
16:45:00	73	35	31	0	0	139	26	224	108	0	0	358	22	50	18	0	0	90	50	138	17	0	3	205		792	3122	
17:00:00	64	31	38	0	2	133	33	218	135	0	0	386	29	69	25	0	0	123	59	156	10	0	2	225		867	3242	
17:15:00	40	29	39	0	0	108	32	267	125	0	6	424	15	46	18	0	4	79	56	170	15	0	1	241		852	3349	
17:30:00	58	30	41	0	0	129	49	251	131	0	0	431	27	58	25	0	0	110	55	137	27	0	0	219		889	3400	
17:45:00	78	40	37	0	0	155	24	236	114	0	0	374	27	53	21	0	0	101	55	162	18	0	4	235		865	3473	
Grand Total	2468	1149	1200	1	3	4818	510	4613	2292	0	14	7415	465	954	576	0	10	1995	1132	4702	542	0	41	6376		20604	-	
Approach%	51.2%	23.8%	24.9%	0%	-	6.9%	62.2%	30.9%	0%	-	23.3%	47.8%	28.9%	0%	-	17.8%	73.7%	8.5%	0%	-	-	-	-	-	-	-	-	-
Totals %	12%	5.6%	5.8%	0%	-	23.4%	2.5%	22.4%	11.1%	0%	36%	2.3%	4.6%	2.8%	0%	-	9.7%	5.5%	22.8%	2.6%	0%	-	30.9%	-	-	-	-	-
Heavy	211	28	61	0	-	12	254	201	0	-	17	33	16	0	-	-	61	253	49	0	-	-	-	-	-	-	-	-
Heavy %	8.5%	2.4%	5.1%	0%	-	2.4%	5.5%	8.8%	0%	-	3.7%	3.5%	2.8%	0%	-	-	5.4%	5.4%	9%	0%	-	-	-	-	-	-	-	-
Bicycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bicycle %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	



Peak Hour: 07:30 AM - 08:30 AM Weather: Overcast (0 °C)

Start Time	N Approach KENNEDY RD						E Approach MAYFIELD RD						S Approach KENNEDY RD N						W Approach MAYFIELD RD						Int. Total (15 min)		
	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total			
07:30:00	146	64	50	0	0	260	7	112	48	0	0	167	10	15	37	0	0	62	24	265	24	0	0	313	802		
07:45:00	166	67	58	0	1	291	13	144	61	0	0	218	11	10	38	0	1	59	30	328	21	0	2	379	947		
08:00:00	141	74	65	0	0	280	16	150	63	0	0	229	10	22	19	0	0	51	39	231	27	0	3	297	857		
08:15:00	96	67	66	0	0	229	16	125	49	0	0	190	15	27	20	0	0	62	37	243	27	0	1	307	788		
Grand Total	549	272	239	0	1	1060	52	531	221	0	0	804	46	74	114	0	1	234	130	1067	99	0	6	1296	3394		
Approach%	51.8%	25.7%	22.5%	0%	-	6.5%	66%	27.5%	0%	-	19.7%	31.6%	48.7%	0%	-	10%	82.3%	7.6%	0%	-	-	-	-	-	-		
Totals %	16.2%	8%	7%	0%	-	31.2%	1.5%	15.6%	6.5%	0%	23.7%	1.4%	2.2%	3.4%	0%	6.9%	3.8%	31.4%	2.9%	0%	-	38.2%	-	-	-		
PHF	0.83	0.92	0.91	0	-	0.91	0.81	0.89	0.88	0	0.88	0.77	0.69	0.75	0	0.94	0.83	0.81	0.92	0	-	0.85	-	-	-		
Heavy	43	3	12	0	-	58	1	53	28	0	-	82	2	6	3	0	-	11	17	26	10	0	-	53	-		
Heavy %	7.8%	1.1%	5%	0%	-	5.5%	1.9%	10%	12.7%	0%	-	10.2%	4.3%	8.1%	2.6%	0%	4.7%	13.1%	2.4%	10.1%	0%	-	4.1%	-	-	-	
Lights	506	269	227	0	-	1002	51	478	193	0	-	722	44	68	111	0	-	223	113	1041	89	0	-	1243	-		
Lights %	92.2%	98.9%	95%	0%	-	94.5%	98.1%	90%	87.3%	0%	-	89.8%	95.7%	91.9%	97.4%	0%	95.3%	86.9%	97.6%	89.9%	0%	-	95.9%	-	-	-	
Single-Unit Trucks	21	0	4	0	-	25	0	20	10	0	-	30	0	1	1	0	-	2	2	3	1	0	-	6	-	-	-
Single-Unit Trucks %	3.8%	0%	1.7%	0%	-	2.4%	0%	3.8%	4.5%	0%	-	3.7%	0%	1.4%	0.9%	0%	-	0.9%	1.5%	0.3%	1%	0%	-	0.5%	-	-	-
Buses	22	3	8	0	-	33	1	18	14	0	-	33	2	5	2	0	-	9	15	17	9	0	-	41	-	-	-
Buses %	4%	1.1%	3.3%	0%	-	3.1%	1.9%	3.4%	6.3%	0%	-	4.1%	4.3%	6.8%	1.8%	0%	-	3.8%	11.5%	1.6%	9.1%	0%	-	3.2%	-	-	-
Articulated Trucks	0	0	0	0	-	0	0	15	4	0	-	19	0	0	0	0	-	0	0	6	0	0	-	6	-	-	-
Articulated Trucks %	0%	0%	0%	0%	-	0%	0%	2.8%	1.8%	0%	-	2.4%	0%	0%	0%	0%	-	0%	0%	0.6%	0%	0%	-	0.5%	-	-	-
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	6	-	-	-
Pedestrians%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	12.5%	-	-	-	-	-	75%	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-
Bicycles on Crosswalk%	-	-	-	-	-	12.5%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-



Peak Hour: 12:45 PM - 01:45 PM Weather: Overcast (1.3 °C)

Start Time	N Approach KENNEDY RD						E Approach MAYFIELD RD						S Approach KENNEDY RD N						W Approach MAYFIELD RD						Int. Total (15 min)
	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	
12:45:00	60	15	18	0	0	93	14	86	46	0	0	146	7	20	9	0	0	36	28	79	13	0	1	120	395
13:00:00	52	16	19	0	0	87	8	83	43	0	0	134	7	22	10	0	0	39	26	78	13	0	1	117	377
13:15:00	55	22	28	0	0	105	9	107	49	0	0	165	8	15	16	0	0	39	26	108	14	0	1	148	457
13:30:00	56	17	20	0	0	93	17	82	45	0	0	144	7	18	7	0	0	32	30	114	14	0	2	158	427
Grand Total	223	70	85	0	0	378	48	358	183	0	0	589	29	75	42	0	0	146	110	379	54	0	5	543	1656
Approach%	59%	18.5%	22.5%	0%	-	8.1%	60.8%	31.1%	0%	-	19.9%	51.4%	28.8%	0%	-	20.3%	69.8%	9.9%	0%	-	-	-	-	-	-
Totals %	13.5%	4.2%	5.1%	0%	22.8%	2.9%	21.6%	11.1%	0%	35.6%	1.8%	4.5%	2.5%	0%	8.8%	6.6%	22.9%	3.3%	0%	32.8%	-	-	-	-	-
PHF	0.93	0.8	0.76	0	0.9	0.71	0.84	0.93	0	0.89	0.91	0.85	0.66	0	0.94	0.92	0.83	0.96	0	0.86	-	-	-	-	-
Heavy	32	3	5	0	40	1	30	23	0	54	0	0	0	0	0	0	4	28	6	0	-	38	-	-	-
Heavy %	14.3%	4.3%	5.9%	0%	10.6%	2.1%	8.4%	12.6%	0%	9.2%	0%	0%	0%	0%	0%	3.6%	7.4%	11.1%	0%	7%	-	-	-	-	-
Lights	191	67	80	0	338	47	328	160	0	535	29	75	42	0	146	106	351	48	0	505	-	-	-	-	-
Lights %	85.7%	95.7%	94.1%	0%	89.4%	97.9%	91.6%	87.4%	0%	90.8%	100%	100%	100%	0%	100%	96.4%	92.6%	88.9%	0%	93%	-	-	-	-	-
Single-Unit Trucks	30	2	4	0	36	0	10	22	0	32	0	0	0	0	0	0	3	8	2	0	13	-	-	-	-
Single-Unit Trucks %	13.5%	2.9%	4.7%	0%	9.5%	0%	2.8%	12%	0%	5.4%	0%	0%	0%	0%	0%	2.7%	2.1%	3.7%	0%	2.4%	-	-	-	-	-
Buses	0	1	1	0	2	1	4	1	0	6	0	0	0	0	0	0	0	2	4	0	6	-	-	-	-
Buses %	0%	1.4%	1.2%	0%	0.5%	2.1%	1.1%	0.5%	0%	1%	0%	0%	0%	0%	0%	0%	0.5%	7.4%	0%	1.1%	-	-	-	-	-
Articulated Trucks	2	0	0	0	2	0	16	0	0	16	0	0	0	0	0	0	1	18	0	0	19	-	-	-	-
Articulated Trucks %	0.9%	0%	0%	0%	0.5%	0%	4.5%	0%	0%	2.7%	0%	0%	0%	0%	0%	0.9%	4.7%	0%	0%	3.5%	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	5	-	-	-	-	-
Pedestrians%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	100%	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-
Bicycles on Crosswalk%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	-

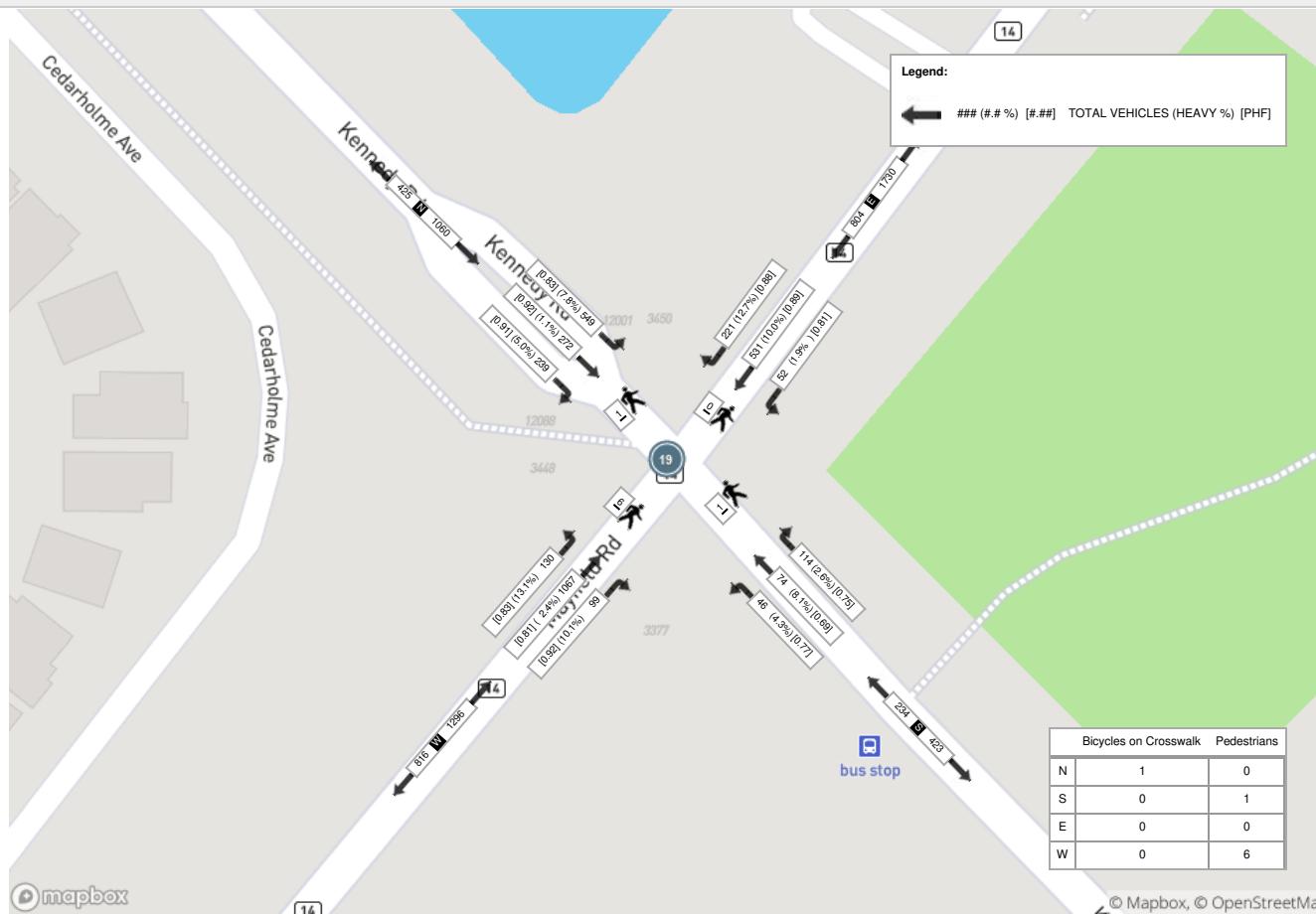


Turning Movement Count
 Location Name: KENNEDY RD N & MAYFIELD RD
 Date: Wed, Mar 07, 2018 Deployment Lead: Theo Daglis

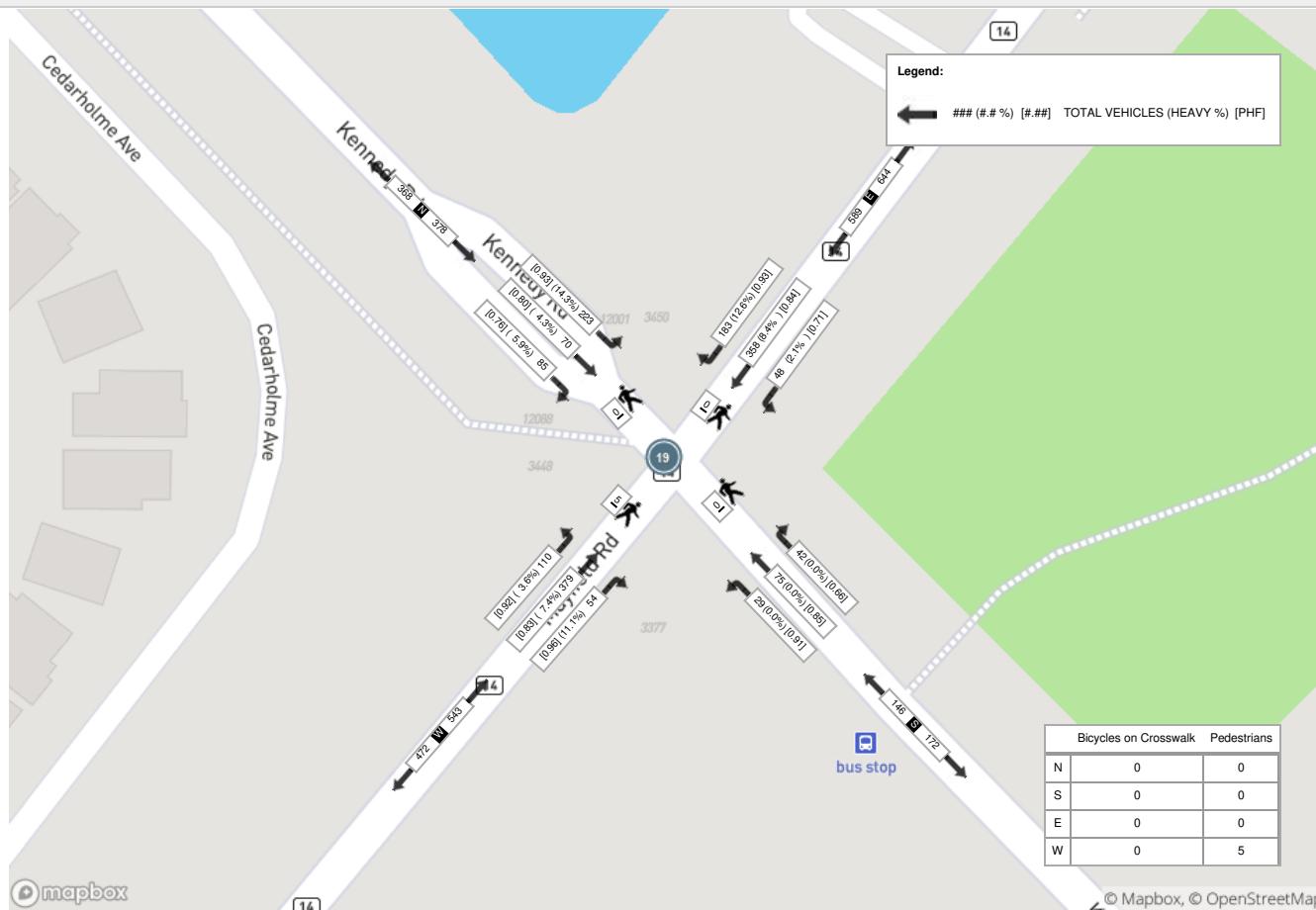
Peak Hour: 05:00 PM - 06:00 PM Weather: Snow (1.5 °C)

Start Time	N Approach KENNEDY RD						E Approach MAYFIELD RD						S Approach KENNEDY RD N						W Approach MAYFIELD RD						Int. Total (15 min)
	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	
17:00:00	64	31	38	0	2	133	33	218	135	0	0	386	29	69	25	0	0	123	59	156	10	0	2	225	867
17:15:00	40	29	39	0	0	108	32	267	125	0	6	424	15	46	18	0	4	79	56	170	15	0	1	241	852
17:30:00	58	30	41	0	0	129	49	251	131	0	0	431	27	58	25	0	0	110	55	137	27	0	0	219	889
17:45:00	78	40	37	0	0	155	24	236	114	0	0	374	27	53	21	0	0	101	55	162	18	0	4	235	865
Grand Total	240	130	155	0	2	525	138	972	505	0	6	1615	98	226	89	0	4	413	225	625	70	0	7	920	3473
Approach%	45.7%	24.8%	29.5%	0%	-	8.5%	60.2%	31.3%	0%	-	-	23.7%	54.7%	21.5%	0%	-	-	24.5%	67.9%	7.6%	0%	-	-	-	
Totals %	6.9%	3.7%	4.5%	0%	15.1%	4%	28%	14.5%	0%	46.5%	2.8%	6.5%	2.6%	0%	11.9%	6.5%	18%	2%	0%	26.5%	-	-	-		
PHF	0.77	0.81	0.95	0	0.85	0.7	0.91	0.94	0	0.94	0.84	0.82	0.89	0	0.84	0.95	0.92	0.65	0	0.95	-	-	-		
Heavy	8	0	0	0	8	0	21	2	0	23	0	1	0	0	1	1	1	28	4	0	33	-	-		
Heavy %	3.3%	0%	0%	0%	1.5%	0%	2.2%	0.4%	0%	1.4%	0%	0.4%	0%	0%	0.2%	0.4%	4.5%	5.7%	0%	3.6%	-	-	-		
Lights	232	130	155	0	517	138	951	503	0	1592	98	225	89	0	412	224	597	66	0	887	-	-	-		
Lights %	96.7%	100%	100%	0%	98.5%	100%	97.8%	99.6%	0%	98.6%	100%	99.6%	100%	0%	99.8%	99.6%	95.5%	94.3%	0%	96.4%	-	-	-		
Single-Unit Trucks	7	0	0	0	7	0	5	1	0	6	0	0	0	0	0	0	0	15	0	0	15	-	-		
Single-Unit Trucks %	2.9%	0%	0%	0%	1.3%	0%	0.5%	0.2%	0%	0.4%	0%	0%	0%	0%	0%	0%	2.4%	0%	0%	1.6%	-	-	-		
Buses	1	0	0	0	1	0	1	1	0	2	0	1	0	0	1	1	0	4	0	5	-	-	-		
Buses %	0.4%	0%	0%	0%	0.2%	0%	0.1%	0.2%	0%	0.1%	0%	0.4%	0%	0%	0.2%	0.4%	0%	5.7%	0%	0.5%	-	-	-		
Articulated Trucks	0	0	0	0	0	0	0	15	0	0	15	0	0	0	0	0	0	13	0	0	13	-	-		
Articulated Trucks %	0%	0%	0%	0%	0%	0%	1.5%	0%	0%	0.9%	0%	0%	0%	0%	0%	0%	2.1%	0%	0%	1.4%	-	-	-		
Pedestrians	-	-	-	-	2	-	-	-	-	6	-	-	-	-	4	-	-	-	-	7	-	-	-		
Pedestrians%	-	-	-	-	10.5%	-	-	-	-	31.6%	-	-	-	-	21.1%	-	-	-	-	36.8%	-	-	-		
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-		
Bicycles on Crosswalk%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-	-		

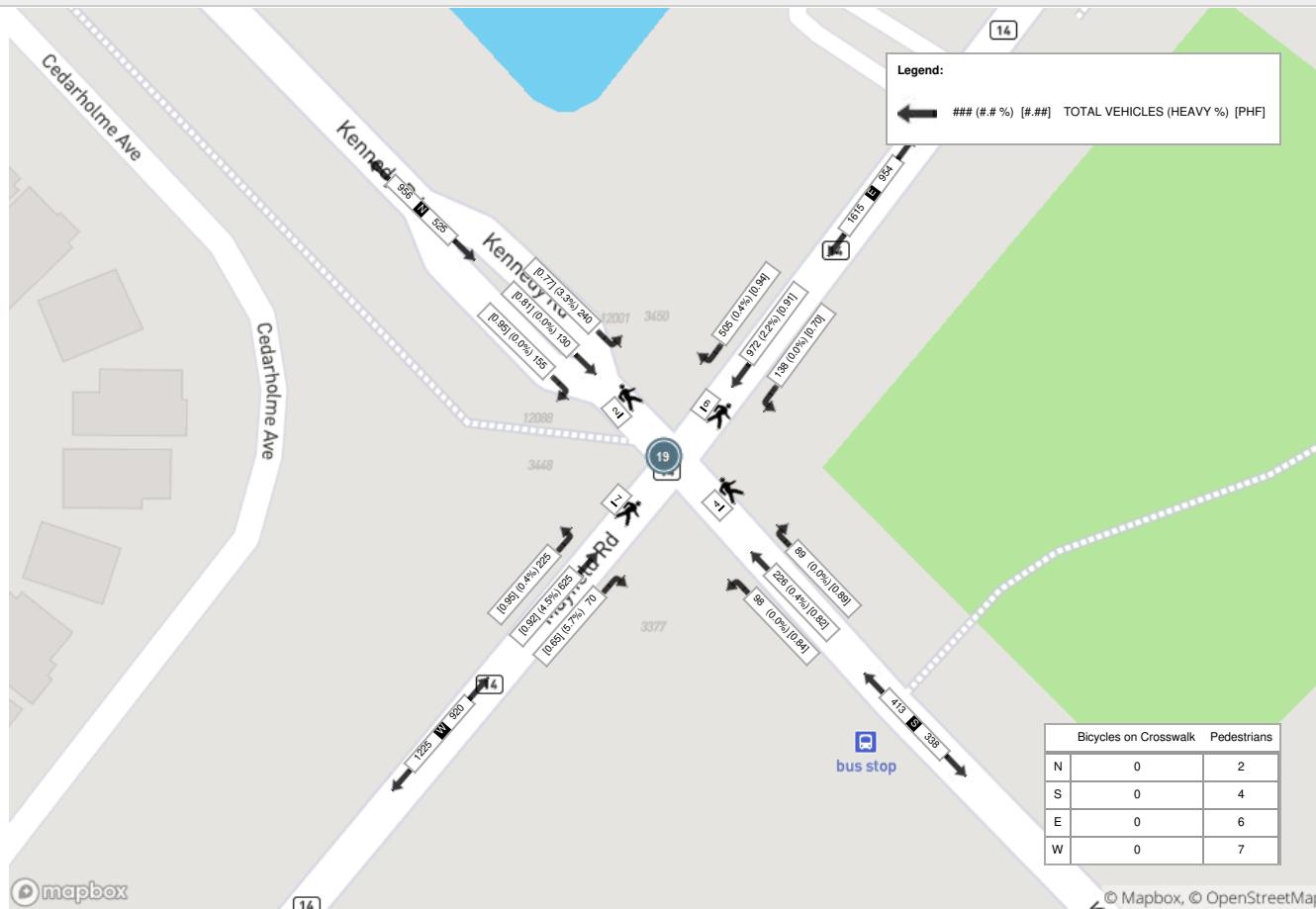
Peak Hour: 07:30 AM - 08:30 AM Weather: Overcast (0 °C)



Peak Hour: 12:45 PM - 01:45 PM Weather: Overcast (1.3 °C)



Peak Hour: 05:00 PM - 06:00 PM Weather: Snow (1.5 °C)





Turning Movement Count
 Location Name: MAYFIELD RD & HEART LAKE RD
 Date: Tue, Nov 29, 2016 Deployment Lead: Chris Koukaras

Turning Movement Count (7 . MAYFIELD RD & HEART LAKE RD) CustID: 01413759 MiID: 369877

Start Time	N Approach HEART LAKE ROAD						E Approach MAYFIELD RD						S Approach HEART LAKE ROAD						W Approach MAYFIELD RD						Int. Total (15 min)		Int. Total (1 hr)	
	Left N:E	Thru N:S	Right N:W	U-Turn N:N	Peds N:	Approach Total	Left E:S	Thru E:W	Right E:N	U-Turn E:E	Peds E:	Approach Total	Left S:W	Thru S:N	Right S:E	U-Turn S:S	Peds S:	Approach Total	Left W:N	Thru W:E	Right W:S	U-Turn W:W	Peds W:	Approach Total				
07:00:00	15	13	3	0	0	31	2	150	1	0	0	153	14	4	1	0	0	19	2	279	74	0	0	355	558			
07:15:00	16	11	3	0	0	30	13	145	7	0	0	165	19	2	5	0	0	26	4	267	94	0	0	365	586			
07:30:00	8	23	8	0	0	39	24	179	4	0	0	207	22	4	6	0	0	32	8	302	131	0	0	441	719			
07:45:00	6	28	12	0	0	46	37	196	2	0	0	235	25	2	6	0	0	33	6	300	132	0	0	438	752	2615		
08:00:00	12	16	7	0	0	35	42	186	1	0	0	229	25	4	2	0	0	31	4	276	144	0	0	424	719	2776		
08:15:00	7	11	15	0	0	33	13	167	7	0	0	187	31	2	4	0	0	37	3	240	98	1	0	342	599	2789		
08:30:00	5	13	8	0	0	26	9	153	3	0	0	165	40	3	4	0	0	47	2	270	71	0	0	343	581	2651		
08:45:00	11	9	4	0	0	24	11	120	4	0	0	135	21	2	5	0	0	28	8	223	56	0	0	287	474	2373		
BREAK																												
11:00:00	6	1	4	0	0	11	0	109	9	0	0	118	18	6	3	0	0	27	5	142	19	0	0	166	322			
11:15:00	5	3	3	0	0	11	1	117	2	0	0	120	8	2	1	0	0	11	1	129	18	0	0	148	290			
11:30:00	9	3	2	0	0	14	1	90	7	0	0	98	12	2	3	0	0	17	2	148	16	0	0	166	295			
11:45:00	3	4	6	0	0	13	5	128	3	0	0	136	13	2	2	0	0	17	4	157	16	0	0	177	343	1250		
12:00:00	4	2	4	0	0	10	3	123	6	0	0	132	8	4	6	0	0	18	1	108	30	0	0	139	299	1227		
12:15:00	4	0	2	0	0	6	2	109	6	0	0	117	20	3	1	0	0	24	3	149	11	0	0	163	310	1247		
12:30:00	5	3	3	0	0	11	2	113	1	0	0	116	18	4	4	0	0	26	0	162	19	0	0	181	334	1286		
12:45:00	11	1	2	0	0	14	4	135	6	0	0	145	18	2	5	0	0	25	6	141	18	0	0	165	349	1292		
13:00:00	9	9	0	0	0	18	7	129	1	0	0	137	21	3	1	0	0	25	3	141	16	0	0	160	340	1333		
13:15:00	5	4	4	0	0	13	3	111	4	0	0	118	16	3	4	0	0	23	0	145	13	0	0	158	312	1335		
13:30:00	5	3	3	0	0	11	3	122	4	0	0	129	19	2	4	0	0	25	0	116	24	0	0	140	305	1306		
13:45:00	7	3	2	0	0	12	5	139	4	0	0	148	14	8	7	0	0	29	2	140	15	0	0	157	346	1303		
BREAK																												
15:00:00	7	2	7	0	0	16	5	234	10	0	0	249	47	5	7	0	0	59	7	168	37	0	0	212	536			
15:15:00	2	6	3	0	0	11	8	221	8	0	0	237	77	10	4	0	0	91	5	148	22	0	0	175	514			
15:30:00	7	8	3	0	0	18	4	271	9	0	0	284	64	3	6	0	0	73	10	168	36	0	0	214	589			
15:45:00	13	7	5	0	0	25	6	209	18	0	0	233	64	4	6	0	0	74	12	176	38	0	0	226	558	2197		
16:00:00	6	8	6	0	0	20	7	291	10	0	0	308	62	8	3	0	0	73	10	212	25	0	0	247	648	2309		
16:15:00	5	8	3	0	0	16	8	267	7	2	0	284	76	10	3	0	0	89	6	193	29	0	0	228	617	2412		
16:30:00	9	4	5	0	0	18	13	306	13	0	0	332	84	10	2	0	0	96	7	173	24	0	0	204	650	2473		
16:45:00	7	6	7	0	0	20	9	285	12	0	0	306	77	14	3	0	0	94	8	218	36	0	0	262	682	2597		
17:00:00	7	2	4	0	0	13	6	138	2	0	0	146	42	8	4	0	0	54	1	226	31	0	0	258	471	2420		
17:15:00	12	6	8	0	0	26	2	314	8	0	0	324	80	3	6	0	0	89	8	197	36	0	0	241	680	2483		
17:30:00	10	12	8	0	0	30	4	350	9	0	0	363	78	3	3	0	0	84	5	201	30	0	0	236	713	2546		
17:45:00	5	3	8	0	0	16	4	317	16	0	0	337	74	1	4	0	0	79	3	157	34	0	0	194	626	2490		
Grand Total	243	232	162	0	0	637	263	5924	204	2	0	6393	1207	143	125	0	0	1475	146	6072	1393	1	0	7612	16117	-	-	
Approach%	38.1%	36.4%	25.4%	0%	-	4.1%	92.7%	3.2%	0%	-	81.8%	9.7%	8.5%	0%	-	1.9%	79.8%	18.3%	0%	-	-	-	-	-	-	-	-	
Totals %	1.5%	1.4%	1%	0%	4%	1.6%	36.8%	1.3%	0%	39.7%	7.5%	0.9%	0.8%	0%	9.2%	0.9%	37.7%	8.6%	0%	47.2%	-	-	-	-	-	-	-	
Heavy	14	4	10	0	-	8	475	12	0	-	28	3	6	0	-	8	431	31	0	-	-	-	-	-	-	-	-	
Heavy %	5.8%	1.7%	6.2%	0%	-	3%	8%	5.9%	0%	-	2.3%	2.1%	4.8%	0%	-	5.5%	7.1%	2.2%	0%	-	-	-	-	-	-	-	-	
Bicycles	0	0	0	0	-	0	0	0	0	-	1	0	1	0	-	0	0	1	0	-	-	-	-	-	-	-		
Bicycle %	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0.1%	0%	0.8%	0%	-	0%	0%	0.1%	0%	-	-	-	-	-	-	-	-	



Turning Movement Count
 Location Name: MAYFIELD RD & HEART LAKE RD
 Date: Tue, Nov 29, 2016 Deployment Lead: Chris Koukaras

Peak Hour: 07:30 AM - 08:30 AM Weather: Mostly Cloudy (6.2 °C)

Start Time	N Approach HEART LAKE ROAD						E Approach MAYFIELD RD						S Approach HEART LAKE ROAD						W Approach MAYFIELD RD						Int. Total (15 min)	
	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total		
07:30:00	8	23	8	0	0	39	24	179	4	0	0	207	22	4	6	0	0	32	8	302	131	0	0	441	719	
07:45:00	6	28	12	0	0	46	37	196	2	0	0	235	25	2	6	0	0	33	6	300	132	0	0	438	752	
08:00:00	12	16	7	0	0	35	42	186	1	0	0	229	25	4	2	0	0	31	4	276	144	0	0	424	719	
08:15:00	7	11	15	0	0	33	13	167	7	0	0	187	31	2	4	0	0	37	3	240	98	1	0	342	599	
Grand Total	33	78	42	0	0	153	116	728	14	0	0	858	103	12	18	0	0	133	21	1118	505	1	0	1645	2789	
Approach%	21.6%	51%	27.5%	0%	-	13.5%	84.8%	1.6%	0%	-	77.4%	9%	13.5%	0%	-	1.3%	68%	30.7%	0.1%	-	-	-	-	-	-	
Totals %	1.2%	2.8%	1.5%	0%	5.5%	4.2%	26.1%	0.5%	0%	30.8%	3.7%	0.4%	0.6%	0%	4.8%	0.8%	40.1%	18.1%	0%	59%	-	-	-	-	-	
PHF	0.69	0.7	0.7	0	0.83	0.69	0.93	0.5	0	0.91	0.83	0.75	0.75	0	0.9	0.66	0.93	0.88	0.25	0.93	-	-	-	-	-	
Heavy	0	1	0	0	1	3	87	4	0	94	5	0	0	0	5	1	63	11	0	75	-	-	-	-	-	
Heavy %	0%	1.3%	0%	0%	0.7%	2.6%	12%	28.6%	0%	11%	4.9%	0%	0%	0%	3.8%	4.8%	5.6%	2.2%	0%	4.6%	-	-	-	-	-	
Lights	33	77	42	0	152	113	641	10	0	764	98	12	18	0	128	20	1055	494	1	1570	-	-	-	-	-	
Lights %	100%	98.7%	100%	0%	99.3%	97.4%	88%	71.4%	0%	89%	95.1%	100%	100%	0%	96.2%	95.2%	94.4%	97.8%	100%	95.4%	-	-	-	-	-	
Single-Unit Trucks	0	0	0	0	0	0	0	51	3	0	54	0	0	0	0	0	0	0	1	0	32	1	0	33	-	
Single-Unit Trucks %	0%	0%	0%	0%	0%	0%	0%	7%	21.4%	0%	6.3%	0%	0%	0%	0%	0%	0%	2.9%	0.2%	0%	2%	-	-	-	-	-
Buses	0	0	0	0	0	0	2	21	1	0	24	5	0	0	0	5	1	27	10	0	38	-	-	-	-	-
Buses %	0%	0%	0%	0%	0%	0%	1.7%	2.9%	7.1%	0%	2.8%	4.9%	0%	0%	0%	3.8%	4.8%	2.4%	2%	0%	2.3%	-	-	-	-	-
Articulated Trucks	0	1	0	0	1	1	15	0	0	16	0	0	0	0	0	0	0	4	0	0	0	0	4	-	-	-
Articulated Trucks %	0%	1.3%	0%	0%	0.7%	0.9%	2.1%	0%	0%	1.9%	0%	0%	0%	0%	0%	0%	0%	0.4%	0%	0%	0.2%	-	-	-	-	-
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	0	0	-	-	-	-
Bicycles on Road%	-	-	-	-	-	%	-	-	-	-	%	-	-	-	-	-	-	-	-	-	%	-	-	-	-	-



Turning Movement Count
 Location Name: MAYFIELD RD & HEART LAKE RD
 Date: Tue, Nov 29, 2016 Deployment Lead: Chris Koukaras

Peak Hour: 12:30 PM - 01:30 PM Weather: Mostly Cloudy (10.7 °C)

Start Time	N Approach HEART LAKE ROAD					E Approach MAYFIELD RD					S Approach HEART LAKE ROAD					W Approach MAYFIELD RD					Int. Total (15 min)				
	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	
12:30:00	5	3	3	0	0	11	2	113	1	0	0	116	18	4	4	0	0	26	0	162	19	0	0	181	334
12:45:00	11	1	2	0	0	14	4	135	6	0	0	145	18	2	5	0	0	25	6	141	18	0	0	165	349
13:00:00	9	9	0	0	0	18	7	129	1	0	0	137	21	3	1	0	0	25	3	141	16	0	0	160	340
13:15:00	5	4	4	0	0	13	3	111	4	0	0	118	16	3	4	0	0	23	0	145	13	0	0	158	312
Grand Total	30	17	9	0	0	56	16	488	12	0	0	516	73	12	14	0	0	99	9	589	66	0	0	664	1335
Approach%	53.6%	30.4%	16.1%	0%	-	3.1%	94.6%	2.3%	0%	-	73.7%	12.1%	14.1%	0%	-	1.4%	88.7%	9.9%	0%	-	-	-	-	-	
Totals %	2.2%	1.3%	0.7%	0%	4.2%	1.2%	36.6%	0.9%	0%	38.7%	5.5%	0.9%	1%	0%	7.4%	0.7%	44.1%	4.9%	0%	49.7%	-	-	-	-	
PHF	0.68	0.47	0.56	0	0.78	0.57	0.9	0.5	0	0.89	0.87	0.75	0.7	0	0.95	0.38	0.91	0.87	0	0.92	-	-	-	-	
Heavy	2	2	1	0	5	1	69	0	0	70	1	0	0	0	1	0	0	45	1	0	46	-	-	-	-
Heavy %	6.7%	11.8%	11.1%	0%	8.9%	6.3%	14.1%	0%	0%	13.6%	1.4%	0%	0%	0%	1%	0%	7.6%	1.5%	0%	6.9%	-	-	-	-	
Lights	28	15	8	0	51	15	419	12	0	446	72	12	14	0	98	9	544	65	0	618	-	-	-	-	
Lights %	93.3%	88.2%	88.9%	0%	91.1%	93.8%	85.9%	100%	0%	86.4%	98.6%	100%	100%	0%	99%	100%	92.4%	98.5%	0%	93.1%	-	-	-	-	
Single-Unit Trucks	2	1	1	0	4	0	55	0	0	55	1	0	0	0	1	0	36	1	0	37	-	-	-	-	
Single-Unit Trucks %	6.7%	5.9%	11.1%	0%	7.1%	0%	11.3%	0%	0%	10.7%	1.4%	0%	0%	0%	1%	0%	6.1%	1.5%	0%	5.6%	-	-	-	-	
Buses	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	-	-	-	-	
Buses %	0%	5.9%	0%	0%	1.8%	0%	0.4%	0%	0%	0.4%	0%	0%	0%	0%	0%	0%	0.3%	0%	0%	0.3%	-	-	-	-	
Articulated Trucks	0	0	0	0	0	1	12	0	0	13	0	0	0	0	0	0	7	0	0	7	-	-	-	-	
Articulated Trucks %	0%	0%	0%	0%	0%	6.3%	2.5%	0%	0%	2.5%	0%	0%	0%	0%	0%	0%	1.2%	0%	0%	1.1%	-	-	-	-	
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	-	0	0	0	-	0	0	0	0	-	-	-	-	-	
Bicycles on Road%	-	-	-	-	-	%	-	-	-	-	%	-	-	-	-	-	-	-	-	%	-	-	-	-	

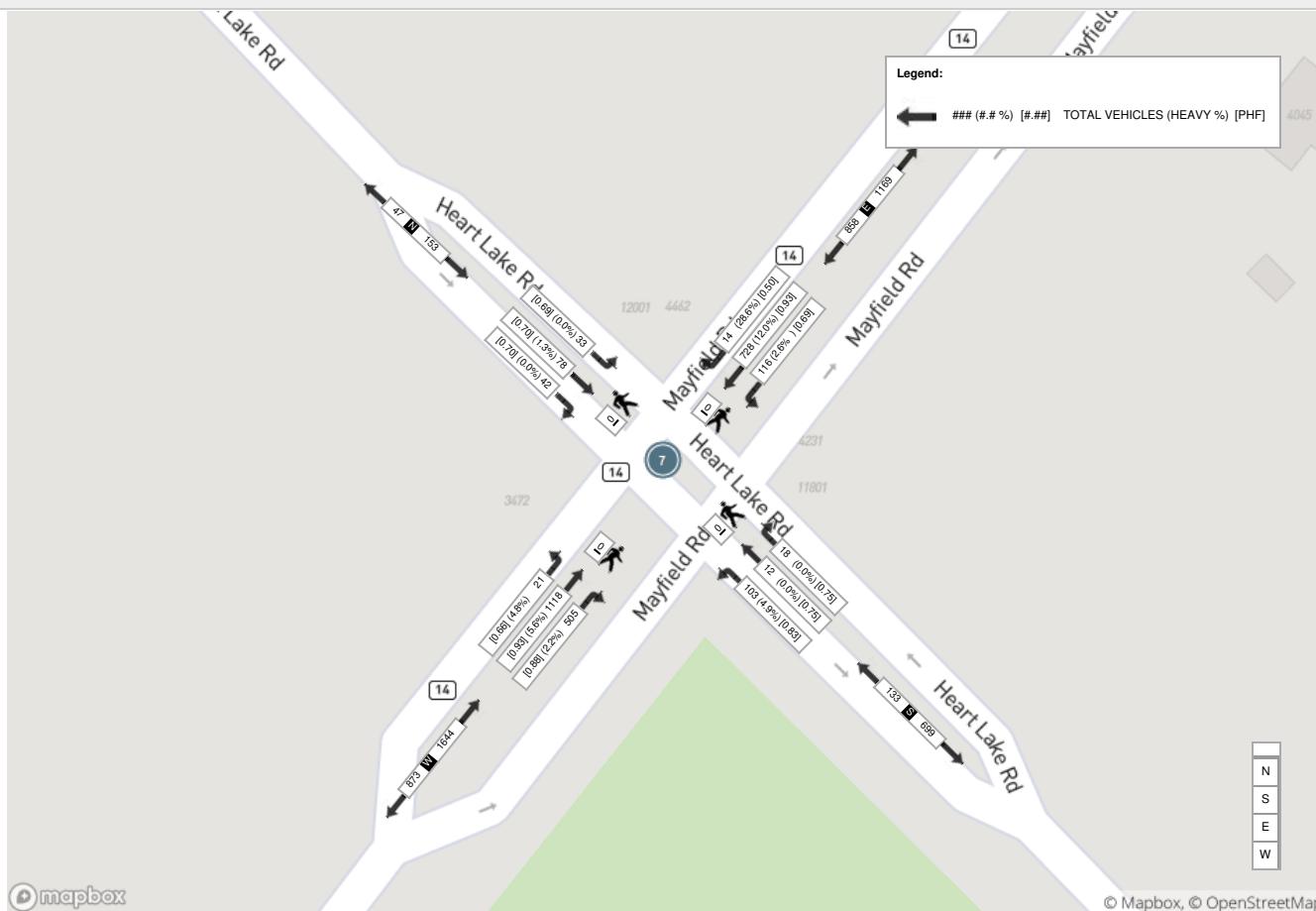


Turning Movement Count
 Location Name: MAYFIELD RD & HEART LAKE RD
 Date: Tue, Nov 29, 2016 Deployment Lead: Chris Koukaras

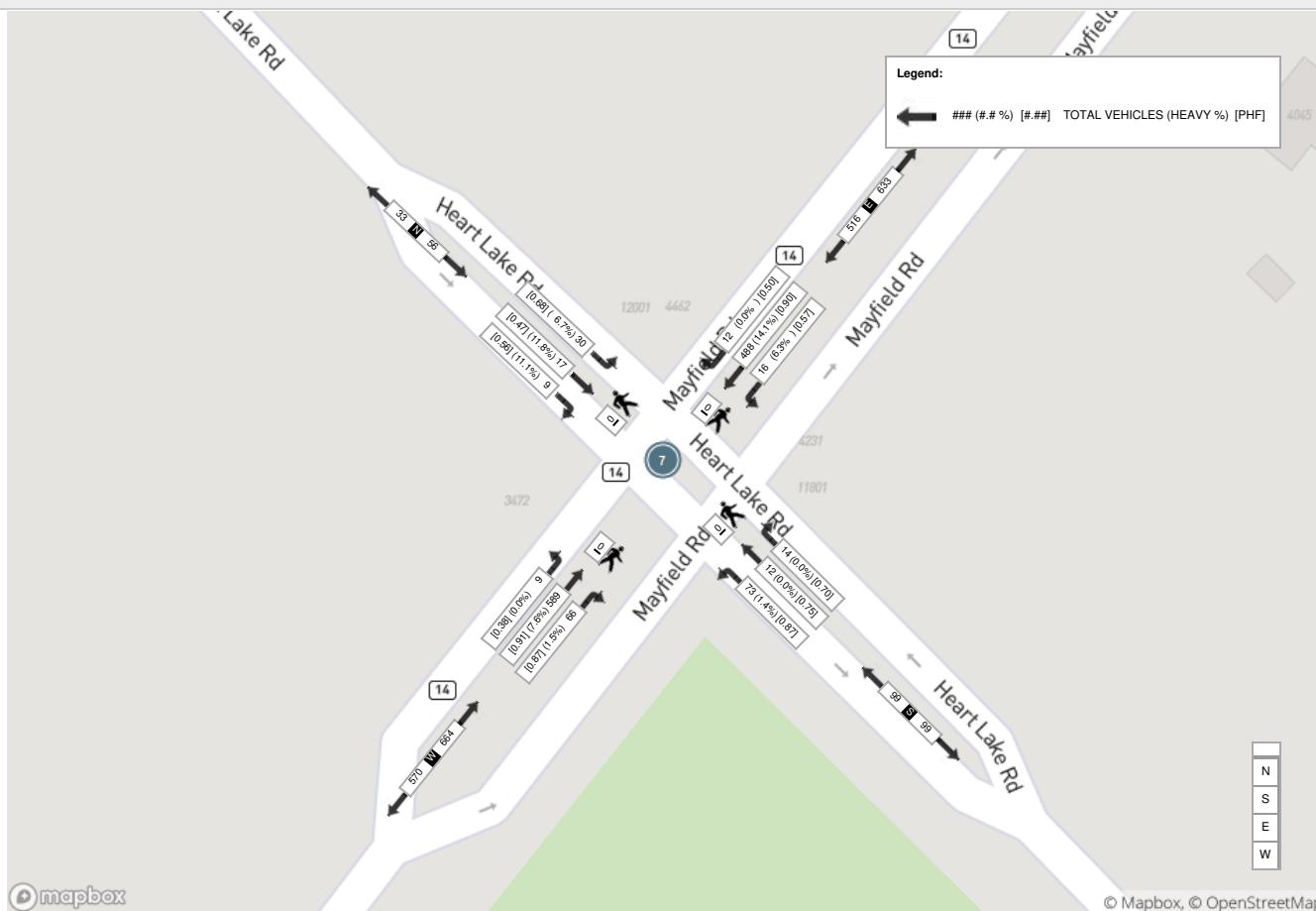
Peak Hour: 04:00 PM - 05:00 PM Weather: Mostly Cloudy (13.2 °C)

Start Time	N Approach HEART LAKE ROAD					E Approach MAYFIELD RD					S Approach HEART LAKE ROAD					W Approach MAYFIELD RD					Int. Total (15 min)				
	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	
16:00:00	6	8	6	0	0	20	7	291	10	0	0	308	62	8	3	0	0	73	10	212	25	0	0	247	648
16:15:00	5	8	3	0	0	16	8	267	7	2	0	284	76	10	3	0	0	89	6	193	29	0	0	228	617
16:30:00	9	4	5	0	0	18	13	306	13	0	0	332	84	10	2	0	0	96	7	173	24	0	0	204	650
16:45:00	7	6	7	0	0	20	9	285	12	0	0	306	77	14	3	0	0	94	8	218	36	0	0	262	682
Grand Total	27	26	21	0	0	74	37	1149	42	2	0	1230	299	42	11	0	0	352	31	796	114	0	0	941	2597
Approach%	36.5%	35.1%	28.4%	0%	-	-	3%	93.4%	3.4%	0.2%	-	-	84.9%	11.9%	3.1%	0%	-	-	3.3%	84.6%	12.1%	0%	-	-	-
Totals %	1%	1%	0.8%	0%	-	2.8%	1.4%	44.2%	1.6%	0.1%	-	47.4%	11.5%	1.6%	0.4%	0%	-	13.6%	1.2%	30.7%	4.4%	0%	-	36.2%	-
PHF	0.75	0.81	0.75	0	-	0.93	0.71	0.94	0.81	0.25	-	0.93	0.89	0.75	0.92	0	-	0.92	0.78	0.91	0.79	0	-	0.9	-
Heavy	2	1	1	0	-	4	2	37	1	0	-	40	4	0	1	0	-	5	1	72	7	0	-	80	-
Heavy %	7.4%	3.8%	4.8%	0%	-	5.4%	5.4%	3.2%	2.4%	0%	-	3.3%	1.3%	0%	9.1%	0%	-	1.4%	3.2%	9%	6.1%	0%	-	8.5%	-
Lights	25	25	20	0	-	70	35	1112	41	2	-	1190	295	42	10	0	-	347	30	724	107	0	-	861	-
Lights %	92.6%	96.2%	95.2%	0%	-	94.6%	94.6%	96.8%	97.6%	100%	-	96.7%	98.7%	100%	90.9%	0%	-	98.6%	96.8%	91%	93.9%	0%	-	91.5%	-
Single-Unit Trucks	2	0	0	0	-	2	1	23	0	0	-	24	1	0	0	0	-	1	0	35	2	0	-	37	-
Single-Unit Trucks %	7.4%	0%	0%	0%	-	2.7%	2.7%	2%	0%	0%	-	2%	0.3%	0%	0%	0%	-	0.3%	0%	4.4%	1.8%	0%	-	3.9%	-
Buses	0	1	1	0	-	2	1	7	1	0	-	9	3	0	1	0	-	4	1	15	5	0	-	21	-
Buses %	0%	3.8%	4.8%	0%	-	2.7%	2.7%	0.6%	2.4%	0%	-	0.7%	1%	0%	9.1%	0%	-	1.1%	3.2%	1.9%	4.4%	0%	-	2.2%	-
Articulated Trucks	0	0	0	0	-	0	0	7	0	0	-	7	0	0	0	0	-	0	0	22	0	0	-	22	-
Articulated Trucks %	0%	0%	0%	0%	-	0%	0%	0.6%	0%	0%	-	0.6%	0%	0%	0%	0%	-	0%	0%	2.8%	0%	0%	-	2.3%	-
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	0	0	0	0	0	-	-
Bicycles on Road%	-	-	-	-	-	%	-	-	-	-	-	%	-	-	-	-	-	-	-	-	-	-	-	-	

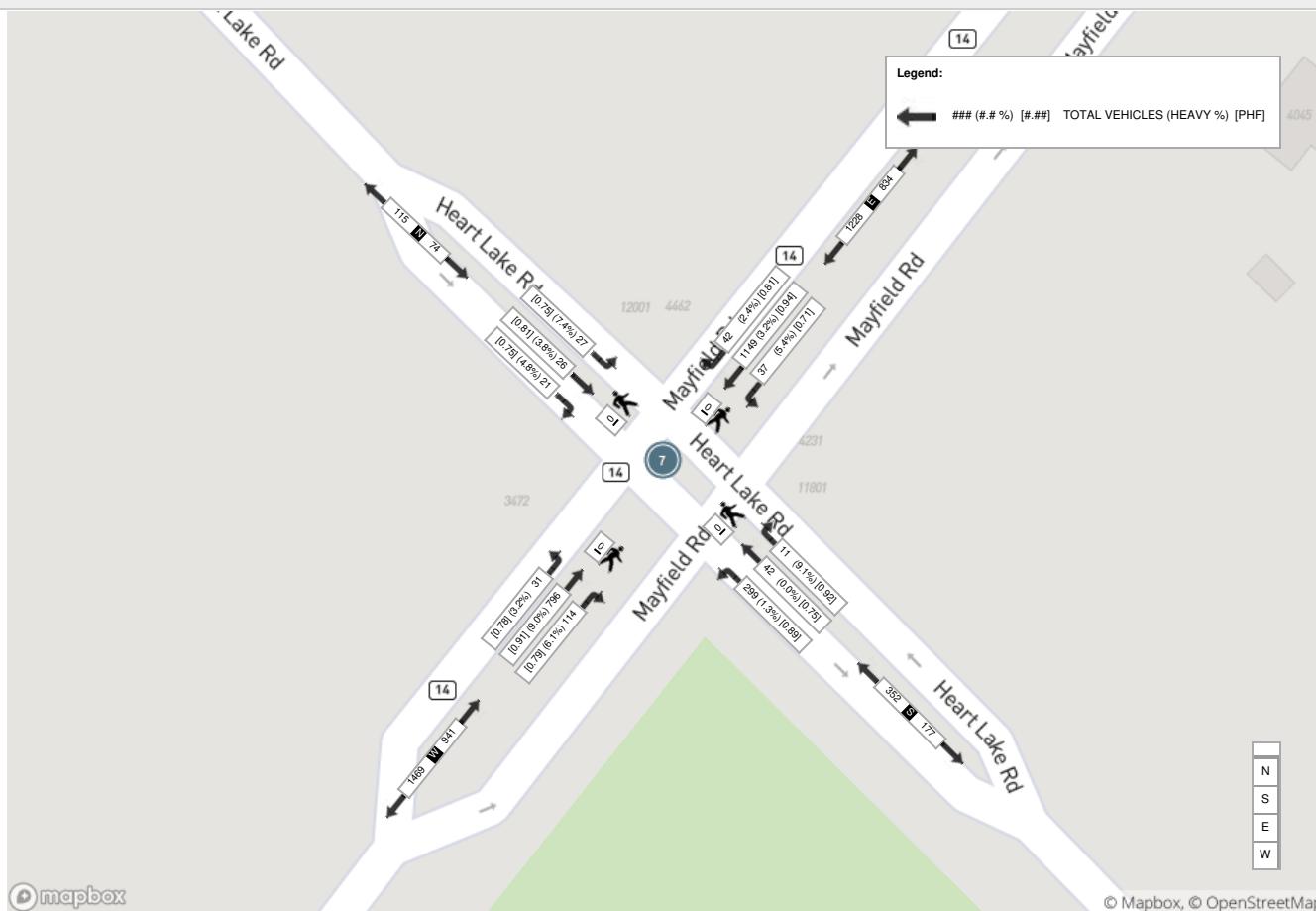
Peak Hour: 07:30 AM - 08:30 AM Weather: Mostly Cloudy (6.2 °C)



Peak Hour: 12:30 PM - 01:30 PM Weather: Mostly Cloudy (10.7 °C)



Peak Hour: 04:00 PM - 05:00 PM Weather: Mostly Cloudy (13.2 °C)





Turning Movement Count (34 . MAYFIELD RD & INDER HEIGHTS DR) CustID: 01415535 MioID: 456168

Start Time	N Approach SHELLVIEW BLVD						E Approach MAYFIELD RD						S Approach INDER HEIGHTS DR						W Approach MAYFIELD RD						Int. Total (15 min)		Int. Total (1 hr)	
	Left N.E	Thru N.S	Right N.W	U-Turn N.N	Peds N:	Approach Total	Left E.S	Thru E.W	Right E.N	U-Turn E.E	Peds E:	Approach Total	Left S.W	Thru S.N	Right S.E	U-Turn S.S	Peds S:	Approach Total	Left W.N	Thru W:E	Right W:S	U-Turn W.W	Peds W:	Approach Total				
07:00:00	5	0	10	0	0	15	0	169	0	0	0	169	0	0	6	0	0	6	3	240	1	0	0	0	244	434		
07:15:00	9	0	6	0	1	15	1	205	3	0	0	209	3	0	10	0	0	13	7	235	3	0	0	0	245	482		
07:30:00	8	0	14	0	0	22	4	228	1	0	0	233	2	0	7	0	0	9	6	314	3	0	0	0	323	587		
07:45:00	4	1	17	0	0	22	4	214	2	0	0	220	4	0	6	0	0	10	1	336	3	0	2	0	340	592	2095	
08:00:00	7	0	12	0	0	19	4	233	2	1	0	240	1	0	5	0	0	6	5	268	2	0	0	0	275	540	2201	
08:15:00	5	0	11	0	1	16	2	251	0	1	1	254	2	0	3	0	0	5	2	251	3	0	4	0	256	531	2250	
08:30:00	2	0	13	0	1	15	4	195	0	0	0	199	3	0	7	0	1	10	6	231	3	0	2	0	240	464	2127	
08:45:00	7	0	19	0	0	26	4	169	1	0	1	174	1	0	7	0	0	8	8	214	3	1	2	0	226	434	1969	
BREAK																												
11:00:00	4	0	3	0	0	7	1	131	0	0	0	132	1	0	3	0	1	4	3	133	2	0	0	0	138	281		
11:15:00	1	0	2	0	0	3	3	112	1	0	0	116	2	0	3	0	2	5	7	107	1	0	0	0	115	239		
11:30:00	3	1	6	0	0	10	2	133	2	0	0	137	3	0	2	0	2	5	5	135	2	0	1	0	142	294		
11:45:00	2	0	3	0	0	5	2	126	1	0	0	129	1	0	1	0	0	2	5	154	1	0	2	0	160	296	1110	
12:00:00	2	0	7	0	0	9	4	126	3	0	0	133	5	0	4	0	0	9	7	148	2	0	0	0	157	308	1137	
12:15:00	1	0	4	0	0	5	1	139	2	0	1	142	2	0	4	0	0	6	8	145	2	0	0	0	155	308	1206	
12:30:00	1	0	10	0	0	11	6	116	0	0	0	122	3	0	2	0	0	5	7	143	4	0	1	0	154	292	1204	
12:45:00	1	0	8	0	0	9	4	142	3	0	0	149	3	0	3	0	0	6	5	140	1	0	0	0	146	310	1218	
13:00:00	1	0	5	0	0	6	1	137	2	0	0	140	2	0	3	0	0	5	7	128	2	0	0	0	137	288	1198	
13:15:00	4	1	9	0	0	14	4	122	3	0	0	129	2	0	6	0	0	8	6	137	3	0	0	0	146	297	1187	
13:30:00	2	0	5	0	0	7	4	124	2	0	0	130	1	1	1	0	1	3	5	140	5	0	0	0	150	290	1185	
13:45:00	1	0	4	0	0	5	5	118	0	0	0	123	2	0	3	0	0	5	7	150	5	0	1	0	162	295	1170	
BREAK																												
15:00:00	2	0	10	0	0	12	4	254	5	0	0	263	4	0	4	0	0	8	13	185	4	0	1	0	202	485		
15:15:00	3	0	12	0	0	15	5	256	5	0	0	266	6	0	2	0	1	8	16	180	3	0	1	0	199	488		
15:30:00	2	0	11	0	0	13	5	284	6	0	0	295	3	0	5	0	0	8	18	205	1	0	0	0	224	540		
15:45:00	2	0	8	0	0	10	3	238	10	0	0	251	0	0	2	0	1	2	23	268	5	0	0	0	296	559	2072	
16:00:00	1	0	11	0	0	12	3	272	3	0	0	278	1	0	1	0	0	2	2	252	4	0	2	0	258	550	2137	
16:15:00	5	0	8	0	0	13	3	298	1	0	0	302	0	0	1	0	0	1	17	200	2	0	0	0	219	535	2184	
16:30:00	2	1	7	0	0	10	7	293	5	0	0	305	0	0	3	0	0	3	14	229	3	0	0	0	246	564	2208	
16:45:00	3	0	11	0	0	14	3	265	3	0	0	271	0	1	4	0	0	5	23	224	7	0	0	0	254	544	2193	
17:00:00	1	1	13	0	4	15	6	258	5	0	1	269	2	0	0	0	1	2	35	222	4	0	0	0	261	547	2190	
17:15:00	3	0	26	0	0	29	8	186	14	0	0	208	8	0	2	0	1	10	59	23	88	1	1	1	171	418	2073	
17:30:00	1	0	23	0	0	24	4	198	10	0	0	212	9	1	4	0	0	14	72	13	81	1	1	1	167	417	1926	
17:45:00	0	0	32	0	1	32	0	231	4	0	1	235	12	1	0	0	1	13	55	83	29	2	1	0	169	449	1831	
Grand Total	95	5	340	0	8	440	111	6223	99	2	5	6435	88	4	114	0	12	206	457	5833	282	5	22	6577	13658	-	-	
Approach%	21.6%	1.1%	77.3%	0%	-	1.7%	96.7%	1.5%	0%	-	42.7%	1.9%	55.3%	0%	-	6.9%	88.7%	4.3%	0.1%	-	-	-	-	-	-	-	-	-
Totals %	0.7%	0%	2.5%	0%	3.2%	0.8%	45.6%	0.7%	0%	47.1%	0.6%	0%	0.8%	0%	1.5%	3.3%	42.7%	2.1%	0%	48.2%	-	-	-	-	-	-	-	-
Heavy	6	1	13	0	-	2	443	6	0	-	6	1	2	0	-	-	23	460	15	0	-	-	-	-	-	-	-	-
Heavy %	6.3%	20%	3.8%	0%	-	1.8%	7.1%	6.1%	0%	-	6.8%	25%	1.8%	0%	-	5%	7.9%	5.3%	0%	-	-	-	-	-	-	-	-	-
Bicycles	0	0	1	0	-	0	1	0	0	-	0	0	0	0	-	0	0	1	0	-	-	-	-	-	-	-	-	-
Bicycle %	0%	0%	0.3%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0.4%	0%	-	-	-	-	-	-	-	-	-



Turning Movement Count
 Location Name: MAYFIELD RD & INDER HEIGHTS DR
 Date: Thu, Oct 05, 2017 Deployment Lead: Milan Pavlovic

Peak Hour: 07:30 AM - 08:30 AM Weather: Clear (10.4 °C)

Start Time	N Approach SHELLVIEW BLVD						E Approach MAYFIELD RD						S Approach INDER HEIGHTS DR						W Approach MAYFIELD RD						Int. Total (15 min)
	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	
07:30:00	8	0	14	0	0	22	4	228	1	0	0	233	2	0	7	0	0	9	6	314	3	0	0	323	587
07:45:00	4	1	17	0	0	22	4	214	2	0	0	220	4	0	6	0	0	10	1	336	3	0	2	340	592
08:00:00	7	0	12	0	0	19	4	233	2	1	0	240	1	0	5	0	0	6	5	268	2	0	0	275	540
08:15:00	5	0	11	0	1	16	2	251	0	1	1	254	2	0	3	0	0	5	2	251	3	0	4	256	531
Grand Total	24	1	54	0	1	79	14	926	5	2	1	947	9	0	21	0	0	30	14	1169	11	0	6	1194	2250
Approach%	30.4%	1.3%	68.4%	0%	-	1.5%	97.8%	0.5%	0.2%	-	30%	0%	70%	0%	-	1.2%	97.9%	0.9%	0%	-	-	-	-	-	-
Totals %	1.1%	0%	2.4%	0%	3.5%	0.6%	41.2%	0.2%	0.1%	42.1%	0.4%	0%	0.9%	0%	1.3%	0.6%	52%	0.5%	0%	53.1%	-	-	-	-	-
PHF	0.75	0.25	0.79	0	0.9	0.88	0.92	0.63	0.5	0.93	0.56	0	0.75	0	0.75	0.58	0.87	0.92	0	0.88	-	-	-	-	-
Heavy	3	0	0	0	3	1	99	1	0	101	2	0	1	0	3	4	62	4	0	70	-	-	-	-	-
Heavy %	12.5%	0%	0%	0%	3.8%	7.1%	10.7%	20%	0%	10.7%	22.2%	0%	4.8%	0%	10%	28.6%	5.3%	36.4%	0%	5.9%	-	-	-	-	-
Lights	21	1	54	0	76	13	827	4	2	846	7	0	20	0	27	10	1107	7	0	1124	-	-	-	-	-
Lights %	87.5%	100%	100%	0%	96.2%	92.9%	89.3%	80%	100%	89.3%	77.8%	0%	95.2%	0%	90%	71.4%	94.7%	63.6%	0%	94.1%	-	-	-	-	-
Single-Unit Trucks	0	0	0	0	0	0	47	0	0	47	0	0	0	0	0	0	0	0	0	22	0	0	0	0	22
Single-Unit Trucks %	0%	0%	0%	0%	0%	0%	5.1%	0%	0%	5%	0%	0%	0%	0%	0%	0%	1.9%	0%	0%	1.8%	-	-	-	-	-
Buses	3	0	0	0	3	1	36	1	0	38	2	0	1	0	3	4	33	4	0	41	-	-	-	-	-
Buses %	12.5%	0%	0%	0%	3.8%	7.1%	3.9%	20%	0%	4%	22.2%	0%	4.8%	0%	10%	28.6%	2.8%	36.4%	0%	3.4%	-	-	-	-	-
Articulated Trucks	0	0	0	0	0	0	16	0	0	16	0	0	0	0	0	0	0	7	0	0	0	0	0	0	7
Articulated Trucks %	0%	0%	0%	0%	0%	0%	1.7%	0%	0%	1.7%	0%	0%	0%	0%	0%	0%	0.6%	0%	0%	0.6%	-	-	-	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	1	-	-	-	-	0	-	-	-	-	6	-	-	-	-	-
Pedestrians%	-	-	-	-	12.5%	-	-	-	-	12.5%	-	-	-	-	0%	-	-	-	-	75%	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-
Bicycles on Crosswalk%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	-
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Bicycles on Road%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	-



Turning Movement Count
 Location Name: MAYFIELD RD & INDER HEIGHTS DR
 Date: Thu, Oct 05, 2017 Deployment Lead: Milan Pavlovic

Peak Hour: 12:00 PM - 01:00 PM Weather: Partly Cloudy (15.7 °C)

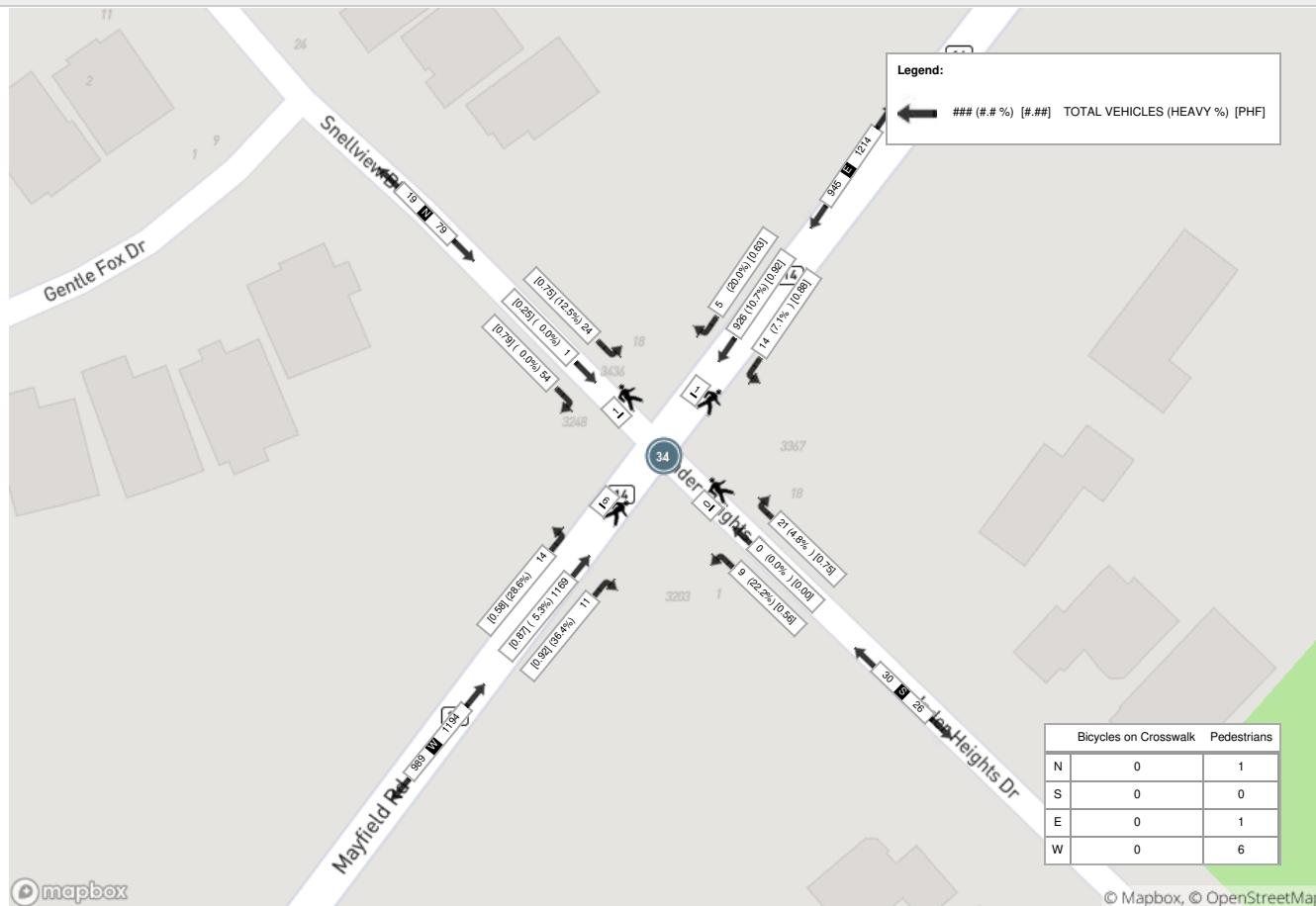
Start Time	N Approach SHELLVIEW BLVD						E Approach MAYFIELD RD						S Approach INDER HEIGHTS DR						W Approach MAYFIELD RD						Int. Total (15 min)
	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	
12:00:00	2	0	7	0	0	9	4	126	3	0	0	133	5	0	4	0	0	9	7	148	2	0	0	157	308
12:15:00	1	0	4	0	0	5	1	139	2	0	1	142	2	0	4	0	0	6	8	145	2	0	0	155	308
12:30:00	1	0	10	0	0	11	6	116	0	0	0	122	3	0	2	0	0	5	7	143	4	0	1	154	292
12:45:00	1	0	8	0	0	9	4	142	3	0	0	149	3	0	3	0	0	6	5	140	1	0	0	146	310
Grand Total	5	0	29	0	0	34	15	523	8	0	1	546	13	0	13	0	0	26	27	576	9	0	1	612	1218
Approach%	14.7%	0%	85.3%	0%	-	2.7%	95.8%	1.5%	0%	-	50%	0%	50%	0%	-	4.4%	94.1%	1.5%	0%	-	-	-	-	-	-
Totals %	0.4%	0%	2.4%	0%	2.8%	1.2%	42.9%	0.7%	0%	44.8%	1.1%	0%	1.1%	0%	2.1%	2.2%	47.3%	0.7%	0%	50.2%	-	-	-	-	-
PHF	0.63	0	0.73	0	0.77	0.63	0.92	0.67	0	0.92	0.65	0	0.81	0	0.72	0.84	0.97	0.56	0	0.97	-	-	-	-	-
Heavy	0	0	1	0	1	0	46	0	0	46	0	0	0	0	0	1	57	0	0	0	58	-	-	-	-
Heavy %	0%	0%	3.4%	0%	2.9%	0%	8.8%	0%	0%	8.4%	0%	0%	0%	0%	0%	3.7%	9.9%	0%	0%	9.5%	-	-	-	-	-
Lights	5	0	28	0	33	15	477	8	0	500	13	0	13	0	26	26	519	9	0	554	-	-	-	-	-
Lights %	100%	0%	96.6%	0%	97.1%	100%	91.2%	100%	0%	91.6%	100%	0%	100%	0%	100%	96.3%	90.1%	100%	0%	90.5%	-	-	-	-	-
Single-Unit Trucks	0	0	1	0	1	0	27	0	0	27	0	0	0	0	0	1	40	0	0	41	-	-	-	-	-
Single-Unit Trucks %	0%	0%	3.4%	0%	2.9%	0%	5.2%	0%	0%	4.9%	0%	0%	0%	0%	0%	3.7%	6.9%	0%	0%	6.7%	-	-	-	-	-
Buses	0	0	0	0	0	0	0	4	0	4	0	0	0	0	0	0	8	0	0	8	-	-	-	-	-
Buses %	0%	0%	0%	0%	0%	0%	0%	0.8%	0%	0%	0.7%	0%	0%	0%	0%	0%	1.4%	0%	0%	1.3%	-	-	-	-	-
Articulated Trucks	0	0	0	0	0	0	0	15	0	0	15	0	0	0	0	0	9	0	0	9	-	-	-	-	-
Articulated Trucks %	0%	0%	0%	0%	0%	0%	0%	2.9%	0%	0%	2.7%	0%	0%	0%	0%	0%	1.6%	0%	0%	1.5%	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-	-	-	1	-	-	-	-	-
Pedestrians%	-	-	-	-	0%	-	-	-	-	50%	-	-	-	-	0%	-	-	-	-	50%	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-
Bicycles on Crosswalk%	-	-	-	-	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%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	-



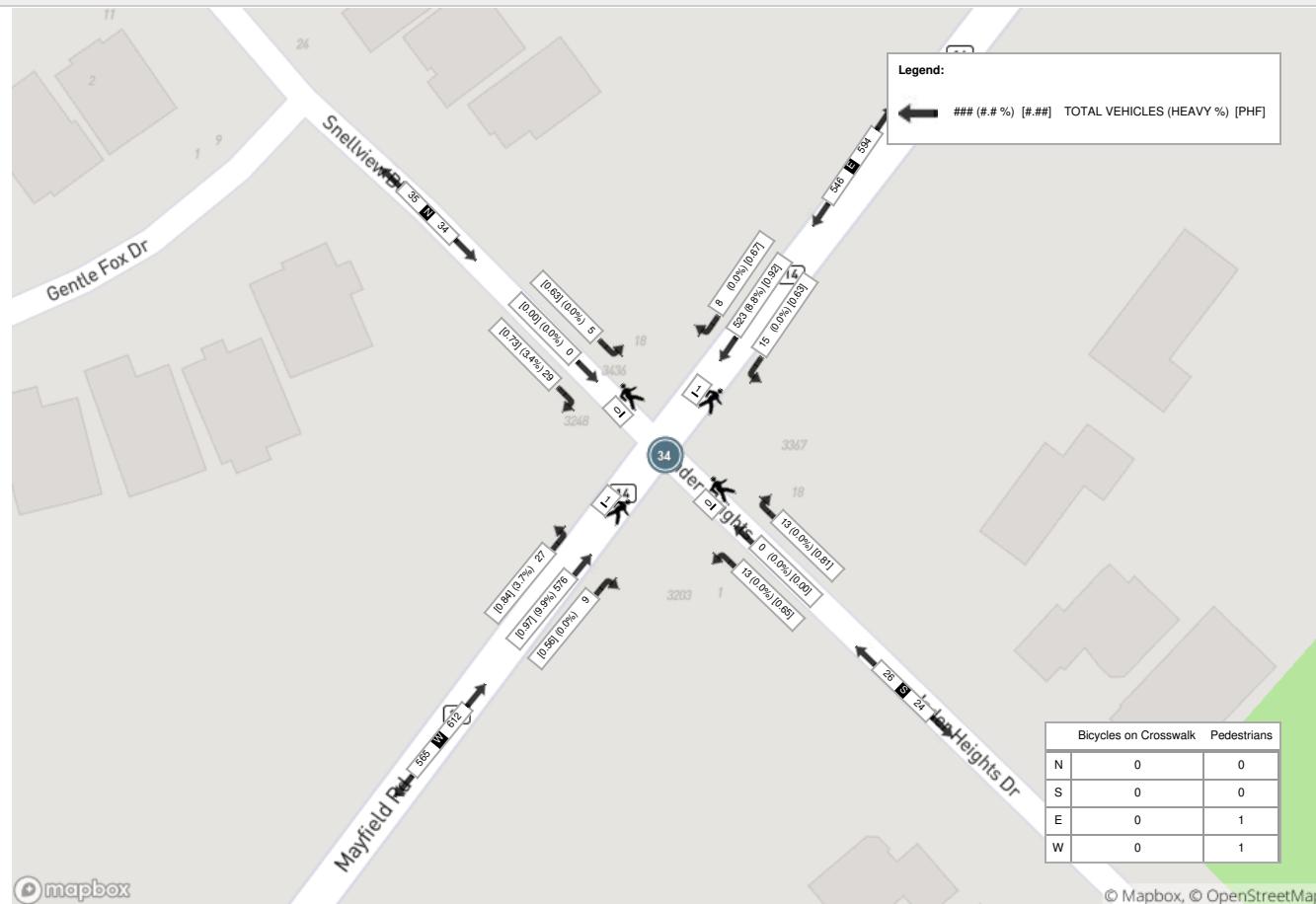
Peak Hour: 03:45 PM - 04:45 PM Weather: Clear (19.9 °C)

Start Time	N Approach SHELLVIEW BLVD						E Approach MAYFIELD RD						S Approach INDER HEIGHTS DR						W Approach MAYFIELD RD						Int. Total (15 min)		
	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total			
15:45:00	2	0	8	0	0	10	3	238	10	0	0	251	0	0	2	0	1	2	23	268	5	0	0	296	559		
16:00:00	1	0	11	0	0	12	3	272	3	0	0	278	1	0	1	0	0	2	2	252	4	0	2	258	550		
16:15:00	5	0	8	0	0	13	3	298	1	0	0	302	0	0	1	0	0	1	17	200	2	0	0	219	535		
16:30:00	2	1	7	0	0	10	7	293	5	0	0	305	0	0	3	0	0	3	14	229	3	0	0	246	564		
Grand Total	10	1	34	0	0	45	16	1101	19	0	0	1136	1	0	7	0	1	8	56	949	14	0	2	1019	2208		
Approach%	22.2%	2.2%	75.6%	0%	-	1.4%	96.9%	1.7%	0%	-	12.5%	0%	87.5%	0%	-	5.5%	93.1%	1.4%	0%	-	-	-	-	-	-		
Totals %	0.5%	0%	1.5%	0%	2%	0.7%	49.9%	0.9%	0%	51.4%	0%	0%	0.3%	0%	0.4%	2.5%	43%	0.6%	0%	46.2%	-	-	-	-	-		
PHF	0.5	0.25	0.77	0	0.87	0.57	0.92	0.48	0	0.93	0.25	0	0.58	0	0.67	0.61	0.89	0.7	0	0.86	-	-	-	-	-		
Heavy	0	0	3	0	3	1	52	1	0	54	0	0	0	0	0	0	4	93	1	0	0	0	98	-	-		
Heavy %	0%	0%	8.8%	0%	6.7%	6.3%	4.7%	5.3%	0%	4.8%	0%	0%	0%	0%	0%	7.1%	9.8%	7.1%	0%	9.6%	-	-	-	-	-		
Lights	10	1	31	0	42	15	1049	18	0	1082	1	0	7	0	8	52	856	13	0	921	-	-	-	-	-		
Lights %	100%	100%	91.2%	0%	93.3%	93.8%	95.3%	94.7%	0%	95.2%	100%	0%	100%	0%	100%	92.9%	90.2%	92.9%	0%	90.4%	-	-	-	-	-		
Single-Unit Trucks	0	0	0	0	0	0	0	23	0	0	23	0	0	0	0	0	0	0	27	0	0	0	0	27	-		
Single-Unit Trucks %	0%	0%	0%	0%	0%	0%	0%	2.1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	2.8%	0%	0%	0%	0%	2.6%	-	-		
Buses	0	0	3	0	3	1	17	1	0	19	0	0	0	0	0	0	4	50	1	0	0	0	55	-	-		
Buses %	0%	0%	8.8%	0%	6.7%	6.3%	1.5%	5.3%	0%	1.7%	0%	0%	0%	0%	0%	7.1%	5.3%	7.1%	0%	5.4%	-	-	-	-	-		
Articulated Trucks	0	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	0	16	0	0	0	0	16	-	-		
Articulated Trucks %	0%	0%	0%	0%	0%	0%	1.1%	0%	0%	1.1%	0%	0%	0%	0%	0%	0%	1.7%	0%	0%	0%	1.6%	-	-	-	-	-	
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	1	-	-	-	-	-	-	2	-	-	-	-	
Pedestrians%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	33.3%	-	-	-	-	-	-	66.7%	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	
Bicycles on Crosswalk%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	-	-	0%	-	-	-	-	
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	0	0	0	0	-		
Bicycles on Road%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	-	-	0%	-	-	-	-	

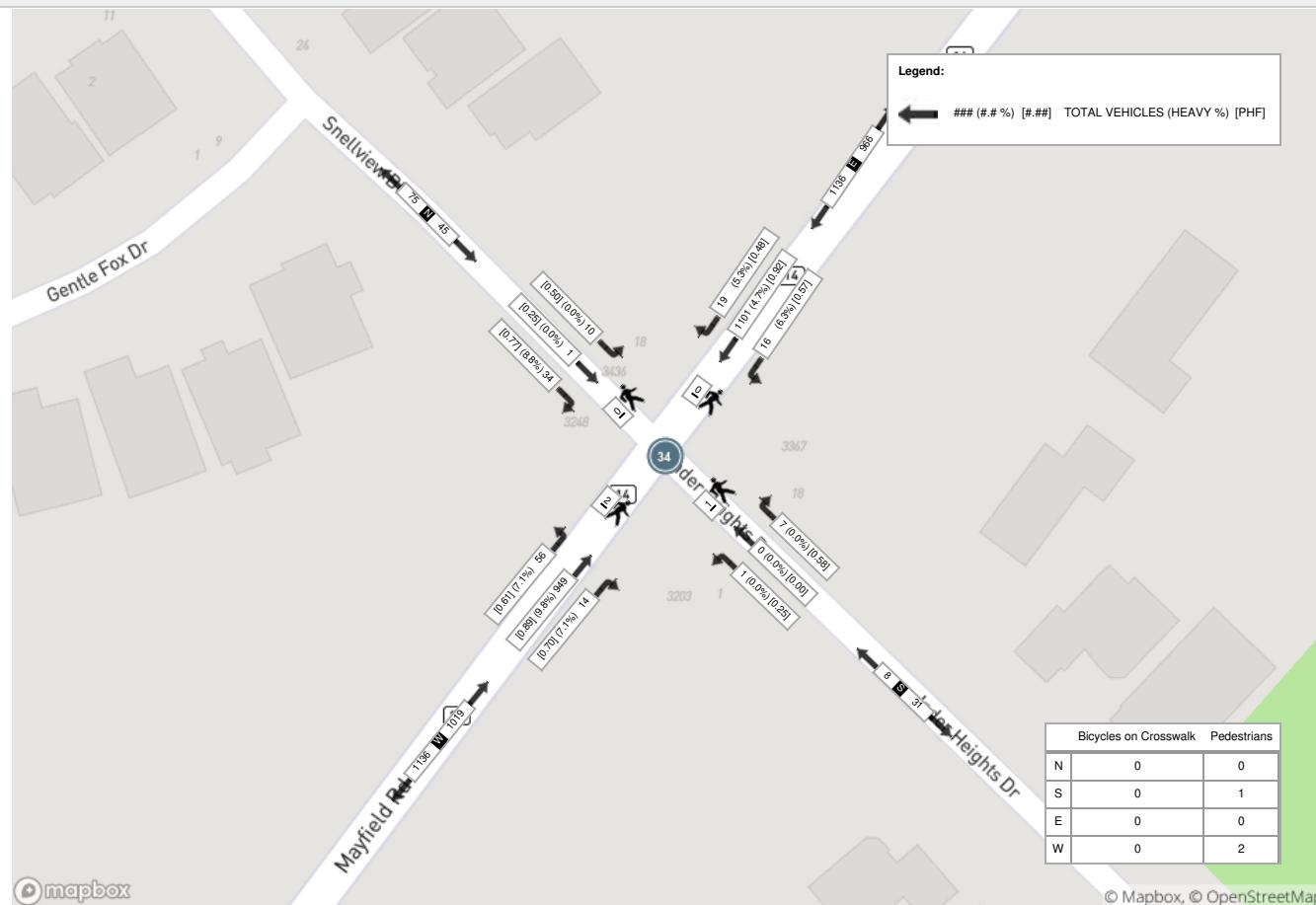
Peak Hour: 07:30 AM - 08:30 AM Weather: Clear (10.4 °C)



Peak Hour: 12:00 PM - 01:00 PM Weather: Partly Cloudy (15.7 °C)



Peak Hour: 03:45 PM - 04:45 PM Weather: Clear (19.9 °C)





Turning Movement Count
Location Name: MAYFIELD RD & STONEGATE DRIVE
Date: Tue, Oct 30, 2018 Deployment Lead: Theo Daglis

Turning Movement Count (13 . MAYFIELD RD & STONEGATE DRIVE) CustID: 01414592 Mioid: 582832

Start Time	E Approach MAYFIELD RD					S Approach STONEGATE DRIVE					W Approach MAYFIELD RD					Int. Total (15 min)	Int. Total (1 hr)
	Left E:S	Thru E:W	U-Turn E:E	Peds E:	Approach Total	Left S:W	Right S:E	U-Turn S:S	Peds S:	Approach Total	Thru W:E	Right W:S	U-Turn W:W	Peds W:	Approach Total		
07:00:00	4	174	0	0	178	2	18	0	0	20	342	2	0	0	344	542	
07:15:00	2	157	0	0	159	0	25	0	0	25	352	1	0	0	353	537	
07:30:00	4	214	0	0	218	0	20	0	0	20	432	0	0	0	432	670	
07:45:00	5	216	0	0	221	1	27	0	0	28	430	0	0	0	430	679	2428
08:00:00	12	252	0	0	264	1	16	0	0	17	423	1	0	0	424	705	2591
08:15:00	5	224	0	0	229	0	17	0	0	17	365	2	0	0	367	613	2667
08:30:00	4	154	0	0	158	2	15	0	0	17	376	3	0	0	379	554	2551
08:45:00	4	118	0	0	122	1	12	0	0	13	342	1	0	0	343	478	2350
BREAK																	
11:00:00	5	108	0	0	113	2	7	0	0	9	172	3	0	0	175	297	
11:15:00	3	120	0	0	123	1	15	0	0	16	170	1	0	0	171	310	
11:30:00	4	119	0	0	123	1	5	0	0	6	148	0	0	0	148	277	
11:45:00	7	152	0	0	159	1	5	0	0	6	171	3	0	0	174	339	1223
12:00:00	8	144	0	0	152	1	9	0	0	10	157	4	1	0	162	324	1250
12:15:00	5	161	0	0	166	1	8	0	0	9	179	1	0	0	180	355	1295
12:30:00	10	133	0	0	143	3	14	0	0	17	175	2	0	0	177	337	1355
12:45:00	9	166	0	0	175	5	4	0	1	9	172	3	0	0	175	359	1375
13:00:00	4	129	0	0	133	1	7	0	0	8	157	5	0	0	162	303	1354
13:15:00	9	160	0	0	169	2	10	0	0	12	179	1	0	0	180	361	1360
13:30:00	4	149	0	0	153	1	10	0	0	11	166	2	0	0	168	332	1355
13:45:00	8	146	0	0	154	0	12	0	0	12	168	0	0	0	168	334	1330
BREAK																	
15:00:00	12	309	0	2	321	3	15	0	2	18	234	4	0	0	238	577	
15:15:00	13	296	0	0	309	0	6	0	0	6	249	2	0	0	251	566	
15:30:00	22	324	0	0	346	1	8	0	0	9	249	3	0	0	252	607	
15:45:00	8	306	0	0	314	0	11	0	1	11	258	1	0	0	259	584	2334
16:00:00	27	350	0	0	377	2	10	1	1	13	259	4	0	0	263	653	2410
16:15:00	17	399	0	0	416	1	7	0	0	8	248	3	0	0	251	675	2519
16:30:00	23	352	0	0	375	2	12	0	0	14	234	2	0	0	236	625	2537
16:45:00	18	421	0	0	439	1	9	0	0	10	288	3	0	0	291	740	2693
17:00:00	21	368	0	0	389	0	11	0	0	11	262	1	0	0	263	663	2703
17:15:00	23	454	0	0	477	1	4	0	0	5	253	2	0	1	255	737	2765
17:30:00	30	425	0	0	455	0	12	0	0	12	258	7	0	0	265	732	2872



Turning Movement Count
Location Name: MAYFIELD RD & STONEGATE DRIVE
Date: Tue, Oct 30, 2018 Deployment Lead: Theo Daglis

17:45:00	28	433	0	0	461	0	13	0	0	13	256	1	0	0	257	731	2863
Grand Total	358	7633	0	2	7991	37	374	1	5	412	8124	68	1	1	8193	16596	-
Approach%	4.5%	95.5%	0%	-	9%	90.8%	0.2%	-	-	99.2%	0.8%	0%	-	-	-	-	
Totals %	2.2%	46%	0%	48.2%	0.2%	2.3%	0%	2.5%	49%	0.4%	0%	49.4%	-	-	-	-	
Heavy	7	491	0	-	2	5	0	-	573	6	0	-	-	-	-	-	
Heavy %	2%	6.4%	0%	-	5.4%	1.3%	0%	-	7.1%	8.8%	0%	-	-	-	-	-	
Bicycles	0	1	0	-	0	0	0	-	0	0	0	-	-	-	-	-	
Bicycle %	0%	0%	0%	-	0%	0%	0%	-	0%	0%	0%	-	-	-	-	-	



Peak Hour: 07:30 AM - 08:30 AM Weather: Clear (0.1 °C)

Start Time	E Approach MAYFIELD RD					S Approach STONEGATE DRIVE					W Approach MAYFIELD RD					Int. Total (15 min)
	Left	Thru	U-Turn	Peds	Approach Total	Left	Right	U-Turn	Peds	Approach Total	Thru	Right	U-Turn	Peds	Approach Total	
07:30:00	4	214	0	0	218	0	20	0	0	20	432	0	0	0	432	670
07:45:00	5	216	0	0	221	1	27	0	0	28	430	0	0	0	430	679
08:00:00	12	252	0	0	264	1	16	0	0	17	423	1	0	0	424	705
08:15:00	5	224	0	0	229	0	17	0	0	17	365	2	0	0	367	613
Grand Total	26	906	0	0	932	2	80	0	0	82	1650	3	0	0	1653	2667
Approach%	2.8%	97.2%	0%	-	2.4%	97.6%	0%	-	99.8%	0.2%	0%	-	-	-	-	-
Totals %	1%	34%	0%	34.9%	0.1%	3%	0%	3.1%	61.9%	0.1%	0%	62%	-	-	-	-
PHF	0.54	0.9	0	0.88	0.5	0.74	0	0.73	0.95	0.38	0	0.96	-	-	-	-
Heavy	2	119	0	121	0	2	0	0	2	81	1	0	0	82	-	-
Heavy %	7.7%	13.1%	0%	13%	0%	2.5%	0%	2.4%	4.9%	33.3%	0%	5%	-	-	-	-
Lights	24	787	0	811	2	78	0	80	1569	2	0	1571	-	-	-	-
Lights %	92.3%	86.9%	0%	87%	100%	97.5%	0%	97.6%	95.1%	66.7%	0%	95%	-	-	-	-
Single-Unit Trucks	1	58	0	59	0	1	0	1	27	0	0	27	-	-	-	-
Single-Unit Trucks %	3.8%	6.4%	0%	6.3%	0%	1.3%	0%	1.2%	1.6%	0%	0%	1.6%	-	-	-	-
Buses	1	48	0	49	0	1	0	1	45	1	0	46	-	-	-	-
Buses %	3.8%	5.3%	0%	5.3%	0%	1.3%	0%	1.2%	2.7%	33.3%	0%	2.8%	-	-	-	-
Articulated Trucks	0	13	0	13	0	0	0	0	9	0	0	9	-	-	-	-
Articulated Trucks %	0%	1.4%	0%	1.4%	0%	0%	0%	0%	0.5%	0%	0%	0.5%	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-	-
Pedestrians%	-	-	-	0%	-	-	-	0%	-	-	-	0%	-	-	-	-
Bicycles on Crosswalk	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-	-
Bicycles on Crosswalk%	-	-	-	0%	-	-	-	0%	-	-	-	0%	-	-	-	-
Bicycles on Road	0	0	0	0	-	0	0	0	-	0	0	0	-	-	-	-
Bicycles on Road%	-	-	-	0%	-	-	-	0%	-	-	-	0%	-	-	-	-



Peak Hour: 12:00 PM - 01:00 PM Weather: Clear (5.3 °C)

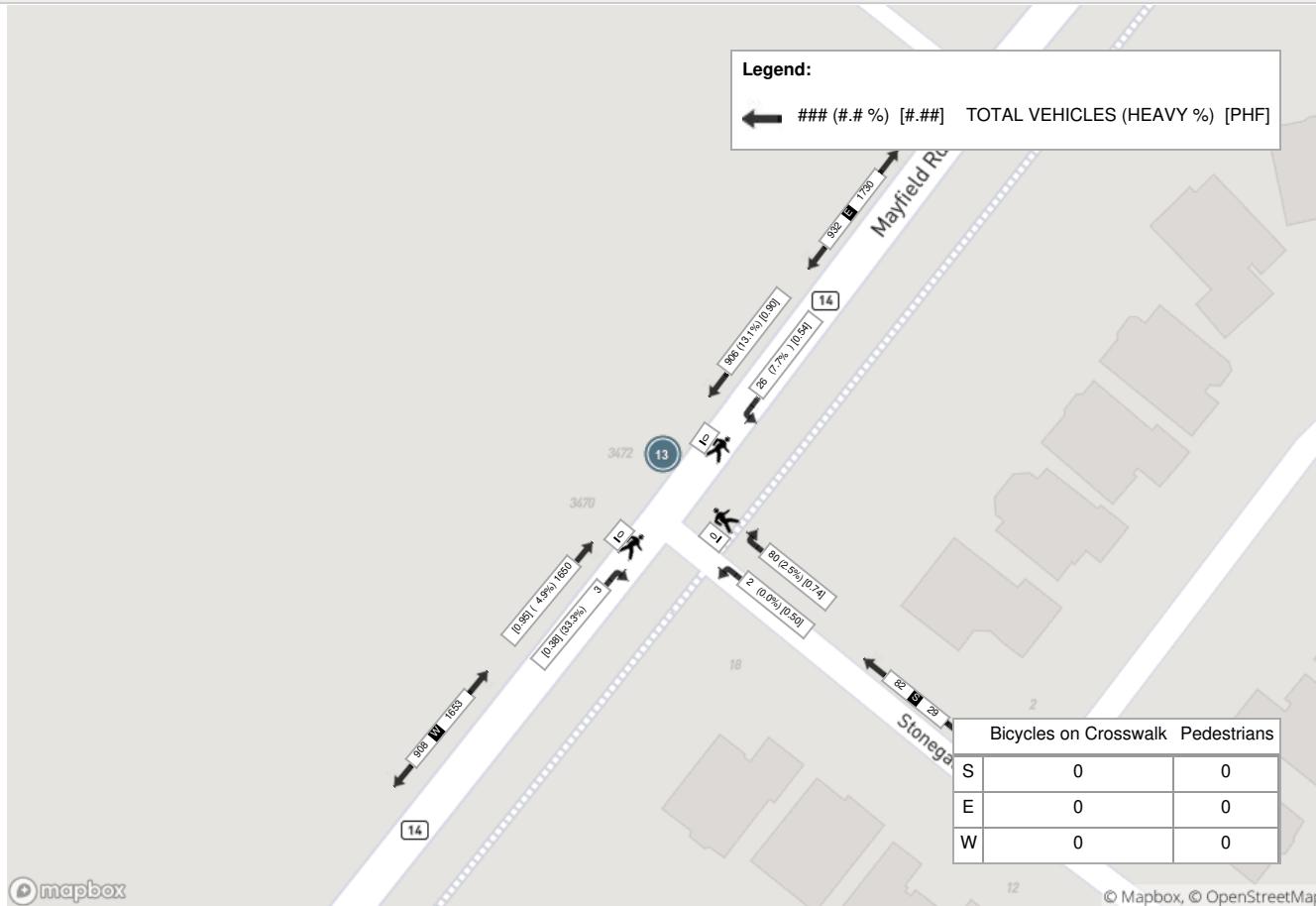
Start Time	E Approach MAYFIELD RD					S Approach STONEGATE DRIVE					W Approach MAYFIELD RD					Int. Total (15 min)
	Left	Thru	U-Turn	Peds	Approach Total	Left	Right	U-Turn	Peds	Approach Total	Thru	Right	U-Turn	Peds	Approach Total	
12:00:00	8	144	0	0	152	1	9	0	0	10	157	4	1	0	162	324
12:15:00	5	161	0	0	166	1	8	0	0	9	179	1	0	0	180	355
12:30:00	10	133	0	0	143	3	14	0	0	17	175	2	0	0	177	337
12:45:00	9	166	0	0	175	5	4	0	1	9	172	3	0	0	175	359
Grand Total	32	604	0	0	636	10	35	0	1	45	683	10	1	0	694	1375
Approach%	5%	95%	0%	-	22.2%	77.8%	0%	-	98.4%	1.4%	0.1%	-	-	-	-	-
Totals %	2.3%	43.9%	0%	46.3%	0.7%	2.5%	0%	3.3%	49.7%	0.7%	0.1%	50.5%	-	-	-	-
PHF	0.8	0.91	0	0.91	0.5	0.63	0	0.66	0.95	0.63	0.25	0.96	-	-	-	-
Heavy	1	57	0	58	0	0	0	0	0	47	0	0	47	-	-	-
Heavy %	3.1%	9.4%	0%	9.1%	0%	0%	0%	0%	0%	6.9%	0%	0%	6.8%	-	-	-
Lights	31	547	0	578	10	35	0	45	636	10	1	647	-	-	-	-
Lights %	96.9%	90.6%	0%	90.9%	100%	100%	0%	100%	93.1%	100%	100%	93.2%	-	-	-	-
Single-Unit Trucks	1	36	0	37	0	0	0	0	32	0	0	32	-	-	-	-
Single-Unit Trucks %	3.1%	6%	0%	5.8%	0%	0%	0%	0%	4.7%	0%	0%	4.6%	-	-	-	-
Buses	0	8	0	8	0	0	0	0	3	0	0	3	-	-	-	-
Buses %	0%	1.3%	0%	1.3%	0%	0%	0%	0%	0.4%	0%	0%	0.4%	-	-	-	-
Articulated Trucks	0	13	0	13	0	0	0	0	12	0	0	12	-	-	-	-
Articulated Trucks %	0%	2.2%	0%	2%	0%	0%	0%	0%	1.8%	0%	0%	1.7%	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	0	-	-	-	0	-	-	-	-
Pedestrians%	-	-	-	0%	-	-	-	0%	-	-	-	0%	-	-	-	-
Bicycles on Crosswalk	-	-	-	0	-	-	-	1	-	-	-	0	-	-	-	-
Bicycles on Crosswalk%	-	-	-	0%	-	-	-	100%	-	-	-	0%	-	-	-	-
Bicycles on Road	0	0	0	0	-	0	0	0	-	0	0	0	-	-	-	-
Bicycles on Road%	-	-	-	0%	-	-	-	0%	-	-	-	0%	-	-	-	-



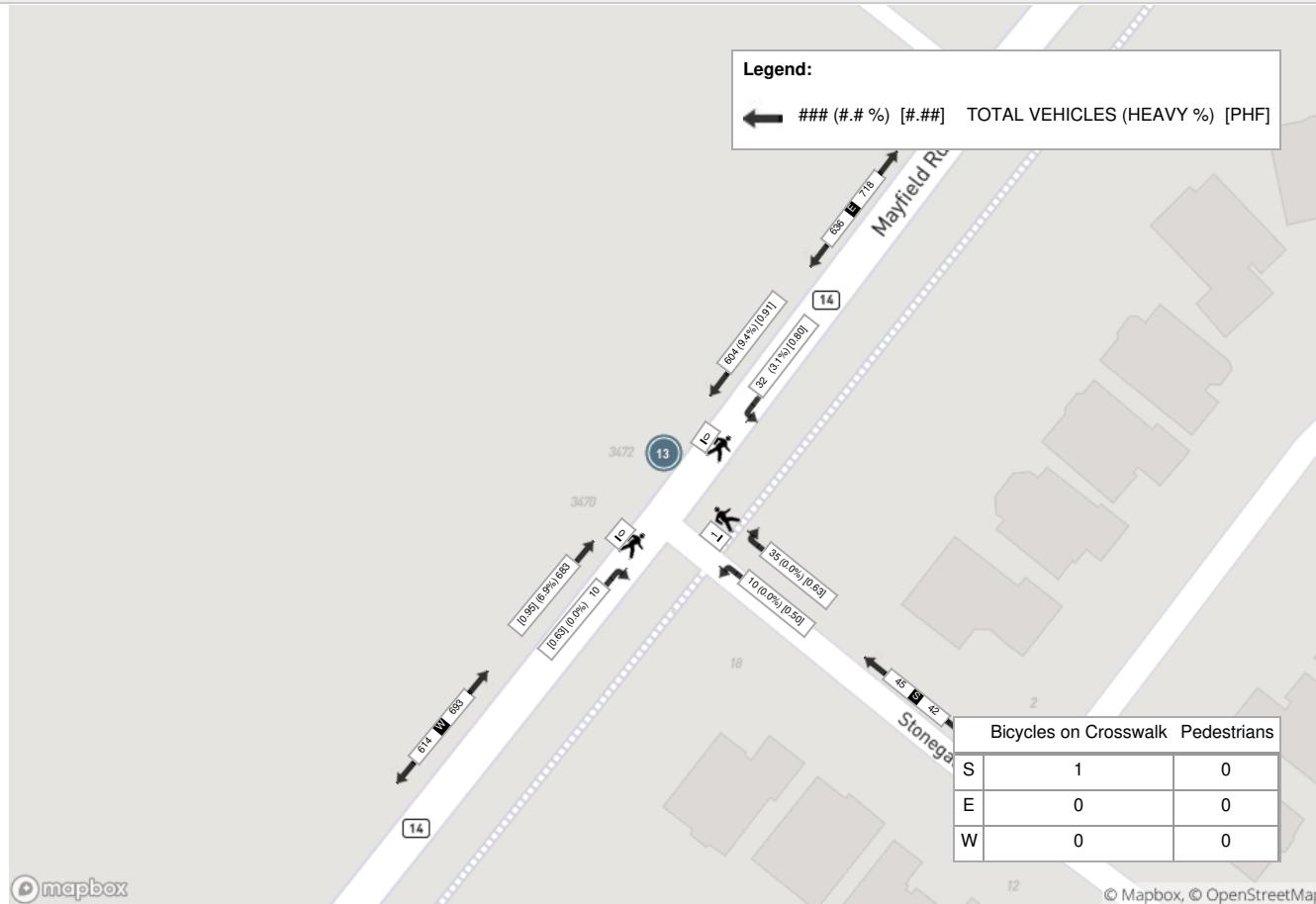
Peak Hour: 04:45 PM - 05:45 PM Weather: Clear (10.7 °C)

Start Time	E Approach MAYFIELD RD					S Approach STONEGATE DRIVE					W Approach MAYFIELD RD					Int. Total (15 min)
	Left	Thru	U-Turn	Peds	Approach Total	Left	Right	U-Turn	Peds	Approach Total	Thru	Right	U-Turn	Peds	Approach Total	
16:45:00	18	421	0	0	439	1	9	0	0	10	288	3	0	0	291	740
17:00:00	21	368	0	0	389	0	11	0	0	11	262	1	0	0	263	663
17:15:00	23	454	0	0	477	1	4	0	0	5	253	2	0	1	255	737
17:30:00	30	425	0	0	455	0	12	0	0	12	258	7	0	0	265	732
Grand Total	92	1668	0	0	1760	2	36	0	0	38	1061	13	0	1	1074	2872
Approach%	5.2%	94.8%	0%	-	5.3%	94.7%	0%	-	98.8%	1.2%	0%	-	-	-	-	-
Totals %	3.2%	58.1%	0%	61.3%	0.1%	1.3%	0%	1.3%	36.9%	0.5%	0%	37.4%	-	-	-	-
PHF	0.77	0.92	0	0.92	0.5	0.75	0	0.79	0.92	0.46	0	-	-	-	-	-
Heavy	1	33	0	34	0	0	0	0	0	56	0	0	0	56	-	-
Heavy %	1.1%	2%	0%	1.9%	0%	0%	0%	0%	0%	5.3%	0%	0%	0%	5.2%	-	-
Lights	91	1635	0	1726	2	36	0	38	1005	13	0	-	-	-	1018	-
Lights %	98.9%	98%	0%	98.1%	100%	100%	0%	100%	94.7%	100%	0%	-	-	-	94.8%	-
Single-Unit Trucks	0	11	0	11	0	0	0	0	41	0	0	-	-	-	41	-
Single-Unit Trucks %	0%	0.7%	0%	0.6%	0%	0%	0%	0%	3.9%	0%	0%	-	-	-	3.8%	-
Buses	1	8	0	9	0	0	0	0	3	0	0	-	-	-	3	-
Buses %	1.1%	0.5%	0%	0.5%	0%	0%	0%	0%	0.3%	0%	0%	-	-	-	0.3%	-
Articulated Trucks	0	14	0	14	0	0	0	0	12	0	0	-	-	-	12	-
Articulated Trucks %	0%	0.8%	0%	0.8%	0%	0%	0%	0%	1.1%	0%	0%	-	-	-	1.1%	-
Pedestrians	-	-	-	0	-	-	-	0	-	-	-	-	-	-	1	-
Pedestrians%	-	-	-	0%	-	-	-	0%	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	0	-	-	-	0	-	-	-	-	-	-	0	-
Bicycles on Crosswalk%	-	-	-	0%	-	-	-	0%	-	-	-	-	-	-	0%	-
Bicycles on Road	0	1	0	0	-	0	0	0	-	0	0	0	0	0	-	-
Bicycles on Road%	-	-	-	0%	-	-	-	0%	-	-	-	-	-	-	0%	-

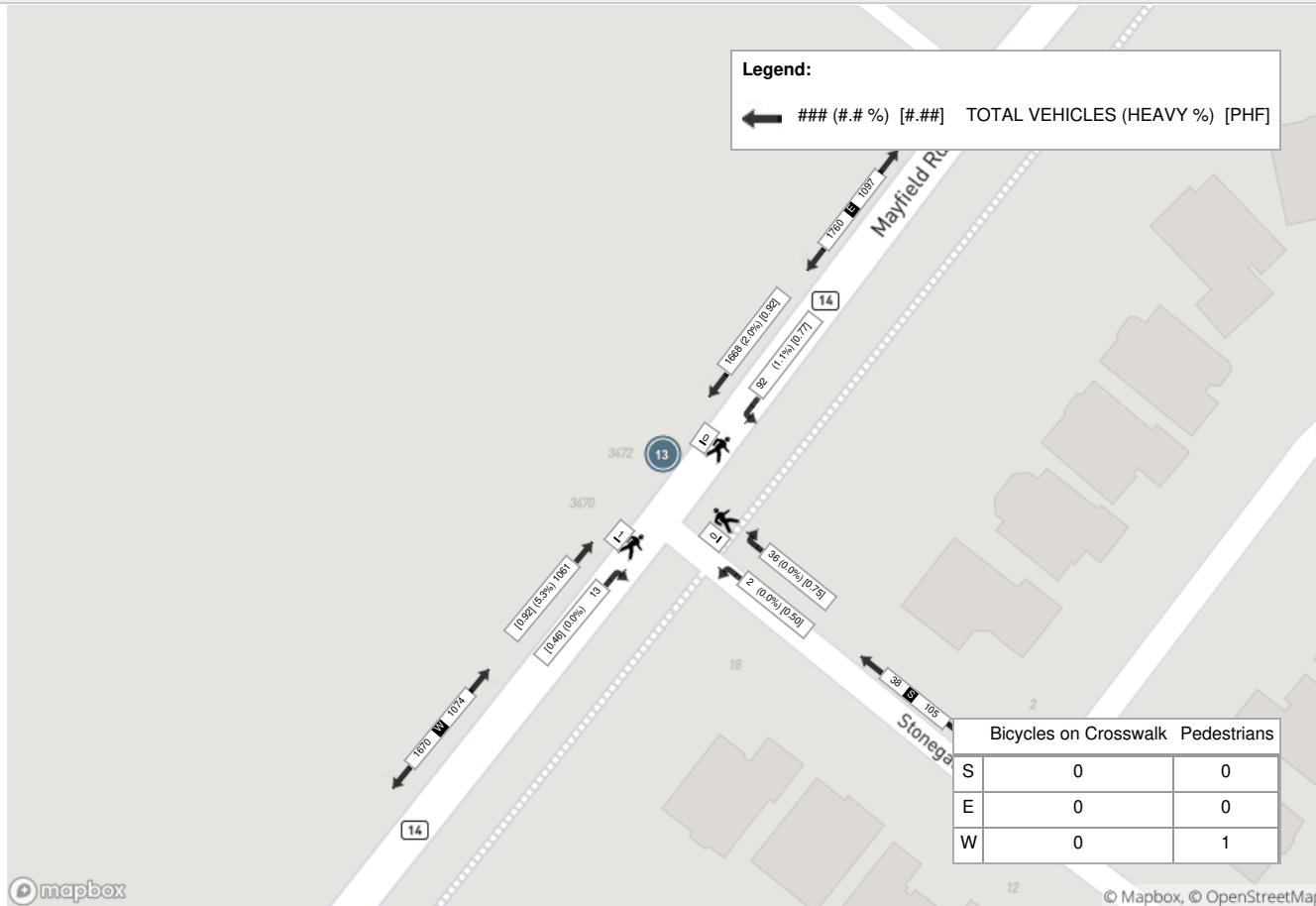
Peak Hour: 07:30 AM - 08:30 AM Weather: Clear (0.1 °C)



Peak Hour: 12:00 PM - 01:00 PM Weather: Clear (5.3 °C)



Peak Hour: 04:45 PM - 05:45 PM Weather: Clear (10.7 °C)





Ministry of Transportation

Ministère des Transports

2019

Version: 1.0 Feb 1, 2016

Contract # 9015-E-0009

Work Order # 295

Intersection Layout Sheet

Date: Sep 11/ Day: Wed, Hrs: 7 - 9 + 11 - 14 + 15 - 18
 Location: Hwy 410 & Mayfield Rd Ramps: ERT /
 Reg/Mun: CR Town/City: Kleinburg Area: _____
 File Name: 3490850000 Device: Gretchen Jamar Unit #: 8 / Interval 1: AM / NN / PM
 Observer: Olga Boliotskikh Weather: clear / clear Road Condition: dry / dry

LHRS & O/S: <u>49085 0.00</u>	Comments:
GPS: G-Star IV	
Datum: WGS 84 <u>Y / N</u>	
Lat: <u>43.758149</u>	
Long: <u>-79.997234</u>	

SIGNALIZED (Y) / N
 If intersection is unsignalized;
 Sign Type: Stop / Yield

Sign Size: _____ cm x _____ cm
 Sign Condition:
 NA: New / Good / Poor / Missing
 SA: New / Good / Poor / Missing
 WA: New / Good / Poor / Missing
 EA: New / Good / Poor / Missing
 Photograph all approach's including all Signs Y / N

60
 Hwy / Street Name
 HWY 410 Ramp
 (sign)

N

INDICATE LOCATION & DIRECTION OF VEHICLE

Vehicle N S E W
 Hwy / Street Name
 Mayfield Rd N/A
 (sign)

80 Mayfield Rd (sign)
 Hwy / Street Name

Note: Show all lanes approaching and leaving the intersection.

Show all channelization

If there are two or more through lane in one direction, indicate if these lanes are not continuous

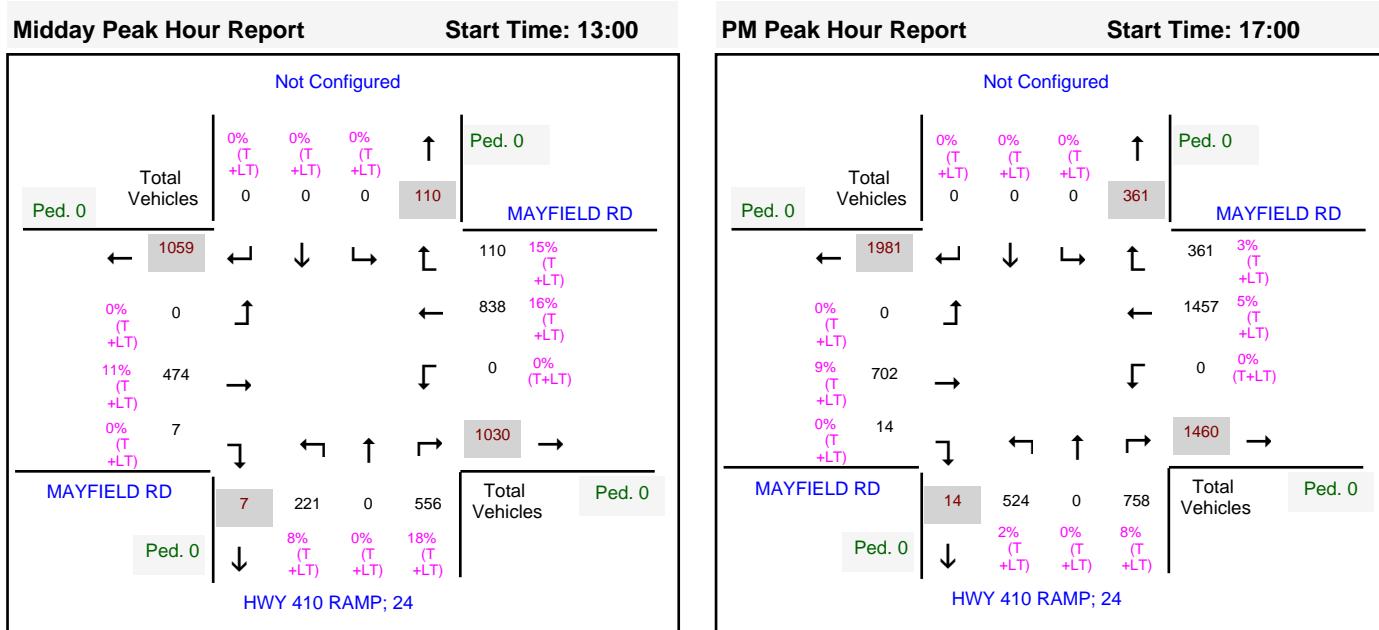
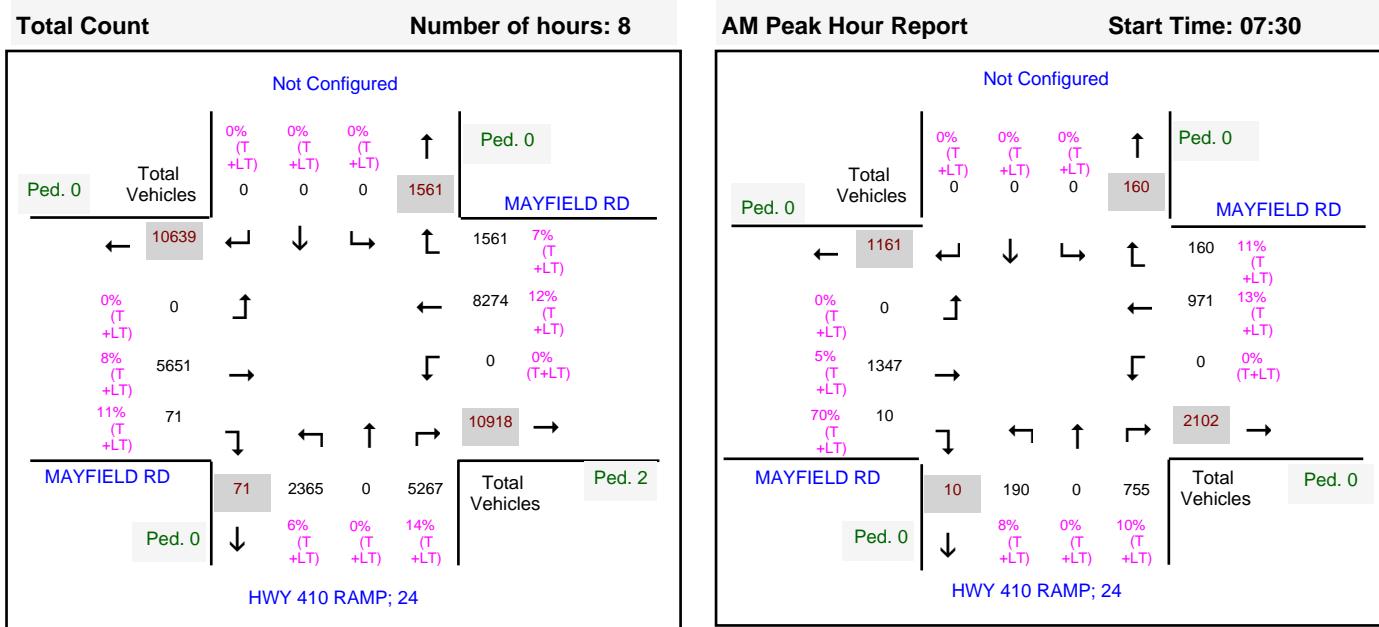
Show pedestrian crosswalks

Layout of "Special Condition"

60 (sign)
 Hwy 410 ramp
 Hwy / Street Name

TVIS II - Traffic Volume Information System

AdHoc Turning Movement Total Count and Peak Summary Report

Description: HWY 410 @ MAYFIELD RD (ERT)
Region: CENTRAL
Survey Type: TM – Interchange
Hwy: 410
Start Date: 11-Sep-2019 (Wed)
I/C Side: E
LHRS: 49085
End Date: 11-Sep-2019 (Wed)
Int. Type: T - S
Offset: 0
Schedule Summary: TUES-THURS, 07:00-09:00, 11:00-14:00, 15:00-18:00




Ministry of Transportation

TVIS II - Traffic Volume Information System

Description: HWY 410 @ MAYFIELD RD (ERT)

Turning Movement 15 Minute Report

Region: CENTRAL

Survey Type: TM – Interchange

Hwy: 410

Start Date: 11-Sep-2019 (Wed)

I/C Side: E

LHRS: 49085

End Date: 11-Sep-2019 (Wed)

Int. Type: T - S

Offset: 0

Schedule Summary: TUES-THURS, 07:00-09:00, 11:00-14:00, 15:00-18:00

Start Time	Major Road Approaches												Minor Road Approaches											
	East MAYFIELD RD						West MAYFIELD RD						South HWY 410 RAMP: Ramp(s): 24						Not Configured					
	Cars ← ↑ →	Trucks ← ↑ →	Long Trucks ← ↑ →	Ped	Cars ← ↑ →	Trucks ← ↑ →	Long Trucks ← ↑ →	Ped	Cars ← ↑ →	Trucks ← ↑ →	Long Trucks ← ↑ →	Ped	Cars ← ↑ →	Trucks ← ↑ →	Long Trucks ← ↑ →	Ped	Cars ← ↑ →	Trucks ← ↑ →	Long Trucks ← ↑ →	Ped	Total Veh.			
Period 1																								
07:00	0 159	21	0 5	0 0	23	2 0	0 209	0 0	0 2	0 0	0 4	0 0	33	0 122	5 0	0 4	0 0	0 13	0 0	0 602				
07:15	0 201	17	0 12	0 0	18	3 0	0 219	0 0	0 6	0 0	0 3	0 0	44	0 161	4 0	0 7	4 0	0 8	0 0	0 707				
07:30	0 165	32	0 9	0 0	14	6 0	0 404	0 0	0 24	0 0	0 8	2 0	40	0 182	1 0	0 7	7 0	0 14	0 0	0 915				
07:45	0 269	29	0 18	1 0	32	3 0	0 351	1 0	0 7	1 0	0 5	4 0	36	0 197	0 0	0 7	1 0	0 13	0 0	0 975				
08:00	0 241	49	0 12	2 0	11	1 0	0 275	1 0	0 10	0 0	0 7	0 0	52	0 151	2 0	0 10	2 0	0 8	0 0	0 834				
08:15	0 173	32	0 5	2 0	22	3 0	0 248	1 0	0 3	0 0	0 5	0 0	47	0 147	2 0	0 8	0 0	0 11	0 0	0 709				
08:30	0 177	67	0 8	3 0	15	2 0	0 250	0 0	0 6	0 0	0 11	0 0	30	0 145	1 0	0 13	2 0	0 11	0 0	0 741				
08:45	0 125	28	0 14	1 0	19	3 0	0 263	3 0	0 6	0 0	0 10	0 0	36	0 133	6 0	0 13	3 0	0 12	0 0	0 675				
Period 2																								
11:00	0 151	18	0 12	0 0	28	5 0	0 100	2 0	0 5	0 0	10 0	0 0	36	0 97	5 0	0 10	6 0	0 19	0 0	0 504				
11:15	0 175	22	0 9	1 0	23	1 0	0 95	5 0	0 3	0 0	8 0	0 0	37	0 102	0 0	0 6	1 0	0 19	0 0	0 507				
11:30	0 182	27	0 11	1 0	27	3 2	0 115	0 0	0 1	0 0	1 0	0 0	10	0 20	2 0	0 2	6 0	0 5	0 0	0 413				
11:45	0 166	29	0 5	1 0	30	3 0	0 107	2 0	0 3	0 0	4 1 0	0 43	0 98	7 0	0 3	3 0	0 19	0 0	0 524					
12:00	0 176	21	0 8	1 0	26	5 0	0 94	1 0	0 4	0 0	5 0	0 0	42	0 95	1 0	0 9	2 0	0 24	0 0	0 514				
12:15	0 172	18	0 8	1 0	21	5 0	0 100	1 0	0 8	0 0	5 0	0 0	38	0 95	0 0	0 12	3 0	0 18	0 0	0 505				
12:30	0 162	20	0 7	1 0	38	4 0	0 101	4 0	0 4	0 0	14 0	0 0	51	0 101	3 0	0 10	2 0	0 16	0 0	0 538				
12:45	0 161	20	0 10	0 0	29	1 0	0 87	0 0	0 2	0 0	5 0	0 0	54	0 112	1 0	0 10	0 0	0 15	0 0	0 507				
13:00	0 164	20	0 14	1 0	30	3 0	0 112	2 0	0 3	0 0	7 0	0 0	54	0 109	4 0	0 5	0 0	0 19	0 0	0 547				
13:15	0 189	21	0 13	1 0	17	6 0	0 94	2 0	0 3	0 0	10 0	0 0	45	0 102	4 0	0 5	2 0	0 18	0 0	0 532				
13:30	0 182	21	0 11	1 0	13	1 0	0 109	1 0	0 5	0 0	7 0	0 0	47	0 105	0 0	0 7	2 0	0 19	0 0	0 531				
13:45	0 169	32	0 12	1 0	24	2 0	0 107	2 0	0 8	0 0	9 0	0 0	58	0 138	0 0	0 11	5 0	0 18	0 0	0 596				



Ministry of Transportation

TVIS II - Traffic Volume Information System

Description: HWY 410 @ MAYFIELD RD (ERT)

Turning Movement 15 Minute Report

Region: CENTRAL

Survey Type: TM – Interchange

Hwy: 410

Start Date: 11-Sep-2019 (Wed)

I/C Side: E

LHRS: 49085

End Date: 11-Sep-2019 (Wed)

Int. Type: T - S

Offset: 0

Schedule Summary: TUES-THURS, 07:00-09:00, 11:00-14:00, 15:00-18:00

Start Time	Major Road Approaches												Minor Road Approaches																		
	East MAYFIELD RD						West MAYFIELD RD						South HWY 410 RAMP: Ramp(s): 24						Not Configured												
	Cars	Trucks	Long Trucks	Ped	Cars	Trucks	Long Trucks	Ped	Cars	Trucks	Long Trucks	Ped	Cars	Trucks	Long Trucks	Ped	Cars	Trucks	Long Trucks	Ped	Total Veh.										
Period 3																															
15:00	0	248	64	0	16	1	0	20	2	0	0	133	3	0	5	0	0	6	0	0	88	0	178	1	0	5	1	0	23	0	794
15:15	0	301	63	0	13	0	0	16	2	0	0	136	4	0	8	0	0	7	0	0	108	0	159	3	0	14	2	0	21	0	857
15:30	0	311	93	0	14	2	0	21	1	0	0	147	4	0	6	0	0	9	0	0	105	0	165	1	0	4	1	0	23	0	907
15:45	0	254	76	0	18	0	0	17	2	0	0	159	5	0	6	0	0	8	0	0	110	0	159	0	0	3	3	0	19	0	839
16:00	0	312	61	0	13	0	0	21	2	0	0	127	3	0	9	0	0	8	0	0	100	0	193	1	0	9	5	0	18	0	882
16:15	0	305	67	0	5	1	0	16	1	0	0	149	0	0	6	0	0	9	0	0	121	0	202	1	0	6	6	0	21	0	916
16:30	0	298	65	0	14	0	0	19	1	0	0	145	1	0	4	0	0	9	0	0	124	0	197	1	0	4	0	0	14	0	896
16:45	0	316	68	0	5	2	0	22	1	0	0	146	1	0	3	0	0	13	0	0	124	0	191	2	0	2	1	0	9	0	906
17:00	0	357	84	0	6	2	0	21	4	0	0	158	2	0	5	0	0	9	0	0	118	0	190	1	0	3	1	0	11	0	972
17:15	0	354	89	0	7	2	0	9	2	0	0	158	5	0	4	0	0	14	0	0	132	0	163	0	0	6	1	0	12	0	958
17:30	0	340	100	0	7	0	0	14	0	0	0	169	4	0	5	0	0	10	0	0	128	0	157	0	0	5	2	0	12	0	953
17:45	0	326	78	0	5	0	0	11	0	0	0	157	3	0	2	0	0	11	0	0	138	0	184	1	0	5	2	0	10	0	933



Ministry of Transportation
Ministère des Transports
2019

Version: 1.0 Feb 1, 2016

Intersection Layout Sheet

Contract # 9015-E-00 09
Work Order # 286

Date: Sep 11/ Day: Wed 1 Hrs: 7 - 9 + 11 - 14 + 15 - 18
 Location: Hwy 410 & Mayfield Rd Ramps: WRT 1
 Reg/Mun: CR Town/City: Kleinburg Area: _____
 File Name: 4490850000 Device: Gretchy Jamar Unit #: 8 / Interval 1: AM NN / PM
 Observer: Olga Bditskikh Weather: clear / clear Road Condition: dry / dry

LHRS & O/S: 49085 0.00 Comments:

GPS: G-Star IV

Datum: WGS 84 Y / N

Lat: 43.755149

Long: -79.800619

SIGNALIZED Y / N

If intersection is unsignalized;

Sign Type: Stop / Yield

Sign Size: _____ cm x _____ cm

Sign Condition:

NA: New / Good / Poor / Missing

SA: New / Good / Poor / Missing

WA: New / Good / Poor / Missing

EA: New / Good / Poor / Missing

Photograph all approach's

including all Signs Y / N

80
(km/hr)

Hwy / Street Name
Mayfield Rd ramp
(sign)



INDICATE LOCATION &
DIRECTION OF VEHICLE

Vehicle N S E W

Hwy / Street Name

Mayfield Rd

N/A
(km/hr)

30 Km/hr



80 Mayfield Rd 53

Hwy / Street Name

Note: Show all lanes approaching and leaving the intersection.

Show all channelization

If there are two or more through lane in one direction, indicate if these lanes are not continuous

Show pedestrian crosswalks

HWY 410 Ramp
(sign)
70
(km/hr)

Layout of "Special Condition"



Ministry of Transportation

TVIS II - Traffic Volume Information System

AdHoc Turning Movement Total Count and Peak Summary Report

Description: HWY 410 @ MAYFIELD RD (WRT)

Region: CENTRAL

Survey Type: TM – Interchange

Hwy: 410

Start Date: 11-Sep-2019 (Wed)

I/C Side: W

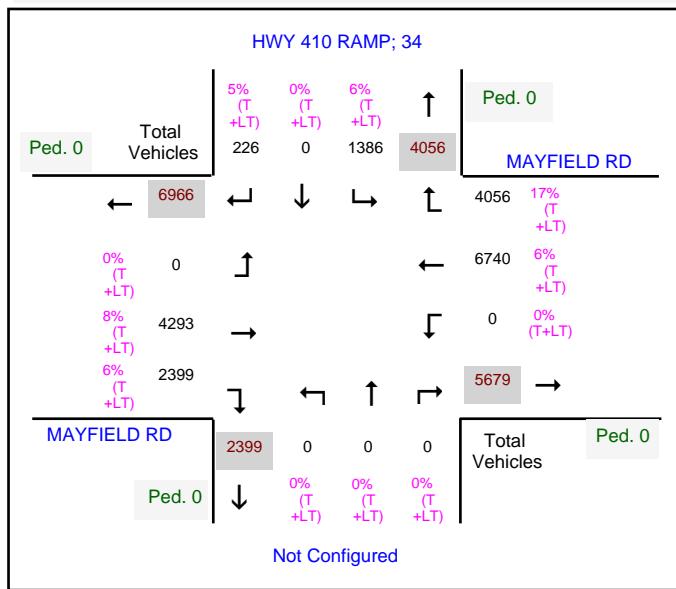
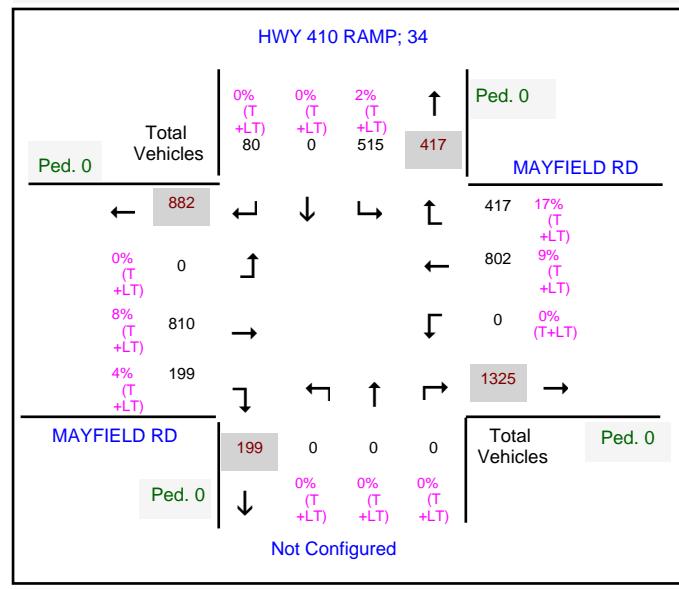
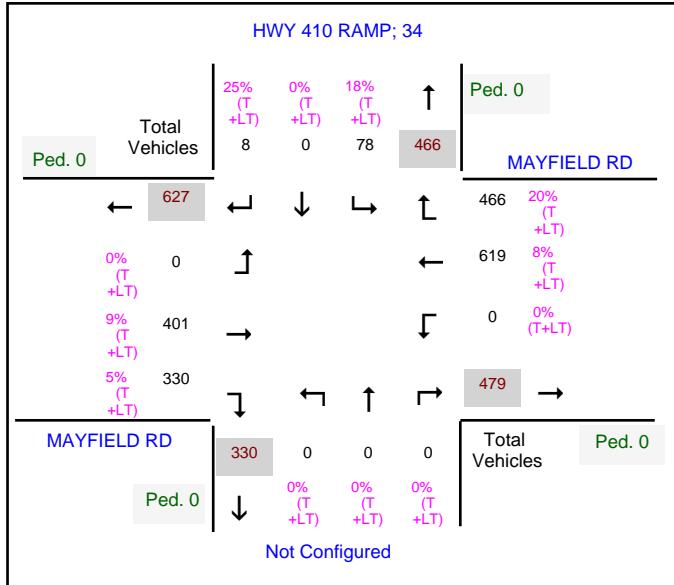
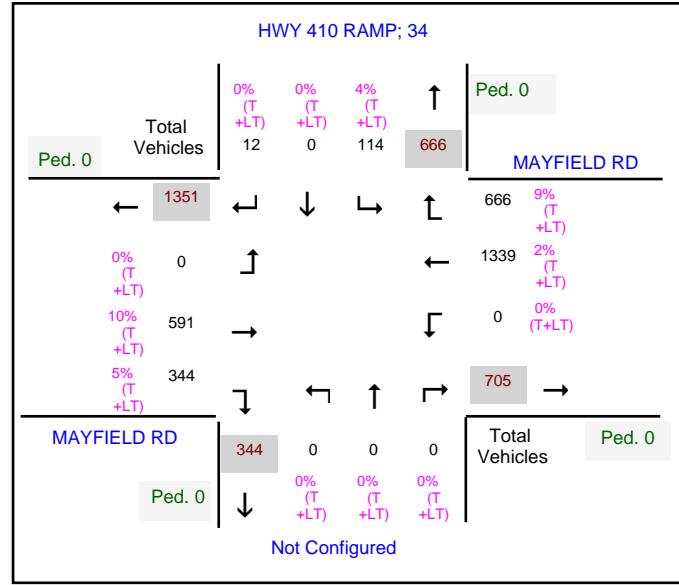
LHRS: 49085

End Date: 11-Sep-2019 (Wed)

Int. Type: T - N

Offset: 0

Schedule Summary: TUES-THURS, 07:00-09:00, 11:00-14:00, 15:00-18:00

Total Count**Number of hours: 8****AM Peak Hour Report****Start Time: 07:15****Midday Peak Hour Report****Start Time: 13:00****PM Peak Hour Report****Start Time: 17:00**



Ministry of Transportation

TVIS II - Traffic Volume Information System

Description: HWY 410 @ MAYFIELD RD (WRT)

Turning Movement 15 Minute Report

Region: CENTRAL

Survey Type: TM – Interchange

Hwy: 410

Start Date: 11-Sep-2019 (Wed)

I/C Side: W

LHRS: 49085

End Date: 11-Sep-2019 (Wed)

Int. Type: T - N

Offset: 0

Schedule Summary: TUES-THURS, 07:00-09:00, 11:00-14:00, 15:00-18:00

Start Time	Major Road Approaches												Minor Road Approaches												
	East MAYFIELD RD						West MAYFIELD RD						North HWY 410 RAMP: Ramp(s): 34						Not Configured						
	Cars ← ↑ →	Trucks ← ↑ →	Long Trucks ← ↑ →	Ped	Cars ← ↑ →	Trucks ← ↑ →	Long Trucks ← ↑ →	Ped	Cars ← ↑ →	Trucks ← ↑ →	Long Trucks ← ↑ →	Ped	Cars ← ↑ →	Trucks ← ↑ →	Long Trucks ← ↑ →	Ped	Cars ← ↑ →	Trucks ← ↑ →	Long Trucks ← ↑ →	Ped	Total Veh.				
Period 1																									
07:00	0 123	91	0 13	5	0 12	8	0	0 145	96	0 2	1	0	1 0	0	69	0 9	1	0 0	0 3	0 0	0 0	0 0	0 0	0 0	579
07:15	0 157	94	0 7	2	0 11	16	0	0 144	66	0 5	0	0	3 0	0	120	0 11	3	0 0	0 0	0 0	0 0	0 0	0 0	0 0	639
07:30	0 148	72	0 13	2	0 10	11	0	0 230	38	0 21	2	0	8 3	0	137	0 25	2	0 0	0 3	0 0	0 0	0 0	0 0	0 0	725
07:45	0 212	108	0 13	4	0 7	23	0	0 204	49	0 7	0	0	8 1	0	150	0 21	0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	807
08:00	0 209	74	0 9	3	0 6	8	0	0 166	39	0 8	1	0	6 0	0	97	0 23	1	0 0	0 2	0 0	0 0	0 0	0 0	0 0	652
08:15	0 151	58	0 5	3	0 8	10	0	0 159	48	0 3	1	0	7 0	0	75	0 24	1	0 0	0 0	0 0	0 0	0 0	0 0	0 0	553
08:30	0 143	66	0 14	1	0 5	9	0	0 180	45	0 6	2	0	7 0	0	83	0 34	0	0 0	0 3	0 0	0 1	0	0 0	0 0	599
08:45	0 98	74	0 9	8	0 13	12	0	0 170	67	0 7	1	0	8 1	0	76	0 17	1	0 1	1 1	0 0	0 0	0 0	0 0	0 0	564
Period 2																									439
11:00	0 93	94	0 7	12	0 11	20	0	0 82	82	0 3	2	0	7 8	0	13	0 1	0	0 0	0 3	0 0	1 0	0	0 0	0 0	447
11:15	0 110	108	0 4	6	0 4	22	0	0 80	72	0 1	4	0	8 6	0	16	0 4	2	0 0	0 0	0 0	0 0	0 0	0 0	0 0	451
11:30	0 114	85	0 9	9	0 4	24	0	0 88	83	0 1	0	0	2 3	0	24	0 1	0	0 0	0 0	0 0	0 4	0	0 0	0 0	472
11:45	0 119	101	0 0	4	0 14	19	0	0 97	85	0 3	3	0	7 0	0	16	0 3	0	0 0	0 0	0 0	0 1	0	0 0	0 0	437
12:00	0 128	93	0 4	4	0 11	19	0	0 82	65	0 2	3	0	2 6	0	13	0 0	3	0 0	0 2	0 0	0 0	0 0	0 0	0 0	453
12:15	0 128	84	0 3	8	0 4	24	0	0 87	72	0 5	3	0	15 3	0	13	0 3	1	0 0	0 0	0 0	0 0	0 0	0 0	0 0	457
12:30	0 127	86	0 2	5	0 10	26	0	0 89	79	0 3	1	0	5 4	0	15	0 3	2	0 0	0 0	0 0	0 0	0 0	0 0	0 0	444
12:45	0 132	79	0 4	10	0 7	27	0	0 72	80	0 2	3	0	5 7	0	14	0 1	0	0 0	0 1	0 0	0 0	0 0	0 0	0 0	478
13:00	0 128	95	0 6	13	0 15	17	0	0 96	75	0 3	2	0	6 2	0	18	0 0	0	0 0	0 1	0 0	1 0	0 0	0 0	0 0	455
13:15	0 150	91	0 6	6	0 3	15	0	0 83	87	0 2	2	0	8 3	0	13	0 3	1	0 0	0 4	0 0	1 0	0 0	0 0	0 0	491
13:30	0 145	89	0 1	10	0 8	11	0	0 87	72	0 1	0	0	8 3	0	16	0 0	4	0 0	0 0	0 2	0 0	0 0	0 0	0 0	
13:45	0 144	96	0 4	8	0 9	15	0	0 99	78	0 3	2	0	5 4	0	17	0 3	2	0 0	0 2	0 0	0 0	0 0	0 0	0 0	



Ministry of Transportation

TVIS II - Traffic Volume Information System

Description: HWY 410 @ MAYFIELD RD (WRT)

Turning Movement 15 Minute Report

Region: CENTRAL

Survey Type: TM – Interchange

Hwy: 410

Start Date: 11-Sep-2019 (Wed)

I/C Side: W

LHRS: 49085

End Date: 11-Sep-2019 (Wed)

Int. Type: T - N

Offset: 0

Schedule Summary: TUES-THURS, 07:00-09:00, 11:00-14:00, 15:00-18:00

Start Time	Major Road Approaches												Minor Road Approaches																
	East MAYFIELD RD						West MAYFIELD RD						North HWY 410 RAMP: Ramp(s): 34						Not Configured										
	Cars	Trucks	Long Trucks	Ped	Cars	Trucks	Long Trucks	Ped	Cars	Trucks	Long Trucks	Ped	Cars	Trucks	Long Trucks	Ped	Cars	Trucks	Long Trucks	Ped	Total Veh.								
Period 3																													
15:00	0	239	108	0	6	7	0	4	16	0	0	105	67	0	4	1	0	4	2	0	16	0	1	2	0	0	0	0	583
15:15	0	266	152	0	7	12	0	5	13	0	0	124	71	0	6	2	0	3	5	0	21	0	7	0	0	0	3	0	697
15:30	0	285	119	0	6	8	0	6	16	0	0	127	75	0	6	0	0	6	3	0	29	0	0	2	0	0	3	0	691
15:45	0	265	106	0	11	6	0	11	9	0	0	119	69	0	4	5	0	7	7	0	30	0	2	3	0	1	0	0	655
16:00	0	275	133	0	6	8	0	8	15	0	0	110	85	0	9	2	0	7	3	0	32	0	0	1	0	0	1	0	695
16:15	0	296	137	0	4	1	0	7	16	0	0	123	52	0	4	1	0	5	3	0	27	0	3	1	0	0	2	0	682
16:30	0	307	118	0	4	10	0	6	13	0	0	107	73	0	2	0	0	7	5	0	24	0	3	3	0	0	2	0	684
16:45	0	306	147	0	4	2	0	3	21	0	0	143	53	0	5	2	0	11	4	0	23	0	1	1	0	0	1	0	727
17:00	0	304	173	0	6	2	0	6	14	0	0	121	77	0	3	1	0	11	2	0	20	0	1	0	0	0	0	0	741
17:15	0	344	158	0	3	3	0	4	7	0	0	142	92	0	5	3	0	13	2	0	28	0	1	0	0	0	1	0	806
17:30	0	339	132	0	2	1	0	1	14	0	0	137	77	0	5	2	0	9	4	0	37	0	4	0	0	0	2	0	766
17:45	0	324	145	0	3	5	0	3	12	0	0	134	82	0	3	1	0	8	1	0	25	0	6	0	0	0	1	0	753

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

Database Date	July 2017		Prepared Date	January 8, 2021
Database Rev	22		Completed By	JP
Timing Card / Field rev	22		Checked By	SJ

Location	Mayfield Road at Heart Lake Road									
	Phase #	Street Name - Direction	Vehicle Minimum (s)	Pedestrian Minimum (s)		Amber (s)	All Red (s)	TIME PERIOD (s) (Green+Amber+All Red)		
				WALK	FDWALK			AM SPLITS	OFF SPLITS	PM SPLITS
1	Mayfield Road - WB PP LT		5	0	0	3.0	0	9	9	9
2	Mayfield Road - EB		12	8	21	4.6	2.1	81	71	76
3	Not in use		-	-	-	-	-	-	-	-
4	Heart Lake Road - NB		8	8	25	4.0	2.9	50	50	50
5	Not in use		-	-	-	-	-	-	-	-
6	Mayfield Road - WB		12	8	21	4.6	2.1	90	80	85
7	Heart Lake Road - NB PP LT		5	0	0	3.0	0	9	9	9
8	Heart Lake Road - SB		8	8	25	4.0	2.9	41	41	41

System Control	TIME (M-F)	PEAK	CYCLE LENGTH (s)	OFFSET (s)
Yes	06:00 - 09:30	AM	140	78
	09:30 - 16:00	OFF	130	66
	20:00 - 22:00			
No, Fully	16:00 - 20:00	PM	135	26

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

Database Date		April 18, 2013			Prepared Date	January 8, 2021	
Database Rev		2			Completed By	JP	
Timing Card / Field rev		2			Checked By	SJ	
Location	Mayfield Road at Highway 410 Southbound Off Ramp (E/W Ramp)						
Phase #	Street Name - Direction	Vehicle Minimum (s)	Pedestrian Minimum (s)	Amber (s)	All Red (s)	TIME PERIOD (s) (Green+Amber+All Red)	
			WALK			FDWALK	AM/OFF/PM
1	Not in use	-	-	-	-	-	
2	Mayfield Road - EB	16	10	6	4	2	
3	Not in use	-	-	-	-	-	
4	Hwy 410 SB Off Ramp	8	20	6	4	2	
5	Not in use	-	-	-	-	-	
6	Mayfield Road - WB	16	10	6	4	2	
7	Not in use	-	-	-	-	-	
8	Not in use	-	-	-	-	-	
System Control		TIME (M-F)	PEAK	CYCLE LENGTH (s)	OFFSET (s)		
Yes		FREE	AM	N/A	N/A		
Semi-Actuated Mode		FREE	OFF	N/A	N/A		
Yes		FREE	PM	N/A	N/A		

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

Database Date		August 2018			Prepared Date	January 8, 2021		
Database Rev		34			Completed By	JP		
Timing Card / Field rev		34			Checked By	SJ		
Location	Mayfield Road at Kennedy Road							
Phase #	Street Name - Direction	Vehicle Minimum (s)	Pedestrian Minimum (s)	Amber (s)	All Red (s)	TIME PERIOD (s) (Green+Amber+All Red)		
			WALK	FDWALK		AM SPLITS	OFF SPLITS	PM SPLITS
1	Mayfield Road - WB PP LT	6	0	3.0	0	10	10	20
2	Mayfield Road - EB	8	8	20	4.0	2.6	55	59
3	Kennedy Road - SB PP LT	6	0	3.0	0	35	25	25
4	Kennedy Road - NB	12	8	20	4.0	2.9	40	36
5	Mayfield Road - EB PP LT	6	0	3.0	0	10	10	20
6	Mayfield Road - WB	8	8	20	4.0	2.6	55	59
7	Not in use	-	-	-	-	-	-	-
8	Kennedy Road - SB	12	8	20	4.0	2.9	75	61
System Control		TIME (M-F)						
Yes		06:00 - 09:30		AM		140		17
Semi-Actuated Mode		09:30 - 16:00 20:00 - 22:00		OFF		130		123
Yes		16:00 - 20:00		PM		135		13

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

Database Date	July 2017		Prepared Date	January 8, 2021				
Database Rev	3		Completed By	JP				
Timing Card / Field rev	3		Checked By	SJ				
Location	Mayfield Road at Snellview Boulevard/Inder Heights Drive							
Phase #	Street Name - Direction	Vehicle Minimum (s)	Pedestrian Minimum (s)	Amber (s)	All Red (s)	TIME PERIOD (s) (Green+Amber+All Red)		
			WALK FDWALK			AM SPLITS	OFF SPLITS	PM SPLITS
1	Not in use	-	-	-	-	-	-	-
2	Mayfield Road - EB/WB	12	8 11	4.0	2.0	90	90	95
3	Not in use	-	-	-	-	-	-	-
4	Snellview Blvd/Inder Heights Dr - NB/SB	8	8 18	4.0	2.6	50	40	40
5	Not in use	-	-	-	-	-	-	-
6	Not in use	-	-	-	-	-	-	-
7	Not in use	-	-	-	-	-	-	-
8	Not in use	-	-	-	-	-	-	-

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

Database Date	January 8, 2018		Prepared Date	February 22, 2021
Database Rev	5		Completed By	JP
Timing Card / Field rev	5		Checked By	BL

Location	Mayfield Road at Highway 410 NB Off Ramp								
Phase #	Street Name - Direction	Vehicle Minimum (s)	Pedestrian Minimum (s)		Amber (s)	All Red (s)	TIME PERIOD (s) (Green+Amber+All Red)		
			WALK	FDWALK			AM SPLITS	OFF MIN/MAX	PM SPLITS
1	Not in use	-	-	-	-	-	-	-	-
2	Mayfield Road - EB	12	8	19	4.6	2.0	70	51.6 (max)	65
3	Not in use	-	-	-	-	-	-	-	-
4	Ring Balance/Computer Phase	10	0	0	4.6	2.3	50	16.9/41.9	55
5	Not in use	-	-	-	-	-	-	-	-
6	Mayfield Road - WB	12	8	19	4.6	2.0	70	51.6 (max)	65
7	Not in use	-	-	-	-	-	-	-	-
8	Hwy 410 NB Off Ramp	10	0	0	4.6	2.3	50	16.9/41.9	55

System Control	TIME (M-F)	PEAK	CYCLE LENGTH (s)	OFFSET (s)
Yes	07:00 - 09:00	AM	120	32
	FREE	OFF	0	0
	15:00 - 18:00	PM	120	19

Appendix C

Existing Traffic Level of Service Calculations

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	1116	105	55	555	235	49	79	94	583	289	254
Future Volume (vph)	138	1116	105	55	555	235	49	79	94	583	289	254
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	45.0		0.0	85.0		40.0	45.0		55.0	90.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1580	3427	0	1750	3245	1413	1716	3113	0	1640	3196	0
Flt Permitted	0.305			0.081			0.435			0.615		
Satd. Flow (perm)	507	3427	0	149	3245	1382	783	3113	0	1061	3196	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8				192			100			225
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		416.2			542.7			529.5			286.9	
Travel Time (s)		25.0			32.6			38.1			20.7	
Confl. Peds. (#/hr)	1		1	1		1	6					6
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	13%	2%	10%	2%	10%	13%	4%	8%	3%	8%	1%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	2	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	147	1187	112	59	590	250	52	84	100	620	307	270
Shared Lane Traffic (%)												
Lane Group Flow (vph)	147	1299	0	59	590	250	52	184	0	620	577	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.03	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases	5	2		1	6			4		3	8	
Permitted Phases	2			6		6	4			8		
Detector Phase	5	2		1	6	6	4	4		3	8	
Switch Phase												
Minimum Initial (s)	6.0	8.0		6.0	8.0	8.0	12.0	12.0		6.0	12.0	
Minimum Split (s)	9.0	34.6		9.0	34.6	34.6	34.9	34.9		9.0	34.9	
Total Split (s)	10.0	55.0		10.0	55.0	55.0	65.0	65.0		10.0	75.0	
Total Split (%)	7.1%	39.3%		7.1%	39.3%	39.3%	46.4%	46.4%		7.1%	53.6%	
Maximum Green (s)	7.0	48.4		7.0	48.4	48.4	58.1	58.1		7.0	68.1	
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.6		0.0	2.6	2.6	2.9	2.9		0.0	2.9	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	2.0	5.6		2.0	5.6	5.6	5.9	5.9		2.0	5.9	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recall Mode	None	C-Max		None	Max	Max	Max	Max		Max	None	
Walk Time (s)					8.0	8.0	8.0	8.0			8.0	
Flash Dont Walk (s)					20.0	20.0	20.0	20.0			20.0	
Pedestrian Calls (#/hr)					0	0	0	0			0	
Act Effect Green (s)	61.4	51.4		60.8	49.4	49.4	59.1	59.1		73.0	69.1	
Actuated g/C Ratio	0.44	0.37		0.43	0.35	0.35	0.42	0.42		0.52	0.49	
v/c Ratio	0.52	1.03		0.39	0.52	0.41	0.16	0.13		1.06	0.34	
Control Delay	23.5	60.4		24.8	29.5	6.3	26.8	11.4		85.0	13.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	23.5	60.4		24.8	29.5	6.3	26.8	11.4		85.0	13.1	
LOS	C	E		C	C	A	C	B		F	B	
Approach Delay				56.7			22.7			14.8		50.4
Approach LOS				E			C			B		D
Queue Length 50th (m)	14.0	~220.2		5.1	74.9	21.2	9.3	7.5		~150.6	30.6	
Queue Length 95th (m)	23.6	#258.5		10.1	94.8	42.9	19.3	15.4		#273.2	44.0	
Internal Link Dist (m)		392.2			518.7			505.5			262.9	
Turn Bay Length (m)	45.0			85.0			40.0	45.0			90.0	
Base Capacity (vph)	283	1263		156	1145	611	330	1371		586	1691	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.52	1.03		0.38	0.52	0.41	0.16	0.13		1.06	0.34	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 17 (12%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.06

Intersection Signal Delay: 44.0 Intersection LOS: D

Intersection Capacity Utilization 97.8% ICU Level of Service F

Analysis Period (min) 15

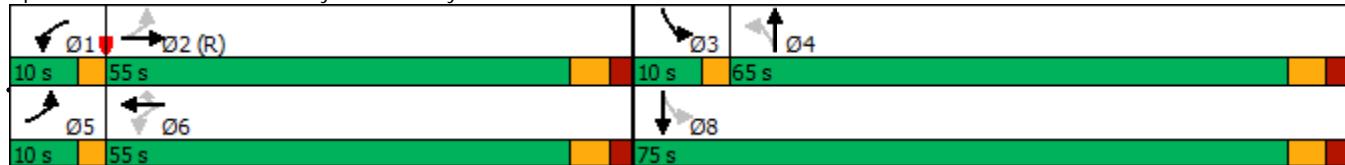
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 5: Kennedy Road & Mayfield Road



Lanes, Volumes, Timings

8: Heart Lake Road & Mayfield Road

02-25-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR								
Lane Configurations	1	2	1	1	2	1	1	1	1	1	1	1								
Traffic Volume (vph)	23	1204	558	128	784	15	114	13	20	36	86	46								
Future Volume (vph)	23	1204	558	128	784	15	114	13	20	36	86	46								
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900								
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5								
Grade (%)	0%			0%			0%			0%										
Storage Length (m)	125.0	200.0			160.0			160.0			60.0									
Storage Lanes	1	1			1			1			1									
Taper Length (m)	7.5	7.5			7.5			7.5			7.5									
Satd. Flow (prot)	1700	4839	1566	1733	4580	1238	1700	1879	1597	1785	1860	1597								
Flt Permitted	0.323	0.151			0.660			0.748												
Satd. Flow (perm)	578	4839	1566	275	4580	1238	1181	1879	1597	1405	1860	1597								
Right Turn on Red	Yes			Yes			Yes			Yes		Yes								
Satd. Flow (RTOR)	600			54			52			76										
Link Speed (k/h)	60			60			50			50										
Link Distance (m)	261.4			340.3			475.3			830.2										
Travel Time (s)	15.7			20.4			34.2			59.8										
Confl. Peds. (#/hr)																				
Confl. Bikes (#/hr)																				
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93								
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%								
Heavy Vehicles (%)	5%	6%	2%	3%	12%	29%	5%	0%	0%	0%	1%	0%								
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0								
Parking (#/hr)																				
Mid-Block Traffic (%)	0%			0%			0%			0%										
Adj. Flow (vph)	25	1295	600	138	843	16	123	14	22	39	92	49								
Shared Lane Traffic (%)																				
Lane Group Flow (vph)	25	1295	600	138	843	16	123	14	22	39	92	49								
Enter Blocked Intersection	No																			
Lane Alignment	Left	Left	Right																	
Median Width(m)	3.5			3.5			3.5			3.5										
Link Offset(m)	0.0			0.0			0.0			0.0										
Crosswalk Width(m)	4.8			4.8			4.8			4.8										
Two way Left Turn Lane																				
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01								
Turning Speed (k/h)	25	15			25			15			25									
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm								
Protected Phases	2			1			6			7		8								
Permitted Phases	2			6			6			4		8								
Detector Phase	2			1			6			7		8								
Switch Phase																				
Minimum Initial (s)	12.0	12.0	12.0	5.0	12.0	12.0	5.0	8.0	8.0	8.0	8.0	8.0								
Minimum Split (s)	35.7	35.7	35.7	9.0	35.7	35.7	9.0	39.9	39.9	39.9	39.9	39.9								
Total Split (s)	81.0	81.0	81.0	9.0	90.0	90.0	9.0	50.0	50.0	41.0	41.0	41.0								
Total Split (%)	57.9%	57.9%	57.9%	6.4%	64.3%	64.3%	6.4%	35.7%	35.7%	29.3%	29.3%	29.3%								
Maximum Green (s)	74.3	74.3	74.3	6.0	83.3	83.3	6.0	43.1	43.1	34.1	34.1	34.1								
Yellow Time (s)	4.6	4.6	4.6	3.0	4.6	4.6	3.0	4.0	4.0	4.0	4.0	4.0								
All-Red Time (s)	2.1	2.1	2.1	0.0	2.1	2.1	0.0	2.9	2.9	2.9	2.9	2.9								
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0								

Lanes, Volumes, Timings

8: Heart Lake Road & Mayfield Road

02-25-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.7	5.7	5.7	2.0	5.7	5.7	2.0	5.9	5.9	5.9	5.9	5.9
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	Yes
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
Minimum Gap (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
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Max	C-Max	C-Max	None	Max	Max	None	Max	Max	Max	Max	Max
Walk Time (s)	8.0	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0
Flash Dont Walk (s)	21.0	21.0	21.0		21.0	21.0		25.0	25.0	25.0	25.0	25.0
Pedestrian Calls (#/hr)	0	0	0		0	0		0	0	0	0	0
Act Effect Green (s)	75.3	75.3	75.3	88.0	84.3	84.3	48.0	44.1	44.1	35.1	35.1	35.1
Actuated g/C Ratio	0.54	0.54	0.54	0.63	0.60	0.60	0.34	0.32	0.32	0.25	0.25	0.25
v/c Ratio	0.08	0.50	0.54	0.56	0.31	0.02	0.29	0.02	0.04	0.11	0.20	0.11
Control Delay	18.6	20.8	3.5	19.7	13.9	0.1	34.8	33.4	0.1	41.6	42.8	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.6	20.8	3.5	19.7	13.9	0.1	34.8	33.4	0.1	41.6	42.8	3.6
LOS	B	C	A	B	B	A	C	C	A	D	D	A
Approach Delay		15.4			14.5			29.9			31.8	
Approach LOS		B			B			C			C	
Queue Length 50th (m)	3.2	73.6	15.0	15.3	41.8	0.0	25.4	2.8	0.0	8.8	21.3	0.0
Queue Length 95th (m)	m3.8	m74.1	m15.4	24.7	50.2	0.0	41.9	8.4	0.6	19.1	37.2	4.5
Internal Link Dist (m)		237.4			316.3			451.3			806.2	
Turn Bay Length (m)	125.0		200.0	160.0		160.0	125.0		60.0	85.0		55.0
Base Capacity (vph)	310	2602	1119	245	2757	766	430	591	538	352	466	457
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	0.08	0.50	0.54	0.56	0.31	0.02	0.29	0.02	0.04	0.11	0.20	0.11

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 66 (47%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 16.7

Intersection LOS: B

Intersection Capacity Utilization 61.3%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 8: Heart Lake Road & Mayfield Road



Lanes, Volumes, Timings

11: Inder Heights Drive/Snellview Boulevard & Mayfield Road

02-25-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑		↑	↑↑	↑	↑	↑			↔	
Traffic Volume (vph)	14	1241	11	14	983	5	9	0	21	24	1	54
Future Volume (vph)	14	1241	11	14	983	5	9	0	21	24	1	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	45.0		0.0	45.0		45.0	45.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1384	3388	0	1668	3216	1331	1463	1500	0	0	1592	0
Flt Permitted	0.208			0.129			0.708				0.920	
Satd. Flow (perm)	303	3388	0	227	3216	1299	1081	1500	0	0	1487	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	1				28		58				58	
Link Speed (k/h)	60			60			40				40	
Link Distance (m)	115.1			416.2			144.8				122.1	
Travel Time (s)	6.9			25.0			13.0				11.0	
Confl. Peds. (#/hr)	1					1	6		1	1		6
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	29%	5%	36%	7%	11%	20%	22%	0%	5%	13%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	15	1334	12	15	1057	5	10	0	23	26	1	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	1346	0	15	1057	5	10	23	0	0	85	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)	3.5			3.5			3.5				3.5	
Link Offset(m)	0.0			0.0			0.0				0.0	
Crosswalk Width(m)	4.8			4.8			4.8				4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Detector Phase	2	2		2	2	2	4	4		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0	12.0	8.0	8.0		8.0	8.0	
Minimum Split (s)	25.0	25.0		25.0	25.0	25.0	32.6	32.6		32.6	32.6	
Total Split (s)	90.0	90.0		90.0	90.0	90.0	50.0	50.0		50.0	50.0	
Total Split (%)	64.3%	64.3%		64.3%	64.3%	64.3%	35.7%	35.7%		35.7%	35.7%	
Maximum Green (s)	84.0	84.0		84.0	84.0	84.0	43.4	43.4		43.4	43.4	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

11: Inder Heights Drive/Snellview Boulevard & Mayfield Road

02-25-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.6	5.6			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max	C-Max	Max	Max		Max	Max	
Walk Time (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effect Green (s)	85.0	85.0		85.0	85.0	85.0	44.4	44.4			44.4	
Actuated g/C Ratio	0.61	0.61		0.61	0.61	0.61	0.32	0.32			0.32	
v/c Ratio	0.08	0.65		0.11	0.54	0.01	0.03	0.04			0.17	
Control Delay	12.9	19.8		11.5	12.5	0.0	33.4	0.1			12.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	12.9	19.8		11.5	12.5	0.0	33.4	0.1			12.1	
LOS	B	B		B	B	A	C	A			B	
Approach Delay		19.8			12.4				10.2		12.1	
Approach LOS		B			B				B		B	
Queue Length 50th (m)	1.7	128.0		1.3	54.0	0.0	2.0	0.0			4.0	
Queue Length 95th (m)	5.3	151.6		m3.2	64.4	m0.0	6.6	0.0			16.5	
Internal Link Dist (m)		91.1			392.2			120.8			98.1	
Turn Bay Length (m)	45.0			45.0		45.0	45.0					
Base Capacity (vph)	183	2057		137	1952	799	342	515			511	
Starvation Cap Reductn	0	0		0	0	0	0	0			0	
Spillback Cap Reductn	0	0		0	0	0	0	0			0	
Storage Cap Reductn	0	0		0	0	0	0	0			0	
Reduced v/c Ratio	0.08	0.65		0.11	0.54	0.01	0.03	0.04			0.17	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 16.3 Intersection LOS: B

Intersection Capacity Utilization 65.2% ICU Level of Service C

Analysis Period (min) 15

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

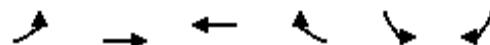
Splits and Phases: 11: Inder Heights Drive/Snellview Boulevard & Mayfield Road



Lanes, Volumes, Timings

14: Mayfield Road & Hwy 410 SB Off-Ramp

02-25-2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	834	826	0	536	83
Future Volume (vph)	0	834	826	0	536	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	110.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Satd. Flow (prot)	0	4749	4706	0	3400	1453
Flt Permitted					0.953	
Satd. Flow (perm)	0	4749	4706	0	3400	1453
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					2	75
Link Speed (k/h)	60	60			80	
Link Distance (m)	340.3	442.1			199.5	
Travel Time (s)	20.4	26.5			9.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	8%	9%	0%	2%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	959	949	0	616	95
Shared Lane Traffic (%)					10%	
Lane Group Flow (vph)	0	959	949	0	626	85
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)	3.5	3.5			7.0	
Link Offset(m)	0.0	0.0			0.0	
Crosswalk Width(m)	4.8	4.8			4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Turn Type		NA	NA		Prot	Perm
Protected Phases		2	2		4	
Permitted Phases					4	
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)	16.0	16.0		8.0	8.0	
Minimum Split (s)	27.0	27.0		37.0	37.0	
Total Split (s)	46.0	46.0		41.0	41.0	
Total Split (%)	52.9%	52.9%		47.1%	47.1%	
Maximum Green (s)	40.0	40.0		35.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

14: Mayfield Road & Hwy 410 SB Off-Ramp

02-25-2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Total Lost Time (s)	5.0	5.0		5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	
Recall Mode	Max	Max		Min	Min	
Walk Time (s)	10.0	10.0		20.0	20.0	
Flash Dont Walk (s)	6.0	6.0		6.0	6.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effect Green (s)	54.1	54.1		22.9	22.9	
Actuated g/C Ratio	0.62	0.62		0.26	0.26	
v/c Ratio	0.32	0.32		0.70	0.19	
Control Delay	8.7	8.7		32.9	7.9	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	8.7	8.7		32.9	7.9	
LOS	A	A		C	A	
Approach Delay	8.7	8.7		29.9		
Approach LOS	A	A		C		
Queue Length 50th (m)	26.0	25.7		51.1	1.4	
Queue Length 95th (m)	38.9	38.6		60.0	11.4	
Internal Link Dist (m)	316.3	418.1		175.5		
Turn Bay Length (m)				110.0		
Base Capacity (vph)	2955	2928		1408	645	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.32	0.32		0.44	0.13	

Intersection Summary

Area Type: Other

Cycle Length: 87

Actuated Cycle Length: 87

Offset: 9.5 (11%), Referenced to phase 6:, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 14.5 Intersection LOS: B

Intersection Capacity Utilization 68.8% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 14: Mayfield Road & Hwy 410 SB Off-Ramp



Lanes, Volumes, Timings

16: Hwy 410 NB Off-Ramp & Mayfield Road

02-25-2021



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑	↑↑	↑
Traffic Volume (vph)	1388	0	0	1000	198	786
Future Volume (vph)	1388	0	0	1000	198	786
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)		50.0	0.0		0.0	90.0
Storage Lanes		0	0		2	1
Taper Length (m)			7.5		7.5	
Satd. Flow (prot)	4885	0	0	4539	2953	1321
Flt Permitted					0.984	
Satd. Flow (perm)	4885	0	0	4539	2953	1321
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					20	20
Link Speed (k/h)	60			60	80	
Link Distance (m)	442.1			202.7	480.1	
Travel Time (s)	26.5			12.2	21.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	0%	0%	13%	8%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	1577	0	0	1136	225	893
Shared Lane Traffic (%)					50%	
Lane Group Flow (vph)	1577	0	0	1136	672	446
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases					4	
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	12.0			12.0	10.0	10.0
Minimum Split (s)	33.6			33.6	24.9	24.9
Total Split (s)	70.0			70.0	50.0	50.0
Total Split (%)	58.3%			58.3%	41.7%	41.7%
Maximum Green (s)	63.4			63.4	43.1	43.1
Yellow Time (s)	4.6			4.6	4.6	4.6
All-Red Time (s)	2.0			2.0	2.3	2.3
Lost Time Adjust (s)	-1.0			-1.0	-1.0	-1.0

Lanes, Volumes, Timings

16: Hwy 410 NB Off-Ramp & Mayfield Road

02-25-2021



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Total Lost Time (s)	5.6			5.6	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Minimum Gap (s)	3.0			3.0	3.0	3.0
Time Before Reduce (s)	0.0			0.0	0.0	0.0
Time To Reduce (s)	0.0			0.0	0.0	0.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	8.0			8.0		
Flash Dont Walk (s)	19.0			19.0		
Pedestrian Calls (#/hr)	0			0		
Act Effect Green (s)	66.3			66.3	42.2	42.2
Actuated g/C Ratio	0.55			0.55	0.35	0.35
v/c Ratio	0.58			0.45	0.85dr	0.94
Control Delay	19.2			17.1	34.4	63.9
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	19.2			17.1	34.4	63.9
LOS	B			B	C	E
Approach Delay	19.2			17.1	46.1	
Approach LOS	B			B	D	
Queue Length 50th (m)	94.1			61.1	67.3	109.4
Queue Length 95th (m)	105.5			71.0	85.0	#173.0
Internal Link Dist (m)	418.1			178.7	456.1	
Turn Bay Length (m)					90.0	
Base Capacity (vph)	2698			2506	1097	498
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.58			0.45	0.61	0.90

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 32 (27%), Referenced to phase 2:EBWB and 6:, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 26.5 Intersection LOS: C

Intersection Capacity Utilization 68.8% ICU Level of Service C

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 16: Hwy 410 NB Off-Ramp & Mayfield Road



HCM Unsigned Intersection Capacity Analysis

18: Kennedy Road & Snellview Boulevard

02-28-2021



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑↓	
Traffic Volume (veh/h)	2	55	25	427	1071	2
Future Volume (Veh/h)	2	55	25	427	1071	2
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)	2	59	27	454	1139	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)				287		
pX, platoon unblocked	0.97					
vC, conflicting volume	1648	570	1141			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1652	570	1141			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	87	96			
cM capacity (veh/h)	85	469	620			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	2	59	27	454	759	382
Volume Left	2	0	27	0	0	0
Volume Right	0	59	0	0	0	2
cSH	85	469	620	1700	1700	1700
Volume to Capacity	0.02	0.13	0.04	0.27	0.45	0.22
Queue Length 95th (m)	0.6	3.4	1.1	0.0	0.0	0.0
Control Delay (s)	48.4	13.8	11.1	0.0	0.0	0.0
Lane LOS	E	B	B			
Approach Delay (s)	14.9		0.6		0.0	
Approach LOS	B					
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			39.7%		ICU Level of Service	
Analysis Period (min)			15			A

HCM Unsignalized Intersection Capacity Analysis

20: Stonegate Drive & Mayfield Road

02-28-2021



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1725	3	26	947	2	80
Future Volume (Veh/h)	1725	3	26	947	2	80
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	1797	3	27	986	2	83
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		1800		2346	900	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol		1800		2346	900	
tC, single (s)		4.3		6.8	7.0	
tC, 2 stage (s)						
tF (s)		2.3		3.5	3.3	
p0 queue free %		91		93	70	
cM capacity (veh/h)		314		28	280	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	1198	602	27	493	493	85
Volume Left	0	0	27	0	0	2
Volume Right	0	3	0	0	0	83
cSH	1700	1700	314	1700	1700	231
Volume to Capacity	0.70	0.35	0.09	0.29	0.29	0.37
Queue Length 95th (m)	0.0	0.0	2.2	0.0	0.0	12.8
Control Delay (s)	0.0	0.0	17.5	0.0	0.0	29.3
Lane LOS			C		D	
Approach Delay (s)	0.0		0.5		29.3	
Approach LOS				D		
Intersection Summary						
Average Delay		1.0				
Intersection Capacity Utilization		59.5%		ICU Level of Service		B
Analysis Period (min)		15				

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	239	654	74	146	1016	536	104	240	94	255	138	164
Future Volume (vph)	239	654	74	146	1016	536	104	240	94	255	138	164
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	45.0		0.0	85.0		40.0	45.0		55.0	90.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1785	3340	0	1785	3500	1597	1785	3400	0	1719	3238	0
Flt Permitted	0.083			0.264			0.559			0.467		
Satd. Flow (perm)	156	3340	0	495	3500	1558	1043	3400	0	841	3238	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10				250			46			173
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		416.2			542.7			529.5			286.9	
Travel Time (s)		25.0			32.6			38.1			20.7	
Confl. Peds. (#/hr)	2		4	4		2	7		6	6		7
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	5%	6%	0%	2%	0%	0%	0%	0%	3%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	2	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	252	688	78	154	1069	564	109	253	99	268	145	173
Shared Lane Traffic (%)												
Lane Group Flow (vph)	252	766	0	154	1069	564	109	352	0	268	318	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.03	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases	5	2		1	6			4		3	8	
Permitted Phases	2			6		6	4			8		
Detector Phase	5	2		1	6	6	4	4		3	8	
Switch Phase												
Minimum Initial (s)	6.0	8.0		6.0	8.0	8.0	12.0	12.0		6.0	12.0	
Minimum Split (s)	9.0	34.6		9.0	34.6	34.6	34.9	34.9		9.0	34.9	
Total Split (s)	20.0	54.0		20.0	54.0	54.0	51.0	51.0		10.0	61.0	
Total Split (%)	14.8%	40.0%		14.8%	40.0%	40.0%	37.8%	37.8%		7.4%	45.2%	
Maximum Green (s)	17.0	47.4		17.0	47.4	47.4	44.1	44.1		7.0	54.1	
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.6		0.0	2.6	2.6	2.9	2.9		0.0	2.9	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	2.0	5.6		2.0	5.6	5.6	5.9	5.9		2.0	5.9	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recall Mode	None	C-Max		None	Max	Max	Max	Max		Max	None	
Walk Time (s)				8.0		8.0	8.0	8.0			8.0	
Flash Dont Walk (s)				20.0		20.0	20.0	20.0			20.0	
Pedestrian Calls (#/hr)				0		0	0	0			0	
Act Effect Green (s)	72.0	53.9		65.4	49.3	49.3	45.1	45.1		59.0	55.1	
Actuated g/C Ratio	0.53	0.40		0.48	0.37	0.37	0.33	0.33		0.44	0.41	
v/c Ratio	0.87	0.57		0.43	0.84	0.78	0.31	0.30		0.64	0.22	
Control Delay	78.5	33.5		18.0	47.7	30.0	36.6	29.5		35.1	11.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	78.5	33.5		18.0	47.7	30.0	36.6	29.5		35.1	11.9	
LOS	E	C		B	D	C	D	C		D	B	
Approach Delay				44.6		39.6			31.2		22.5	
Approach LOS				D		D		C			C	
Queue Length 50th (m)	66.5	63.7		26.9	155.8	98.2	22.7	33.1		49.4	13.1	
Queue Length 95th (m)	#100.2	86.2		m41.2	186.2	151.1	40.0	46.6		72.4	23.3	
Internal Link Dist (m)				392.2		518.7		505.5			262.9	
Turn Bay Length (m)	45.0			85.0		40.0	45.0			90.0		
Base Capacity (vph)	300	1340		430	1277	727	348	1166		419	1423	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.84	0.57		0.36	0.84	0.78	0.31	0.30		0.64	0.22	

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 13 (10%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 37.3

Intersection LOS: D

Intersection Capacity Utilization 95.0%

ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 5: Kennedy Road & Mayfield Road



Lanes, Volumes, Timings

8: Heart Lake Road & Mayfield Road

02-25-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR									
Lane Configurations	↑	↑↑↑	↑	↑	↑↑↑	↑	↑	↑	↑	↑	↑	↑									
Traffic Volume (vph)	34	858	126	41	1238	46	330	46	12	30	29	23									
Future Volume (vph)	34	858	126	41	1238	46	330	46	12	30	29	23									
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900									
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5									
Grade (%)	0%			0%			0%			0%											
Storage Length (m)	125.0	200.0			160.0			160.0			60.0										
Storage Lanes	1	1			1			1			1										
Taper Length (m)	7.5	7.5			7.5			7.5			7.5										
Satd. Flow (prot)	1733	4706	1507	1700	4980	1566	1767	1879	1465	1668	1807	1521									
Flt Permitted	0.174	0.253			0.697			0.725													
Satd. Flow (perm)	317	4706	1507	453	4980	1566	1297	1879	1465	1273	1807	1521									
Right Turn on Red	Yes			Yes			Yes			Yes											
Satd. Flow (RTOR)	135			56			54			78											
Link Speed (k/h)	60			60			50			50											
Link Distance (m)	261.4			340.3			475.3			830.2											
Travel Time (s)	15.7			20.4			34.2			59.8											
Confl. Peds. (#/hr)																					
Confl. Bikes (#/hr)																					
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93									
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%									
Heavy Vehicles (%)	3%	9%	6%	5%	3%	2%	1%	0%	9%	7%	4%	5%									
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0									
Parking (#/hr)																					
Mid-Block Traffic (%)	0%			0%			0%			0%											
Adj. Flow (vph)	37	923	135	44	1331	49	355	49	13	32	31	25									
Shared Lane Traffic (%)																					
Lane Group Flow (vph)	37	923	135	44	1331	49	355	49	13	32	31	25									
Enter Blocked Intersection	No																				
Lane Alignment	Left	Left	Right																		
Median Width(m)	3.5			3.5			3.5			3.5											
Link Offset(m)	0.0			0.0			0.0			0.0											
Crosswalk Width(m)	4.8			4.8			4.8			4.8											
Two way Left Turn Lane																					
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01									
Turning Speed (k/h)	25	15			25			15			25										
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm									
Protected Phases	2			1			6			7											
Permitted Phases	2			6			4			4											
Detector Phase	2			1			6			7											
Switch Phase																					
Minimum Initial (s)	12.0	12.0	12.0	5.0	12.0	12.0	5.0	8.0	8.0	8.0	8.0	8.0									
Minimum Split (s)	35.7	35.7	35.7	9.0	35.7	35.7	9.0	39.9	39.9	39.9	39.9	39.9									
Total Split (s)	76.0	76.0	76.0	9.0	85.0	85.0	9.0	50.0	50.0	41.0	41.0	41.0									
Total Split (%)	56.3%	56.3%	56.3%	6.7%	63.0%	63.0%	6.7%	37.0%	37.0%	30.4%	30.4%	30.4%									
Maximum Green (s)	69.3	69.3	69.3	6.0	78.3	78.3	6.0	43.1	43.1	34.1	34.1	34.1									
Yellow Time (s)	4.6	4.6	4.6	3.0	4.6	4.6	3.0	4.0	4.0	4.0	4.0	4.0									
All-Red Time (s)	2.1	2.1	2.1	0.0	2.1	2.1	0.0	2.9	2.9	2.9	2.9	2.9									
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0									

Lanes, Volumes, Timings

8: Heart Lake Road & Mayfield Road

02-25-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.7	5.7	5.7	2.0	5.7	5.7	2.0	5.9	5.9	5.9	5.9	5.9
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	Yes
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
Minimum Gap (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
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Max	C-Max	C-Max	None	Max	Max	None	Max	Max	Max	Max	Max
Walk Time (s)	8.0	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0
Flash Dont Walk (s)	21.0	21.0	21.0		21.0	21.0		25.0	25.0	25.0	25.0	25.0
Pedestrian Calls (#/hr)	0	0	0		0	0		0	0	0	0	0
Act Effect Green (s)	72.1	72.1	72.1	83.0	79.3	79.3	48.0	44.1	44.1	35.1	35.1	35.1
Actuated g/C Ratio	0.53	0.53	0.53	0.61	0.59	0.59	0.36	0.33	0.33	0.26	0.26	0.26
v/c Ratio	0.22	0.37	0.16	0.13	0.46	0.05	0.73	0.08	0.03	0.10	0.07	0.06
Control Delay	33.6	31.2	11.3	11.2	16.3	2.5	47.2	32.0	0.1	39.1	38.3	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	0.0
Total Delay	33.6	31.2	11.3	11.2	16.3	2.5	47.2	32.0	0.1	39.1	38.3	0.2
LOS	C	C	B	B	B	A	D	C	A	D	D	A
Approach Delay						15.7			44.0			27.8
Approach LOS		C				B			D			C
Queue Length 50th (m)	8.3	83.0	8.1	4.6	73.5	0.0	80.0	9.5	0.0	6.9	6.6	0.0
Queue Length 95th (m)	m15.6	93.4	m24.5	9.7	84.9	4.7	113.3	19.3	0.0	15.9	15.2	0.0
Internal Link Dist (m)			237.4			316.3			451.3			806.2
Turn Bay Length (m)	125.0		200.0	160.0		160.0	125.0		60.0	85.0		55.0
Base Capacity (vph)	169	2513	867	343	2925	942	485	613	514	330	469	453
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	0.22	0.37	0.16	0.13	0.46	0.05	0.73	0.08	0.03	0.10	0.07	0.06

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 26 (19%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 24.7

Intersection LOS: C

Intersection Capacity Utilization 68.7%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 8: Heart Lake Road & Mayfield Road



Lanes, Volumes, Timings

11: Inder Heights Drive/Snellview Boulevard & Mayfield Road

02-25-2021

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑		↑	↑↑	↑	↑	↑↑		↔	↔	↓
Traffic Volume (vph)	56	1007	14	16	1169	19	1	0	7	10	1	34
Future Volume (vph)	56	1007	14	16	1169	19	1	0	7	10	1	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%			0%			0%		
Storage Length (m)	45.0		0.0	45.0		45.0	45.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1668	3239	0	1684	3400	1521	1785	1597	0	0	1545	0
Flt Permitted	0.170			0.213			0.774				0.954	
Satd. Flow (perm)	299	3239	0	377	3400	1521	1450	1597	0	0	1490	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	2				29		127				37	
Link Speed (k/h)	60			60			40				40	
Link Distance (m)	115.1			416.2			144.8				122.1	
Travel Time (s)	6.9			25.0			13.0				11.0	
Confl. Peds. (#/hr)		1	1			2					2	
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	10%	7%	6%	5%	5%	0%	0%	0%	0%	0%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%		0%		0%		0%		0%		0%
Adj. Flow (vph)	60	1083	15	17	1257	20	1	0	8	11	1	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	1098	0	17	1257	20	1	8	0	0	49	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)	3.5			3.5			3.5				3.5	
Link Offset(m)	0.0			0.0			0.0				0.0	
Crosswalk Width(m)	4.8			4.8			4.8				4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Detector Phase	2	2		2	2	2	4	4		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0	12.0	8.0	8.0		8.0	8.0	
Minimum Split (s)	25.0	25.0		25.0	25.0	25.0	32.6	32.6		32.6	32.6	
Total Split (s)	95.0	95.0		95.0	95.0	95.0	40.0	40.0		40.0	40.0	
Total Split (%)	70.4%	70.4%		70.4%	70.4%	70.4%	29.6%	29.6%		29.6%	29.6%	
Maximum Green (s)	89.0	89.0		89.0	89.0	89.0	33.4	33.4		33.4	33.4	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

11: Inder Heights Drive/Snellview Boulevard & Mayfield Road

02-25-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.6	5.6			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max	C-Max	Max	Max		Max	Max	
Walk Time (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effect Green (s)	90.0	90.0		90.0	90.0	90.0	34.4	34.4			34.4	
Actuated g/C Ratio	0.67	0.67		0.67	0.67	0.67	0.25	0.25			0.25	
v/c Ratio	0.30	0.51		0.07	0.55	0.02	0.00	0.02			0.12	
Control Delay	14.3	12.3		3.8	3.9	0.1	38.0	0.0			18.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	14.3	12.3		3.8	3.9	0.1	38.0	0.0			18.8	
LOS	B	B		A	A	A	D	A			B	
Approach Delay					3.9				4.2			18.8
Approach LOS		B			A				A			B
Queue Length 50th (m)	6.5	75.7		0.5	20.7	0.0	0.2	0.0			3.9	
Queue Length 95th (m)	15.8	91.6		m0.8	24.7	m0.0	1.7	0.0			m7.9	
Internal Link Dist (m)		91.1			392.2				120.8		98.1	
Turn Bay Length (m)	45.0			45.0			45.0	45.0				
Base Capacity (vph)	199	2160		251	2266	1023	369	501			407	
Starvation Cap Reductn	0	0		0	0	0	0	0			0	
Spillback Cap Reductn	0	0		0	0	0	0	0			0	
Storage Cap Reductn	0	0		0	0	0	0	0			0	
Reduced v/c Ratio	0.30	0.51		0.07	0.55	0.02	0.00	0.02			0.12	

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 15 (11%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.55

Intersection Signal Delay: 8.1 Intersection LOS: A

Intersection Capacity Utilization 77.0% ICU Level of Service D

Analysis Period (min) 15

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

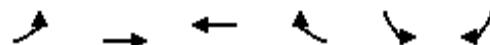
Splits and Phases: 11: Inder Heights Drive/Snellview Boulevard & Mayfield Road



Lanes, Volumes, Timings

14: Mayfield Road & Hwy 410 SB Off-Ramp

02-25-2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	609	1379	0	119	12
Future Volume (vph)	0	609	1379	0	119	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	110.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Satd. Flow (prot)	0	4663	5029	0	3338	1453
Flt Permitted					0.953	
Satd. Flow (perm)	0	4663	5029	0	3338	1453
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					1	12
Link Speed (k/h)		60	60		80	
Link Distance (m)		340.3	442.1		199.5	
Travel Time (s)		20.4	26.5		9.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	10%	2%	0%	4%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	648	1467	0	127	13
Shared Lane Traffic (%)					10%	
Lane Group Flow (vph)	0	648	1467	0	128	12
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		7.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Turn Type		NA	NA		Prot	Perm
Protected Phases		2	2		4	
Permitted Phases					4	
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)		16.0	16.0		8.0	8.0
Minimum Split (s)		27.0	27.0		37.0	37.0
Total Split (s)		46.0	46.0		41.0	41.0
Total Split (%)		52.9%	52.9%		47.1%	47.1%
Maximum Green (s)		40.0	40.0		35.0	35.0
Yellow Time (s)		4.0	4.0		4.0	4.0
All-Red Time (s)		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-1.0	-1.0		-1.0	-1.0

Lanes, Volumes, Timings

14: Mayfield Road & Hwy 410 SB Off-Ramp

02-25-2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Total Lost Time (s)	5.0	5.0		5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	
Recall Mode	Max	Max		Min	Min	
Walk Time (s)	10.0	10.0				
Flash Dont Walk (s)	6.0	6.0				
Pedestrian Calls (#/hr)	0	0				
Act Effect Green (s)	66.9	66.9		10.1	10.1	
Actuated g/C Ratio	0.77	0.77		0.12	0.12	
v/c Ratio	0.18	0.38		0.33	0.07	
Control Delay	2.9	3.7		37.1	18.4	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	2.9	3.7		37.1	18.4	
LOS	A	A		D	B	
Approach Delay	2.9	3.7		35.5		
Approach LOS	A	A		D		
Queue Length 50th (m)	8.4	23.2		10.7	0.0	
Queue Length 95th (m)	13.1	33.2		18.7	5.4	
Internal Link Dist (m)	316.3	418.1		175.5		
Turn Bay Length (m)				110.0		
Base Capacity (vph)	3585	3867		1381	608	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.18	0.38		0.09	0.02	

Intersection Summary

Area Type: Other

Cycle Length: 87

Actuated Cycle Length: 87

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

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.38

Intersection Signal Delay: 5.4 Intersection LOS: A

Intersection Capacity Utilization 62.4% ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 14: Mayfield Road & Hwy 410 SB Off-Ramp



Lanes, Volumes, Timings

16: Hwy 410 NB Off-Ramp & Mayfield Road

02-25-2021



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑	↑↑	↑
Traffic Volume (vph)	723	0	0	1501	545	789
Future Volume (vph)	723	0	0	1501	545	789
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)		50.0	0.0		0.0	90.0
Storage Lanes		0	0		2	1
Taper Length (m)			7.5		7.5	
Satd. Flow (prot)	4706	0	0	4885	3187	1346
Flt Permitted					0.971	
Satd. Flow (perm)	4706	0	0	4885	3187	1346
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					138	138
Link Speed (k/h)	60			60	80	
Link Distance (m)	442.1			202.7	480.1	
Travel Time (s)	26.5			12.2	21.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	9%	0%	0%	5%	2%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	777	0	0	1614	586	848
Shared Lane Traffic (%)					46%	
Lane Group Flow (vph)	777	0	0	1614	976	458
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases					4	
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	12.0			12.0	10.0	10.0
Minimum Split (s)	33.6			33.6	22.5	22.5
Total Split (s)	65.0			65.0	55.0	55.0
Total Split (%)	54.2%			54.2%	45.8%	45.8%
Maximum Green (s)	58.4			58.4	48.1	48.1
Yellow Time (s)	4.6			4.6	4.6	4.6
All-Red Time (s)	2.0			2.0	2.3	2.3
Lost Time Adjust (s)	-1.0			-1.0	-1.0	-1.0

Lanes, Volumes, Timings

16: Hwy 410 NB Off-Ramp & Mayfield Road

02-25-2021



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Total Lost Time (s)	5.6			5.6	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Minimum Gap (s)	3.0			3.0	3.0	3.0
Time Before Reduce (s)	0.0			0.0	0.0	0.0
Time To Reduce (s)	0.0			0.0	0.0	0.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	8.0			8.0		
Flash Dont Walk (s)	19.0			19.0		
Pedestrian Calls (#/hr)	0			0		
Act Effect Green (s)	67.0			67.0	41.5	41.5
Actuated g/C Ratio	0.56			0.56	0.35	0.35
v/c Ratio	0.30			0.59	0.82	0.82
Control Delay	15.2			19.5	36.2	37.2
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	15.2			19.5	36.2	37.2
LOS	B			B	D	D
Approach Delay	15.2			19.5	36.5	
Approach LOS	B			B	D	
Queue Length 50th (m)	35.9			93.2	98.2	82.4
Queue Length 95th (m)	51.2			124.2	112.9	122.1
Internal Link Dist (m)	418.1			178.7	456.1	
Turn Bay Length (m)					90.0	
Base Capacity (vph)	2626			2726	1385	632
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.30			0.59	0.70	0.72

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 19 (16%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 25.0

Intersection LOS: C

Intersection Capacity Utilization 62.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 16: Hwy 410 NB Off-Ramp & Mayfield Road



HCM Unsigned Intersection Capacity Analysis

18: Kennedy Road & Snellview Boulevard

02-28-2021



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑↓	
Traffic Volume (veh/h)	2	44	75	940	513	4
Future Volume (Veh/h)	2	44	75	940	513	4
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)	2	46	79	989	540	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)				287		
pX, platoon unblocked	0.83					
vC, conflicting volume	1689	272	544			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1728	272	544			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	94	92			
cM capacity (veh/h)	62	732	1035			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	2	46	79	989	360	184
Volume Left	2	0	79	0	0	0
Volume Right	0	46	0	0	0	4
cSH	62	732	1035	1700	1700	1700
Volume to Capacity	0.03	0.06	0.08	0.58	0.21	0.11
Queue Length 95th (m)	0.8	1.6	2.0	0.0	0.0	0.0
Control Delay (s)	64.8	10.2	8.8	0.0	0.0	0.0
Lane LOS	F	B	A			
Approach Delay (s)	12.5		0.6		0.0	
Approach LOS	B					
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			59.5%		ICU Level of Service	
Analysis Period (min)			15			B

HCM Unsignalized Intersection Capacity Analysis

20: Stonegate Drive & Mayfield Road

02-28-2021



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1109	13	92	1744	2	36
Future Volume (Veh/h)	1109	13	92	1744	2	36
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1205	14	100	1896	2	39
Pedestrians	1					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume		1219		2361	610	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol		1219		2361	610	
tC, single (s)		4.1		6.8	6.9	
tC, 2 stage (s)						
tF (s)		2.2		3.5	3.3	
p0 queue free %		83		92	91	
cM capacity (veh/h)		573		25	443	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	803	416	100	948	948	41
Volume Left	0	0	100	0	0	2
Volume Right	0	14	0	0	0	39
cSH	1700	1700	573	1700	1700	244
Volume to Capacity	0.47	0.24	0.17	0.56	0.56	0.17
Queue Length 95th (m)	0.0	0.0	5.0	0.0	0.0	4.7
Control Delay (s)	0.0	0.0	12.6	0.0	0.0	22.7
Lane LOS			B		C	
Approach Delay (s)	0.0		0.6		22.7	
Approach LOS					C	
Intersection Summary						
Average Delay		0.7				
Intersection Capacity Utilization		58.2%		ICU Level of Service		B
Analysis Period (min)		15				

Appendix D

Background Growth Rates

Date: January 8, 2021

From: Sam Nguyen, NexTrans Consulting Engineers

Re: Growth Rates Data Request – Mayfield Road east of Kennedy Road

Sam,

Here are the estimated CAGR values for Mayfield Road east of Kennedy Road:

2016 – 2021	2021 - 2031
1.5%	5.0%

These growth rates are estimated based on multiple sources including Peel Travel Demand forecasting model, ATR and land use/forecasts data. These rates assume a road widening from 2 to 3 lanes in each direction taking place around 2026. Please note that this area may be further affected by future growth (after 2031 and beyond). Please use your professional judgement when using these values.

If you require further assistance, please contact me at (905) 791-7800 ext. 4810.

Regards,

Tiggy Chen

Co-op Student, Transportation System Planning

Transportation Division, Public Works Services, Region of Peel

10 Peel Centre Drive, Suite B, 4th Floor

Brampton, ON L6T 4B9

W: (905) 791-7800 x4810 C: (647) 918-2827

E: tiggy.chen@peelregion.ca

Appendix E

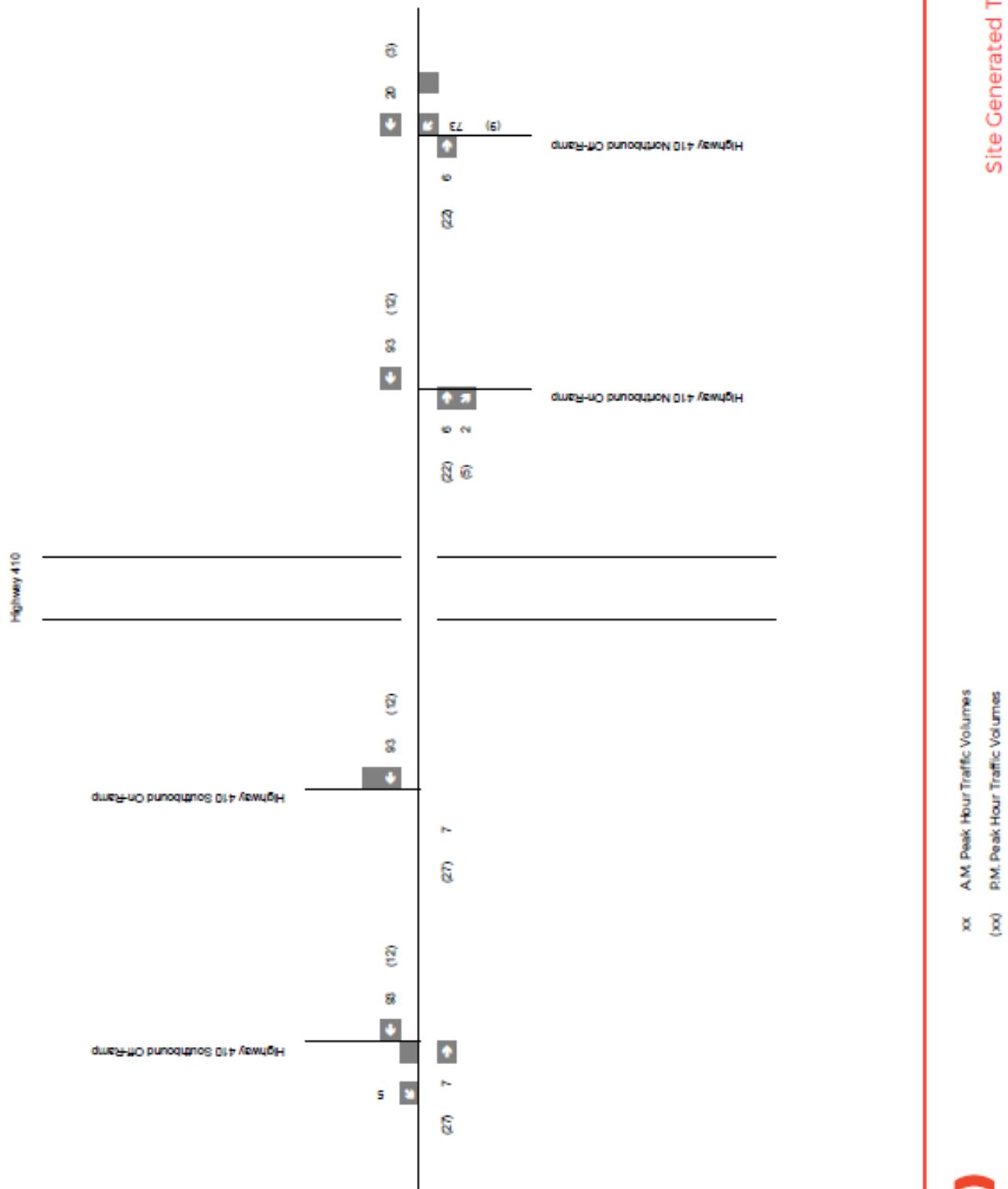
Background Development Traffic Volumes

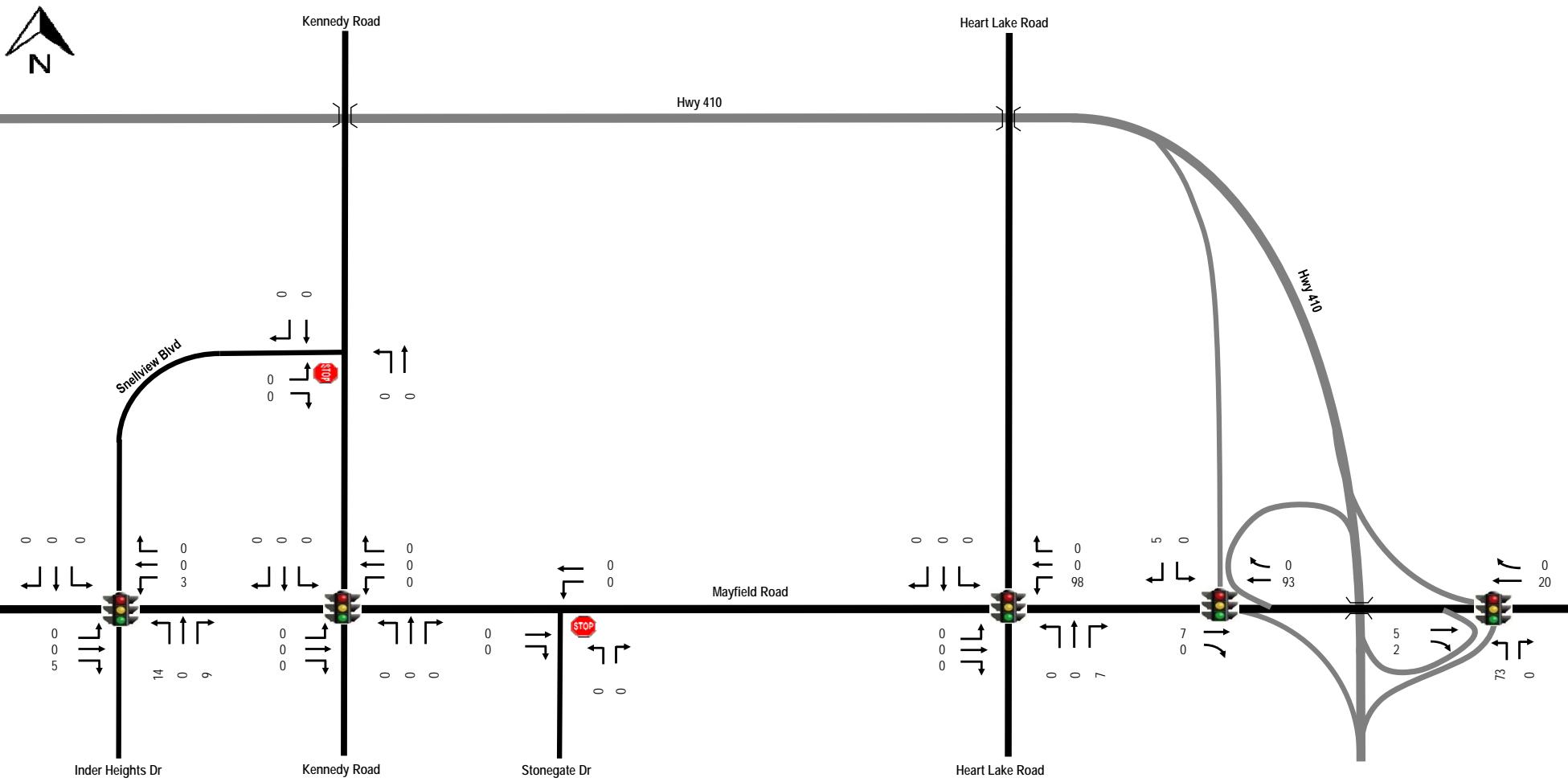
Subdivision 17014B (South-west corner of Kennedy and Mayfield)

ITE Land Use	Magnitude (units)	Parameters	Morning Peak Hour			Afternoon Peak Hour				
			In	Out	Total	In	Out	Total		
Single-Family Detached Housing LUC 210 General Urban/Suburban	182	Trip Rates AM - $T = 0.71(X) + 4.80$ - $\ln(T) = 0.96\ln(X) + 0.20$	PM	0.19	0.55	0.74	0.62	0.37	0.99	
		Total Trips		34	100	134	114	67	181	
		Mode	AM	PM						
		Transit	5%	5%	2	5	7	6	3	9
		New Auto Trips		32	95	127	108	64	172	
Multifamily Housing (Low-Rise) LUC 220 General Urban/Suburban	177	Trip Rates AM - $\ln(T) = 0.051\ln(Y) - 0.51$		0.11	0.35	0.46	0.35	0.2	0.55	
		Total Trips		19	63	82	62	36	98	
		Mode	AM	PM						
		Transit	5%	5%	1	3	4	3	2	5
		New Auto Trips		18	60	78	59	34	93	
<i>Total Trips</i>				53	163	216	176	103	279	
<i>Transit Modal Split (5%)</i>				3	8	11	9	5	14	
<i>Total New Auto Trips</i>				50	155	205	167	98	265	

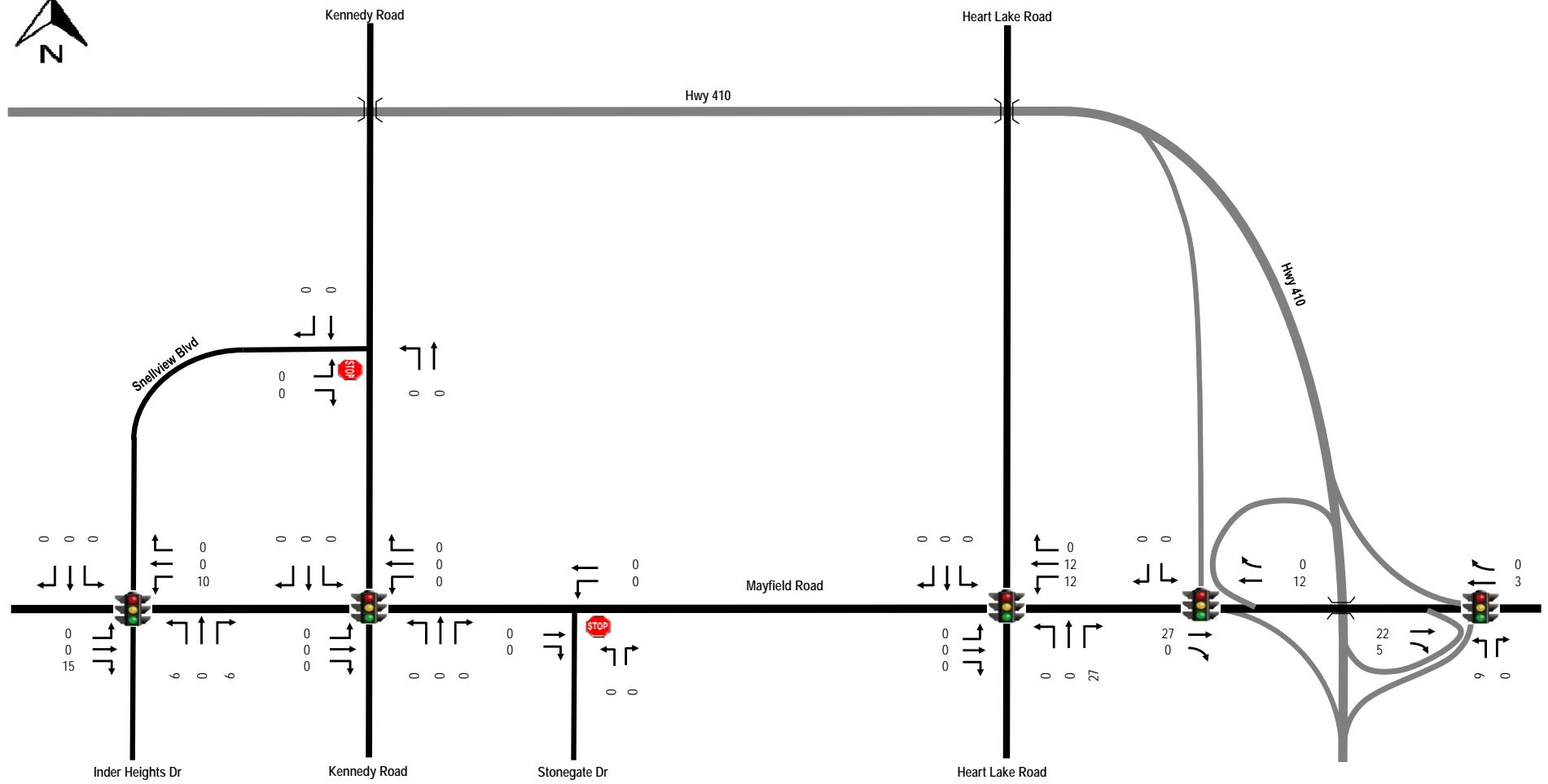
WSDOT

FIGURE 5.2
Site Generated Traffic Volumes





Not to Scale



Not to Scale

Appendix F

Future Background Level of Service Calculations

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	1230	109	57	612	244	51	82	98	607	301	264
Future Volume (vph)	144	1230	109	57	612	244	51	82	98	607	301	264
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%				0%			0%			0%	
Storage Length (m)	45.0		0.0	85.0		40.0	45.0		55.0	90.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1580	3432	0	1750	3245	1413	1716	3113	0	1640	3196	0
Flt Permitted	0.292			0.081			0.440			0.617		
Satd. Flow (perm)	485	3432	0	149	3245	1382	792	3113	0	1065	3196	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				181			98			223
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		416.2			542.7			529.5			286.9	
Travel Time (s)		25.0			32.6			38.1			20.7	
Confl. Peds. (#/hr)	1		1	1		1	6					6
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	13%	2%	10%	2%	10%	13%	4%	8%	3%	8%	1%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	2	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	144	1230	109	57	612	244	51	82	98	607	301	264
Shared Lane Traffic (%)												
Lane Group Flow (vph)	144	1339	0	57	612	244	51	180	0	607	565	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.03	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases	5	2		1	6			4		3	8	
Permitted Phases	2			6		6	4			8		
Detector Phase	5	2		1	6	6	4	4		3	8	
Switch Phase												
Minimum Initial (s)	6.0	8.0		6.0	8.0	8.0	12.0	12.0		6.0	12.0	
Minimum Split (s)	9.0	34.6		9.0	34.6	34.6	34.9	34.9		9.0	34.9	
Total Split (s)	10.0	55.0		10.0	55.0	55.0	65.0	65.0		10.0	75.0	
Total Split (%)	7.1%	39.3%		7.1%	39.3%	39.3%	46.4%	46.4%		7.1%	53.6%	
Maximum Green (s)	7.0	48.4		7.0	48.4	48.4	58.1	58.1		7.0	68.1	
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.6		0.0	2.6	2.6	2.9	2.9		0.0	2.9	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	2.0	5.6		2.0	5.6	5.6	5.9	5.9		2.0	5.9	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recall Mode	None	C-Max		None	Max	Max	Max	Max		Max	None	
Walk Time (s)					8.0	8.0	8.0	8.0			8.0	
Flash Dont Walk (s)					20.0	20.0	20.0	20.0			20.0	
Pedestrian Calls (#/hr)					0	0	0	0			0	
Act Effect Green (s)	61.4	51.4		60.8	49.4	49.4	59.1	59.1		73.0	69.1	
Actuated g/C Ratio	0.44	0.37		0.43	0.35	0.35	0.42	0.42		0.52	0.49	
v/c Ratio	0.53	1.06		0.37	0.53	0.40	0.15	0.13		1.03	0.33	
Control Delay	24.0	70.3		24.1	30.0	6.4	26.6	11.4		77.4	13.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	24.0	70.3		24.1	30.0	6.4	26.6	11.4		77.4	13.0	
LOS	C	E		C	C	A	C	B		E	B	
Approach Delay				65.8			23.3			14.8		46.4
Approach LOS				E			C			B		D
Queue Length 50th (m)	13.8	~231.6		5.0	78.0	15.8	9.1	7.3		~139.2	29.6	
Queue Length 95th (m)	m23.6	#271.4		9.9	98.0	33.5	19.0	15.2		#255.1	42.9	
Internal Link Dist (m)		392.2			518.7			505.5			262.9	
Turn Bay Length (m)	45.0			85.0			40.0	45.0			90.0	
Base Capacity (vph)	274	1264		156	1145	604	334	1370		588	1690	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.53	1.06		0.37	0.53	0.40	0.15	0.13		1.03	0.33	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 17 (12%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.06

Intersection Signal Delay: 46.5 Intersection LOS: D

Intersection Capacity Utilization 102.4% ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

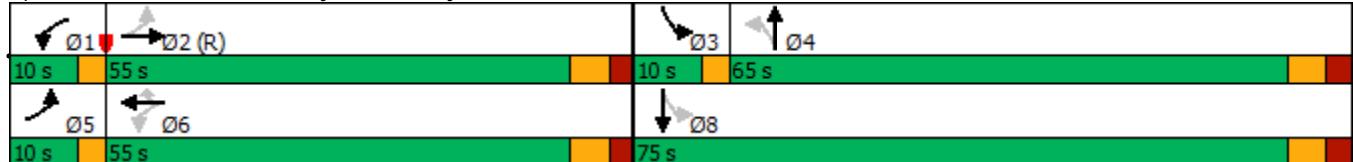
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 5: Kennedy Road & Mayfield Road



Lanes, Volumes, Timings

8: Heart Lake Road & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↑	↑	↑	↑↑↑	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	24	1327	581	231	864	16	119	14	28	37	89	48
Future Volume (vph)	24	1327	581	231	864	16	119	14	28	37	89	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%			0%			0%		
Storage Length (m)	125.0		200.0	160.0		160.0	125.0		60.0	85.0		55.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1700	4839	1566	1733	4580	1238	1700	1879	1597	1785	1860	1597
Flt Permitted	0.316			0.144			0.662			0.748		
Satd. Flow (perm)	565	4839	1566	263	4580	1238	1185	1879	1597	1405	1860	1597
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		581				54			52			76
Link Speed (k/h)	60			60			50			50		
Link Distance (m)	261.4			340.3			475.3			830.2		
Travel Time (s)	15.7			20.4			34.2			59.8		
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	6%	2%	3%	12%	29%	5%	0%	0%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	24	1327	581	231	864	16	119	14	28	37	89	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	1327	581	231	864	16	119	14	28	37	89	48
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)	3.5			3.5			3.5			3.5		
Link Offset(m)	0.0			0.0			0.0			0.0		
Crosswalk Width(m)	4.8			4.8			4.8			4.8		
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		2		1	6		7	4			8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	2	2	2	1	6	6	7	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	12.0	12.0	12.0	5.0	12.0	12.0	5.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	35.7	35.7	35.7	9.0	35.7	35.7	9.0	39.9	39.9	39.9	39.9	39.9
Total Split (s)	81.0	81.0	81.0	9.0	90.0	90.0	9.0	50.0	50.0	41.0	41.0	41.0
Total Split (%)	57.9%	57.9%	57.9%	6.4%	64.3%	64.3%	6.4%	35.7%	35.7%	29.3%	29.3%	29.3%
Maximum Green (s)	74.3	74.3	74.3	6.0	83.3	83.3	6.0	43.1	43.1	34.1	34.1	34.1
Yellow Time (s)	4.6	4.6	4.6	3.0	4.6	4.6	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.1	2.1	2.1	0.0	2.1	2.1	0.0	2.9	2.9	2.9	2.9	2.9
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0

Lanes, Volumes, Timings

8: Heart Lake Road & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.7	5.7	5.7	2.0	5.7	5.7	2.0	5.9	5.9	5.9	5.9	5.9
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	Yes
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
Minimum Gap (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
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Max	C-Max	C-Max	None	Max	Max	None	Max	Max	Max	Max	Max
Walk Time (s)	8.0	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0
Flash Dont Walk (s)	21.0	21.0	21.0		21.0	21.0		25.0	25.0	25.0	25.0	25.0
Pedestrian Calls (#/hr)	0	0	0		0	0		0	0	0	0	0
Act Effect Green (s)	75.3	75.3	75.3	88.0	84.3	84.3	48.0	44.1	44.1	35.1	35.1	35.1
Actuated g/C Ratio	0.54	0.54	0.54	0.63	0.60	0.60	0.34	0.32	0.32	0.25	0.25	0.25
v/c Ratio	0.08	0.51	0.52	0.97	0.31	0.02	0.28	0.02	0.05	0.11	0.19	0.11
Control Delay	18.7	21.1	3.5	68.7	14.0	0.1	34.6	33.4	2.5	41.5	42.7	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.7	21.1	3.5	68.7	14.0	0.1	34.6	33.4	2.5	41.5	42.7	3.3
LOS	B	C	A	E	B	A	C	C	A	D	D	A
Approach Delay		15.8			25.2			28.9			31.5	
Approach LOS		B			C			C			C	
Queue Length 50th (m)	3.1	75.6	15.8	27.3	43.0	0.0	24.5	2.8	0.0	8.4	20.6	0.0
Queue Length 95th (m)	m3.5	m73.9	m15.4	#68.6	51.6	0.0	40.7	8.4	2.6	18.4	36.1	4.2
Internal Link Dist (m)		237.4			316.3			451.3			806.2	
Turn Bay Length (m)	125.0		200.0	160.0		160.0	125.0		60.0	85.0		55.0
Base Capacity (vph)	303	2602	1110	238	2757	766	432	591	538	352	466	457
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	0.08	0.51	0.52	0.97	0.31	0.02	0.28	0.02	0.05	0.11	0.19	0.11

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 66 (47%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 20.3

Intersection LOS: C

Intersection Capacity Utilization 68.4%

ICU Level of Service C

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 8: Heart Lake Road & Mayfield Road



Lanes, Volumes, Timings

11: Inder Heights Drive/Snellview Boulevard & Mayfield Road

02-28-2021

	↑	→	↓	↶	←	↷	↖	↗	↙	↘	↖	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑		↑	↑↑	↑	↑	↑		↔		
Traffic Volume (vph)	14	1368	16	17	1084	5	23	0	30	24	1	54
Future Volume (vph)	14	1368	16	17	1084	5	23	0	30	24	1	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	45.0		0.0	45.0		45.0	45.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1384	3382	0	1668	3216	1331	1463	1500	0	0	1593	0
Flt Permitted	0.200			0.121			0.717				0.921	
Satd. Flow (perm)	291	3382	0	212	3216	1299	1095	1500	0	0	1489	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				28		53			54	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		115.1			416.2			144.8			122.1	
Travel Time (s)		6.9			25.0			13.0			11.0	
Confl. Peds. (#/hr)	1					1	6		1	1		6
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	29%	5%	36%	7%	11%	20%	22%	0%	5%	13%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	14	1368	16	17	1084	5	23	0	30	24	1	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	1384	0	17	1084	5	23	30	0	0	79	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Detector Phase	2	2		2	2	2	4	4		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0	12.0	8.0	8.0		8.0	8.0	
Minimum Split (s)	25.0	25.0		25.0	25.0	25.0	32.6	32.6		32.6	32.6	
Total Split (s)	90.0	90.0		90.0	90.0	90.0	50.0	50.0		50.0	50.0	
Total Split (%)	64.3%	64.3%		64.3%	64.3%	64.3%	35.7%	35.7%		35.7%	35.7%	
Maximum Green (s)	84.0	84.0		84.0	84.0	84.0	43.4	43.4		43.4	43.4	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

11: Inder Heights Drive/Snellview Boulevard & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.6	5.6			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max	C-Max	Max	Max		Max	Max	
Walk Time (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effect Green (s)	85.0	85.0		85.0	85.0	85.0	44.4	44.4			44.4	
Actuated g/C Ratio	0.61	0.61		0.61	0.61	0.61	0.32	0.32			0.32	
v/c Ratio	0.08	0.67		0.13	0.56	0.01	0.07	0.06			0.16	
Control Delay	12.9	20.4		11.8	12.4	0.0	34.2	3.0			12.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	12.9	20.4		11.8	12.4	0.0	34.2	3.0			12.2	
LOS	B	C		B	B	A	C	A			B	
Approach Delay		20.3			12.3				16.5		12.2	
Approach LOS		C			B				B		B	
Queue Length 50th (m)	1.6	134.2		1.5	54.2	0.0	4.7	0.0			3.7	
Queue Length 95th (m)	5.2	159.3		m3.4	64.5	m0.0	12.0	3.0			15.6	
Internal Link Dist (m)		91.1			392.2			120.8			98.1	
Turn Bay Length (m)	45.0			45.0		45.0	45.0					
Base Capacity (vph)	176	2053		128	1952	799	347	511			509	
Starvation Cap Reductn	0	0		0	0	0	0	0			0	
Spillback Cap Reductn	0	0		0	0	0	0	0			0	
Storage Cap Reductn	0	0		0	0	0	0	0			0	
Reduced v/c Ratio	0.08	0.67		0.13	0.56	0.01	0.07	0.06			0.16	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 16.6 Intersection LOS: B

Intersection Capacity Utilization 68.8% ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 11: Inder Heights Drive/Snellview Boulevard & Mayfield Road



Lanes, Volumes, Timings

14: Mayfield Road & Hwy 410 SB Off-Ramp

02-28-2021

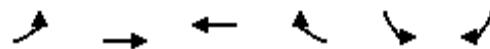


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑	↑
Traffic Volume (vph)	0	926	1004	0	558	91
Future Volume (vph)	0	926	1004	0	558	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	110.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Satd. Flow (prot)	0	4749	4706	0	3400	1453
Flt Permitted					0.953	
Satd. Flow (perm)	0	4749	4706	0	3400	1453
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					2	63
Link Speed (k/h)		60	60		80	
Link Distance (m)		340.3	442.1		199.5	
Travel Time (s)		20.4	26.5		9.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	8%	9%	0%	2%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	926	1004	0	558	91
Shared Lane Traffic (%)					10%	
Lane Group Flow (vph)	0	926	1004	0	567	82
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		7.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Turn Type		NA	NA		Prot	Perm
Protected Phases		2	2		4	
Permitted Phases					4	
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)	16.0	16.0		8.0	8.0	
Minimum Split (s)	27.0	27.0		37.0	37.0	
Total Split (s)	46.0	46.0		41.0	41.0	
Total Split (%)	52.9%	52.9%		47.1%	47.1%	
Maximum Green (s)	40.0	40.0		35.0	35.0	
Yellow Time (s)		4.0	4.0		4.0	4.0
All-Red Time (s)		2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

14: Mayfield Road & Hwy 410 SB Off-Ramp

02-28-2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Total Lost Time (s)		5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	
Recall Mode	Max	Max		Min	Min	
Walk Time (s)	10.0	10.0		20.0	20.0	
Flash Dont Walk (s)	6.0	6.0		6.0	6.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effect Green (s)	55.8	55.8		21.2	21.2	
Actuated g/C Ratio	0.64	0.64		0.24	0.24	
v/c Ratio	0.30	0.33		0.68	0.20	
Control Delay	7.7	8.0		33.8	10.4	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	7.7	8.0		33.8	10.4	
LOS	A	A		C	B	
Approach Delay	7.7	8.0		30.9		
Approach LOS	A	A		C		
Queue Length 50th (m)	23.4	26.0		46.5	2.8	
Queue Length 95th (m)	37.0	40.8		58.1	13.7	
Internal Link Dist (m)	316.3	418.1		175.5		
Turn Bay Length (m)				110.0		
Base Capacity (vph)	3046	3019		1408	638	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.30	0.33		0.40	0.13	

Intersection Summary

Area Type: Other

Cycle Length: 87

Actuated Cycle Length: 87

Offset: 9.5 (11%), Referenced to phase 6:, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

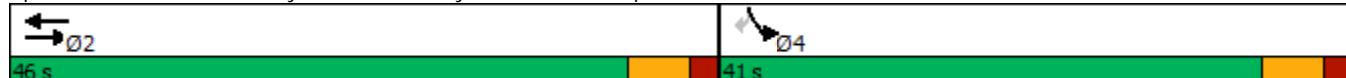
Maximum v/c Ratio: 0.68

Intersection Signal Delay: 13.6 Intersection LOS: B

Intersection Capacity Utilization 73.0% ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 14: Mayfield Road & Hwy 410 SB Off-Ramp



Lanes, Volumes, Timings

16: Hwy 410 NB Off-Ramp & Mayfield Road

02-28-2021

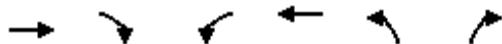


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑	↑↑	↑
Traffic Volume (vph)	1535	0	0	1123	279	818
Future Volume (vph)	1535	0	0	1123	279	818
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)		50.0	0.0		0.0	90.0
Storage Lanes		0	0		2	1
Taper Length (m)			7.5		7.5	
Satd. Flow (prot)	4885	0	0	4839	2980	1452
Flt Permitted					0.980	
Satd. Flow (perm)	4885	0	0	4839	2980	1452
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					22	22
Link Speed (k/h)	60			60	80	
Link Distance (m)	442.1			202.7	480.1	
Travel Time (s)	26.5			12.2	21.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	0%	0%	13%	8%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	1535	0	0	1123	279	818
Shared Lane Traffic (%)					50%	
Lane Group Flow (vph)	1535	0	0	1123	688	409
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases					4	
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	12.0			12.0	10.0	10.0
Minimum Split (s)	33.6			33.6	24.9	24.9
Total Split (s)	70.0			70.0	50.0	50.0
Total Split (%)	58.3%			58.3%	41.7%	41.7%
Maximum Green (s)	63.4			63.4	43.1	43.1
Yellow Time (s)	4.6			4.6	4.6	4.6
All-Red Time (s)	2.0			2.0	2.3	2.3
Lost Time Adjust (s)	-1.0			-1.0	-1.0	-1.0

Lanes, Volumes, Timings

16: Hwy 410 NB Off-Ramp & Mayfield Road

02-28-2021



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Total Lost Time (s)	5.6			5.6	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Minimum Gap (s)	3.0			3.0	3.0	3.0
Time Before Reduce (s)	0.0			0.0	0.0	0.0
Time To Reduce (s)	0.0			0.0	0.0	0.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	8.0			8.0		
Flash Dont Walk (s)	19.0			19.0		
Pedestrian Calls (#/hr)	0			0		
Act Effect Green (s)	70.4			70.4	38.1	38.1
Actuated g/C Ratio	0.59			0.59	0.32	0.32
v/c Ratio	0.54			0.40	0.86dr	0.86
Control Delay	16.7			14.6	38.9	54.0
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	16.7			14.6	38.9	54.0
LOS	B			B	D	D
Approach Delay	16.7			14.6	44.6	
Approach LOS	B			B	D	
Queue Length 50th (m)	82.4			50.4	73.5	88.6
Queue Length 95th (m)	105.3			66.1	89.8	124.6
Internal Link Dist (m)	418.1			178.7	456.1	
Turn Bay Length (m)					90.0	
Base Capacity (vph)	2867			2840	1109	547
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.54			0.40	0.62	0.75

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 32 (27%), Referenced to phase 2:EBWB and 6:, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 24.2 Intersection LOS: C

Intersection Capacity Utilization 73.0% ICU Level of Service D

Analysis Period (min) 15

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 16: Hwy 410 NB Off-Ramp & Mayfield Road



HCM Unsigned Intersection Capacity Analysis

18: Kennedy Road & Snellview Boulevard

02-28-2021

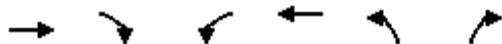


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑↓	
Traffic Volume (veh/h)	2	55	25	445	1117	2
Future Volume (Veh/h)	2	55	25	445	1117	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	55	25	445	1117	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)				287		
pX, platoon unblocked	0.97					
vC, conflicting volume	1613	560	1119			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1616	560	1119			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	88	96			
cM capacity (veh/h)	90	477	632			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	2	55	25	445	745	374
Volume Left	2	0	25	0	0	0
Volume Right	0	55	0	0	0	2
cSH	90	477	632	1700	1700	1700
Volume to Capacity	0.02	0.12	0.04	0.26	0.44	0.22
Queue Length 95th (m)	0.5	3.1	1.0	0.0	0.0	0.0
Control Delay (s)	45.8	13.5	10.9	0.0	0.0	0.0
Lane LOS	E	B	B			
Approach Delay (s)	14.7		0.6		0.0	
Approach LOS	B					
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			41.0%		ICU Level of Service	
Analysis Period (min)			15			A

HCM Unsignalized Intersection Capacity Analysis

20: Stonegate Drive & Mayfield Road

02-28-2021



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1902	3	26	1044	2	80
Future Volume (Veh/h)	1902	3	26	1044	2	80
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1902	3	26	1044	2	80
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		1905		2478	952	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol		1905		2478	952	
tC, single (s)		4.3		6.8	7.0	
tC, 2 stage (s)						
tF (s)		2.3		3.5	3.3	
p0 queue free %		91		91	69	
cM capacity (veh/h)		285		23	258	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	1268	637	26	522	522	82
Volume Left	0	0	26	0	0	2
Volume Right	0	3	0	0	0	80
cSH	1700	1700	285	1700	1700	206
Volume to Capacity	0.75	0.37	0.09	0.31	0.31	0.40
Queue Length 95th (m)	0.0	0.0	2.4	0.0	0.0	14.2
Control Delay (s)	0.0	0.0	18.9	0.0	0.0	33.5
Lane LOS			C		D	
Approach Delay (s)	0.0		0.5		33.5	
Approach LOS					D	
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization		64.4%		ICU Level of Service		C
Analysis Period (min)		15				

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑		↑	↑↑		↑	↑↑		↑	↑↑	
Traffic Volume (vph)	249	721	77	152	1120	558	108	250	98	265	144	171
Future Volume (vph)	249	721	77	152	1120	558	108	250	98	265	144	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%			0%			0%		
Storage Length (m)	45.0		0.0	85.0		40.0	45.0		55.0	90.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1785	3344	0	1785	3500	1597	1785	3400	0	1719	3242	0
Flt Permitted	0.078			0.248			0.561			0.471		
Satd. Flow (perm)	147	3344	0	465	3500	1558	1047	3400	0	848	3242	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9				236			46			171
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		416.2			542.7			529.5			286.9	
Travel Time (s)		25.0			32.6			38.1			20.7	
Confl. Peds. (#/hr)	2		4	4		2	7		6	6		7
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	5%	6%	0%	2%	0%	0%	0%	0%	3%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	2	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	249	721	77	152	1120	558	108	250	98	265	144	171
Shared Lane Traffic (%)												
Lane Group Flow (vph)	249	798	0	152	1120	558	108	348	0	265	315	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.03	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases	5	2		1	6			4		3	8	
Permitted Phases	2			6		6	4			8		
Detector Phase	5	2		1	6	6	4	4		3	8	
Switch Phase												
Minimum Initial (s)	6.0	8.0		6.0	8.0	8.0	12.0	12.0		6.0	12.0	
Minimum Split (s)	9.0	34.6		9.0	34.6	34.6	34.9	34.9		9.0	34.9	
Total Split (s)	20.0	54.0		20.0	54.0	54.0	51.0	51.0		10.0	61.0	
Total Split (%)	14.8%	40.0%		14.8%	40.0%	40.0%	37.8%	37.8%		7.4%	45.2%	
Maximum Green (s)	17.0	47.4		17.0	47.4	47.4	44.1	44.1		7.0	54.1	
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.6		0.0	2.6	2.6	2.9	2.9		0.0	2.9	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	2.0	5.6		2.0	5.6	5.6	5.9	5.9		2.0	5.9	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recall Mode	None	C-Max		None	Max	Max	Max	Max		Max	None	
Walk Time (s)				8.0		8.0	8.0	8.0			8.0	
Flash Dont Walk (s)				20.0		20.0	20.0	20.0			20.0	
Pedestrian Calls (#/hr)				0		0	0	0			0	
Act Effect Green (s)	72.0	54.0		65.3	49.3	49.3	45.1	45.1		59.0	55.1	
Actuated g/C Ratio	0.53	0.40		0.48	0.37	0.37	0.33	0.33		0.44	0.41	
v/c Ratio	0.87	0.59		0.44	0.88	0.78	0.31	0.30		0.63	0.22	
Control Delay	79.0	34.7		17.8	49.7	30.3	36.5	29.4		34.5	11.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	79.0	34.7		17.8	49.7	30.3	36.5	29.4		34.5	11.9	
LOS	E	C		B	D	C	D	C		C	B	
Approach Delay		45.3				41.2				31.1		22.2
Approach LOS		D				D				C		C
Queue Length 50th (m)	66.1	68.6		26.1	166.2	100.2	22.5	32.6		48.7	13.0	
Queue Length 95th (m)	#100.2	91.4		m40.2	#196.4	152.1	39.5	45.9		71.6	23.2	
Internal Link Dist (m)			392.2			518.7			505.5			262.9
Turn Bay Length (m)	45.0			85.0		40.0	45.0				90.0	
Base Capacity (vph)	296	1342		418	1279	718	349	1166		422	1424	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.84	0.59		0.36	0.88	0.78	0.31	0.30		0.63	0.22	

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 13 (10%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 38.3

Intersection LOS: D

Intersection Capacity Utilization 99.0%

ICU Level of Service F

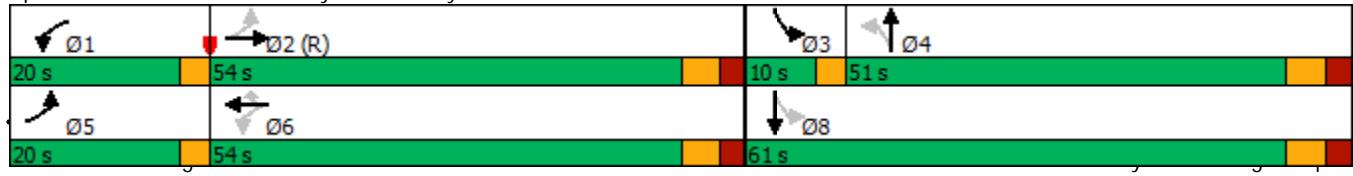
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 5: Kennedy Road & Mayfield Road



Lanes, Volumes, Timings

8: Heart Lake Road & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR									
Lane Configurations	↑	↑↑↑	↑	↑	↑↑↑	↑	↑	↑	↑	↑	↑	↑									
Traffic Volume (vph)	35	946	131	55	1377	48	343	48	39	31	30	24									
Future Volume (vph)	35	946	131	55	1377	48	343	48	39	31	30	24									
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900									
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5									
Grade (%)	0%			0%			0%			0%											
Storage Length (m)	125.0	200.0			160.0	160.0	125.0	60.0			85.0		55.0								
Storage Lanes	1	1			1	1	1	1			1	1	1								
Taper Length (m)	7.5	7.5			7.5	7.5			7.5			7.5									
Satd. Flow (prot)	1733	4706	1507	1700	4980	1566	1767	1879	1465	1668	1807	1521									
Flt Permitted	0.164	0.245			0.698			0.726													
Satd. Flow (perm)	299	4706	1507	438	4980	1566	1298	1879	1465	1275	1807	1521									
Right Turn on Red	Yes			Yes			Yes			Yes											
Satd. Flow (RTOR)	131			56			54			78											
Link Speed (k/h)	60			60			50			50											
Link Distance (m)	261.4			340.3			475.3			830.2											
Travel Time (s)	15.7			20.4			34.2			59.8											
Confl. Peds. (#/hr)																					
Confl. Bikes (#/hr)																					
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									
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%									
Heavy Vehicles (%)	3%	9%	6%	5%	3%	2%	1%	0%	9%	7%	4%	5%									
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0									
Parking (#/hr)																					
Mid-Block Traffic (%)	0%			0%			0%			0%											
Adj. Flow (vph)	35	946	131	55	1377	48	343	48	39	31	30	24									
Shared Lane Traffic (%)																					
Lane Group Flow (vph)	35	946	131	55	1377	48	343	48	39	31	30	24									
Enter Blocked Intersection	No																				
Lane Alignment	Left	Left	Right																		
Median Width(m)	3.5			3.5			3.5			3.5											
Link Offset(m)	0.0			0.0			0.0			0.0											
Crosswalk Width(m)	4.8			4.8			4.8			4.8											
Two way Left Turn Lane																					
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01									
Turning Speed (k/h)	25	15			25			15			25										
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm									
Protected Phases	2			1			6			7											
Permitted Phases	2			6			4			4											
Detector Phase	2			1			6			7											
Switch Phase																					
Minimum Initial (s)	12.0	12.0	12.0	5.0	12.0	12.0	5.0	8.0	8.0	8.0	8.0	8.0									
Minimum Split (s)	35.7	35.7	35.7	9.0	35.7	35.7	9.0	39.9	39.9	39.9	39.9	39.9									
Total Split (s)	76.0	76.0	76.0	9.0	85.0	85.0	9.0	50.0	50.0	41.0	41.0	41.0									
Total Split (%)	56.3%	56.3%	56.3%	6.7%	63.0%	63.0%	6.7%	37.0%	37.0%	30.4%	30.4%	30.4%									
Maximum Green (s)	69.3	69.3	69.3	6.0	78.3	78.3	6.0	43.1	43.1	34.1	34.1	34.1									
Yellow Time (s)	4.6	4.6	4.6	3.0	4.6	4.6	3.0	4.0	4.0	4.0	4.0	4.0									
All-Red Time (s)	2.1	2.1	2.1	0.0	2.1	2.1	0.0	2.9	2.9	2.9	2.9	2.9									
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0									

Lanes, Volumes, Timings

8: Heart Lake Road & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.7	5.7	5.7	2.0	5.7	5.7	2.0	5.9	5.9	5.9	5.9	5.9
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	Yes
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
Minimum Gap (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
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Max	C-Max	C-Max	None	Max	Max	None	Max	Max	Max	Max	Max
Walk Time (s)	8.0	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0
Flash Dont Walk (s)	21.0	21.0	21.0		21.0	21.0		25.0	25.0	25.0	25.0	25.0
Pedestrian Calls (#/hr)	0	0	0		0	0		0	0	0	0	0
Act Effect Green (s)	72.1	72.1	72.1	83.0	79.3	79.3	48.0	44.1	44.1	35.1	35.1	35.1
Actuated g/C Ratio	0.53	0.53	0.53	0.61	0.59	0.59	0.36	0.33	0.33	0.26	0.26	0.26
v/c Ratio	0.22	0.38	0.15	0.17	0.47	0.05	0.71	0.08	0.08	0.09	0.06	0.05
Control Delay	34.5	32.2	11.9	11.5	16.5	2.5	45.7	32.0	4.7	39.0	38.2	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	0.0
Total Delay	34.5	32.2	11.9	11.5	16.5	2.5	45.7	32.0	4.7	39.0	38.2	0.2
LOS	C	C	B	B	B	A	D	C	A	D	D	A
Approach Delay	29.9				15.9			40.5			27.8	
Approach LOS		C			B			D			C	
Queue Length 50th (m)	8.0	86.9	8.3	5.8	76.9	0.0	76.6	9.3	0.0	6.6	6.4	0.0
Queue Length 95th (m)	m14.8	97.3	24.6	11.6	88.8	4.5	108.8	19.1	5.6	15.5	15.0	0.0
Internal Link Dist (m)	237.4				316.3			451.3			806.2	
Turn Bay Length (m)	125.0		200.0	160.0		160.0	125.0		60.0	85.0		55.0
Base Capacity (vph)	159	2513	865	334	2925	942	485	613	514	331	469	453
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	0.22	0.38	0.15	0.16	0.47	0.05	0.71	0.08	0.08	0.09	0.06	0.05

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 26 (19%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 24.6

Intersection LOS: C

Intersection Capacity Utilization 76.7%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 8: Heart Lake Road & Mayfield Road



Lanes, Volumes, Timings

11: Inder Heights Drive/Snellview Boulevard & Mayfield Road

02-28-2021

	↑	→	↓	↶	←	↷	↖	↗	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑		↑	↑↑	↑	↑	↑		↔		
Traffic Volume (vph)	56	1110	29	26	1289	19	7	0	13	10	1	34
Future Volume (vph)	56	1110	29	26	1289	19	7	0	13	10	1	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	45.0		0.0	45.0		45.0	45.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1668	3233	0	1684	3400	1521	1785	1597	0	0	1545	0
Flt Permitted	0.162			0.201			0.728				0.955	
Satd. Flow (perm)	284	3233	0	356	3400	1521	1364	1597	0	0	1492	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				29		120			34	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		115.1			416.2			144.8			122.1	
Travel Time (s)		6.9			25.0			13.0			11.0	
Confl. Peds. (#/hr)			1	1			2				2	
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	10%	7%	6%	5%	5%	0%	0%	0%	0%	0%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	56	1110	29	26	1289	19	7	0	13	10	1	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	56	1139	0	26	1289	19	7	13	0	0	45	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Detector Phase	2	2		2	2	2	4	4		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0	12.0	8.0	8.0		8.0	8.0	
Minimum Split (s)	25.0	25.0		25.0	25.0	25.0	32.6	32.6		32.6	32.6	
Total Split (s)	95.0	95.0		95.0	95.0	95.0	40.0	40.0		40.0	40.0	
Total Split (%)	70.4%	70.4%		70.4%	70.4%	70.4%	29.6%	29.6%		29.6%	29.6%	
Maximum Green (s)	89.0	89.0		89.0	89.0	89.0	33.4	33.4		33.4	33.4	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

11: Inder Heights Drive/Snellview Boulevard & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.6	5.6			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max	C-Max	Max	Max		Max	Max	
Walk Time (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effect Green (s)	90.0	90.0		90.0	90.0	90.0	34.4	34.4			34.4	
Actuated g/C Ratio	0.67	0.67		0.67	0.67	0.67	0.25	0.25			0.25	
v/c Ratio	0.30	0.53		0.11	0.57	0.02	0.02	0.03			0.11	
Control Delay	14.4	12.6		3.8	3.9	0.0	38.1	0.1			19.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	14.4	12.6		3.8	3.9	0.0	38.1	0.1			19.2	
LOS	B	B		A	A	A	D	A			B	
Approach Delay		12.7			3.8			13.4			19.2	
Approach LOS		B			A			B			B	
Queue Length 50th (m)	6.1	79.8		0.7	20.3	0.0	1.5	0.0			3.6	
Queue Length 95th (m)	15.1	96.7		m1.2	24.1	m0.0	5.6	0.0			m7.0	
Internal Link Dist (m)		91.1			392.2			120.8			98.1	
Turn Bay Length (m)	45.0			45.0		45.0	45.0					
Base Capacity (vph)	189	2156		237	2266	1023	347	496			405	
Starvation Cap Reductn	0	0		0	0	0	0	0			0	
Spillback Cap Reductn	0	0		0	0	0	0	0			0	
Storage Cap Reductn	0	0		0	0	0	0	0			0	
Reduced v/c Ratio	0.30	0.53		0.11	0.57	0.02	0.02	0.03			0.11	

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 15 (11%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 8.2 Intersection LOS: A

Intersection Capacity Utilization 77.0% ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 11: Inder Heights Drive/Snellview Boulevard & Mayfield Road



Lanes, Volumes, Timings

14: Mayfield Road & Hwy 410 SB Off-Ramp

02-28-2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑	↑
Traffic Volume (vph)	0	698	1532	0	124	12
Future Volume (vph)	0	698	1532	0	124	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	110.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Satd. Flow (prot)	0	4663	5029	0	3338	1453
Flt Permitted					0.953	
Satd. Flow (perm)	0	4663	5029	0	3338	1453
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					1	11
Link Speed (k/h)		60	60		80	
Link Distance (m)		340.3	442.1		199.5	
Travel Time (s)		20.4	26.5		9.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	10%	2%	0%	4%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	698	1532	0	124	12
Shared Lane Traffic (%)					10%	
Lane Group Flow (vph)	0	698	1532	0	125	11
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		7.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Turn Type		NA	NA		Prot	Perm
Protected Phases		2	2		4	
Permitted Phases					4	
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)	16.0	16.0		8.0	8.0	
Minimum Split (s)	27.0	27.0		37.0	37.0	
Total Split (s)	46.0	46.0		41.0	41.0	
Total Split (%)	52.9%	52.9%		47.1%	47.1%	
Maximum Green (s)	40.0	40.0		35.0	35.0	
Yellow Time (s)		4.0	4.0		4.0	4.0
All-Red Time (s)		2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

14: Mayfield Road & Hwy 410 SB Off-Ramp

02-28-2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Total Lost Time (s)		5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	
Recall Mode	Max	Max		Min	Min	
Walk Time (s)	10.0	10.0				
Flash Dont Walk (s)	6.0	6.0				
Pedestrian Calls (#/hr)	0	0				
Act Effect Green (s)	67.0	67.0		10.0	10.0	
Actuated g/C Ratio	0.77	0.77		0.11	0.11	
v/c Ratio	0.19	0.40		0.32	0.06	
Control Delay	2.9	3.7		37.1	18.5	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	2.9	3.7		37.1	18.5	
LOS	A	A		D	B	
Approach Delay	2.9	3.7		35.6		
Approach LOS	A	A		D		
Queue Length 50th (m)	9.1	24.3		10.5	0.0	
Queue Length 95th (m)	14.1	34.9		18.4	5.1	
Internal Link Dist (m)	316.3	418.1		175.5		
Turn Bay Length (m)				110.0		
Base Capacity (vph)	3588	3870		1381	607	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.19	0.40		0.09	0.02	

Intersection Summary

Area Type: Other

Cycle Length: 87

Actuated Cycle Length: 87

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

Natural Cycle: 65

Control Type: Actuated-Coordinated

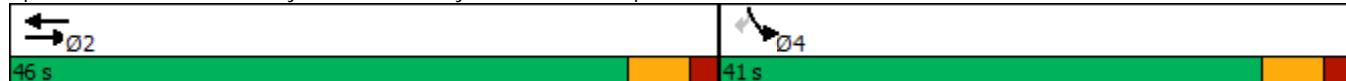
Maximum v/c Ratio: 0.40

Intersection Signal Delay: 5.3 Intersection LOS: A

Intersection Capacity Utilization 66.7% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 14: Mayfield Road & Hwy 410 SB Off-Ramp



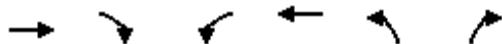
Lanes, Volumes, Timings

16: Hwy 410 NB Off-Ramp & Mayfield Road

02-28-2021



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑	↑↑	↑
Traffic Volume (vph)	819	0	0	1658	576	821
Future Volume (vph)	819	0	0	1658	576	821
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)		50.0	0.0		0.0	90.0
Storage Lanes		0	0		2	1
Taper Length (m)			7.5		7.5	
Satd. Flow (prot)	4706	0	0	5207	3191	1479
Flt Permitted					0.971	
Satd. Flow (perm)	4706	0	0	5207	3191	1479
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					123	123
Link Speed (k/h)	60			60	80	
Link Distance (m)	442.1			202.7	480.1	
Travel Time (s)	26.5			12.2	21.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	9%	0%	0%	5%	2%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	819	0	0	1658	576	821
Shared Lane Traffic (%)					46%	
Lane Group Flow (vph)	819	0	0	1658	954	443
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases					4	
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	12.0			12.0	10.0	10.0
Minimum Split (s)	33.6			33.6	22.5	22.5
Total Split (s)	65.0			65.0	55.0	55.0
Total Split (%)	54.2%			54.2%	45.8%	45.8%
Maximum Green (s)	58.4			58.4	48.1	48.1
Yellow Time (s)	4.6			4.6	4.6	4.6
All-Red Time (s)	2.0			2.0	2.3	2.3
Lost Time Adjust (s)	-1.0			-1.0	-1.0	-1.0



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Total Lost Time (s)	5.6			5.6	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Minimum Gap (s)	3.0			3.0	3.0	3.0
Time Before Reduce (s)	0.0			0.0	0.0	0.0
Time To Reduce (s)	0.0			0.0	0.0	0.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	8.0			8.0		
Flash Dont Walk (s)	19.0			19.0		
Pedestrian Calls (#/hr)	0			0		
Act Effect Green (s)	67.6			67.6	40.9	40.9
Actuated g/C Ratio	0.56			0.56	0.34	0.34
v/c Ratio	0.31			0.57	0.82	0.76
Control Delay	15.1			18.6	37.0	33.1
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	15.1			18.6	37.0	33.1
LOS	B			B	D	C
Approach Delay	15.1			18.6	35.7	
Approach LOS	B			B	D	
Queue Length 50th (m)	37.9			87.3	97.2	71.3
Queue Length 95th (m)	54.3			117.0	111.1	102.3
Internal Link Dist (m)	418.1			178.7	456.1	
Turn Bay Length (m)					90.0	
Base Capacity (vph)	2649			2931	1378	677
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.31			0.57	0.69	0.65

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 19 (16%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 24.0 Intersection LOS: C

Intersection Capacity Utilization 66.7% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 16: Hwy 410 NB Off-Ramp & Mayfield Road



HCM Unsigned Intersection Capacity Analysis

18: Kennedy Road & Snellview Boulevard

02-28-2021



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑↓	
Traffic Volume (veh/h)	2	44	75	982	536	4
Future Volume (Veh/h)	2	44	75	982	536	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	44	75	982	536	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)				287		
pX, platoon unblocked	0.83					
vC, conflicting volume	1670	270	540			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1704	270	540			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	94	93			
cM capacity (veh/h)	65	734	1039			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	2	44	75	982	357	183
Volume Left	2	0	75	0	0	0
Volume Right	0	44	0	0	0	4
cSH	65	734	1039	1700	1700	1700
Volume to Capacity	0.03	0.06	0.07	0.58	0.21	0.11
Queue Length 95th (m)	0.8	1.5	1.9	0.0	0.0	0.0
Control Delay (s)	62.1	10.2	8.7	0.0	0.0	0.0
Lane LOS	F	B	A			
Approach Delay (s)	12.5		0.6		0.0	
Approach LOS	B					
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			61.7%		ICU Level of Service	
Analysis Period (min)			15			B

HCM Unsignalized Intersection Capacity Analysis

20: Stonegate Drive & Mayfield Road

02-28-2021



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1223	13	92	1923	2	36
Future Volume (Veh/h)	1223	13	92	1923	2	36
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1223	13	92	1923	2	36
Pedestrians	1					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume		1236		2376	618	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol		1236		2376	618	
tC, single (s)		4.1		6.8	6.9	
tC, 2 stage (s)						
tF (s)		2.2		3.5	3.3	
p0 queue free %		84		92	92	
cM capacity (veh/h)		565		25	437	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	815	421	92	962	962	38
Volume Left	0	0	92	0	0	2
Volume Right	0	13	0	0	0	36
cSH	1700	1700	565	1700	1700	233
Volume to Capacity	0.48	0.25	0.16	0.57	0.57	0.16
Queue Length 95th (m)	0.0	0.0	4.6	0.0	0.0	4.6
Control Delay (s)	0.0	0.0	12.6	0.0	0.0	23.4
Lane LOS			B		C	
Approach Delay (s)	0.0		0.6		23.4	
Approach LOS					C	
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization		63.2%		ICU Level of Service		B
Analysis Period (min)		15				

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	159	1570	121	63	781	270	56	91	108	670	332	292
Future Volume (vph)	159	1570	121	63	781	270	56	91	108	670	332	292
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%				0%			0%			0%	
Storage Length (m)	45.0		0.0	85.0		40.0	45.0		55.0	90.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1580	5029	1452	1750	4424	0	1716	3116	0	1640	3196	0
Flt Permitted	0.135			0.090			0.415			0.567		
Satd. Flow (perm)	224	5029	1432	166	4424	0	747	3116	0	979	3196	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		90			65			108			185	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		416.2			542.7			529.5			286.9	
Travel Time (s)		25.0			32.6			38.1			20.7	
Confl. Peds. (#/hr)	1		1	1		1	6					6
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	13%	2%	10%	2%	10%	13%	4%	8%	3%	8%	1%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	2	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	159	1570	121	63	781	270	56	91	108	670	332	292
Shared Lane Traffic (%)												
Lane Group Flow (vph)	159	1570	121	63	1051	0	56	199	0	670	624	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.03	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	5	2		1	6			4		3	8	
Permitted Phases	2		2	6			4			8		
Detector Phase	5	2	2	1	6		4	4		3	8	
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	6.0	8.0		12.0	12.0		6.0	12.0	
Minimum Split (s)	9.0	34.6	34.6	9.0	34.6		34.9	34.9		9.0	34.9	
Total Split (s)	13.0	53.0	53.0	10.0	50.0		35.0	35.0		42.0	77.0	
Total Split (%)	9.3%	37.9%	37.9%	7.1%	35.7%		25.0%	25.0%		30.0%	55.0%	
Maximum Green (s)	10.0	46.4	46.4	7.0	43.4		28.1	28.1		39.0	70.1	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.6	2.6	0.0	2.6		2.9	2.9		0.0	2.9	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	2.0	5.6	5.6	2.0	5.6		5.9	5.9		2.0	5.9	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	None	C-Max	C-Max	None	Max		Max	Max		Max	None	
Walk Time (s)		8.0	8.0		8.0		8.0	8.0			8.0	
Flash Dont Walk (s)		20.0	20.0		20.0		20.0	20.0			20.0	
Pedestrian Calls (#/hr)	0	0		0			0	0			0	
Act Effect Green (s)	61.0	49.4	49.4	55.8	44.4		29.1	29.1		75.0	71.1	
Actuated g/C Ratio	0.44	0.35	0.35	0.40	0.32		0.21	0.21		0.54	0.51	
v/c Ratio	0.78	0.89	0.21	0.41	0.73		0.36	0.27		0.94	0.36	
Control Delay	68.3	34.0	5.4	22.6	34.6		55.4	22.0		49.0	14.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	68.3	34.0	5.4	22.6	34.6		55.4	22.0		49.0	14.7	
LOS	E	C	A	C	C		E	C		D	B	
Approach Delay		35.1			33.9			29.3			32.5	
Approach LOS		D			C			C			C	
Queue Length 50th (m)	27.6	90.4	2.7	6.9	96.5		14.1	11.5		148.7	38.5	
Queue Length 95th (m)	#59.1	#115.8	9.2	13.6	114.3		28.8	23.1		#249.6	52.5	
Internal Link Dist (m)		392.2			518.7			505.5			262.9	
Turn Bay Length (m)	45.0			85.0			45.0			90.0		
Base Capacity (vph)	204	1774	563	156	1447		155	733		713	1714	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.78	0.89	0.21	0.40	0.73		0.36	0.27		0.94	0.36	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 17 (12%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 33.7

Intersection LOS: C

Intersection Capacity Utilization 98.7%

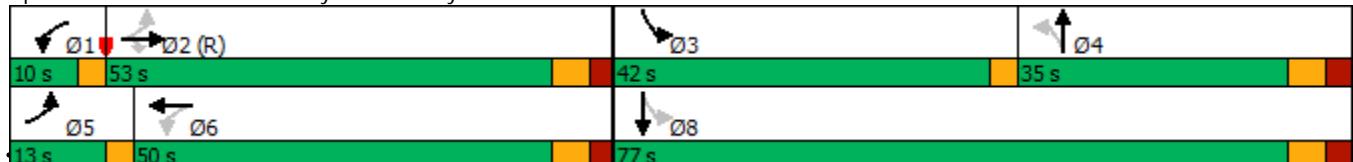
ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 5: Kennedy Road & Mayfield Road



2028 Future Background AM Peak 02-24-2021

Synchro 10 Light Report

Page 2

Lanes, Volumes, Timings

8: Heart Lake Road & Mayfield Road

03-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR								
Lane Configurations	↑	↑↑↑	↑	↑	↑↑↑	↑	↑	↑	↑	↑	↑	↑								
Traffic Volume (vph)	26	1694	641	245	1103	17	131	15	30	41	99	53								
Future Volume (vph)	26	1694	641	245	1103	17	131	15	30	41	99	53								
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900								
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5								
Grade (%)	0%			0%			0%			0%										
Storage Length (m)	125.0	200.0			160.0			160.0			60.0									
Storage Lanes	1	1			1			1			1									
Taper Length (m)	7.5	7.5			7.5			7.5			7.5									
Satd. Flow (prot)	1700	4839	1566	1733	4580	1238	1700	1879	1597	1785	1860	1597								
Flt Permitted	0.246	0.061			0.652			0.748												
Satd. Flow (perm)	440	4839	1566	111	4580	1238	1167	1879	1597	1405	1860	1597								
Right Turn on Red	Yes			Yes			Yes			Yes		Yes								
Satd. Flow (RTOR)	551			54			52			76										
Link Speed (k/h)	60			60			50			50										
Link Distance (m)	261.4			340.3			475.3			830.2										
Travel Time (s)	15.7			20.4			34.2			59.8										
Confl. Peds. (#/hr)																				
Confl. Bikes (#/hr)																				
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								
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%								
Heavy Vehicles (%)	5%	6%	2%	3%	12%	29%	5%	0%	0%	0%	1%	0%								
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0								
Parking (#/hr)																				
Mid-Block Traffic (%)	0%			0%			0%			0%										
Adj. Flow (vph)	26	1694	641	245	1103	17	131	15	30	41	99	53								
Shared Lane Traffic (%)																				
Lane Group Flow (vph)	26	1694	641	245	1103	17	131	15	30	41	99	53								
Enter Blocked Intersection	No																			
Lane Alignment	Left	Left	Right																	
Median Width(m)	3.5			3.5			3.5			3.5										
Link Offset(m)	0.0			0.0			0.0			0.0										
Crosswalk Width(m)	4.8			4.8			4.8			4.8										
Two way Left Turn Lane																				
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01								
Turning Speed (k/h)	25	15			25			15			25									
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm								
Protected Phases	2			1			6			7		4								
Permitted Phases	2			6			6			4		8								
Detector Phase	2			1			6			7		4								
Switch Phase																				
Minimum Initial (s)	12.0	12.0	12.0	5.0	12.0	12.0	5.0	8.0	8.0	8.0	8.0	8.0								
Minimum Split (s)	35.7	35.7	35.7	9.0	35.7	35.7	9.0	39.9	39.9	39.9	39.9	39.9								
Total Split (s)	70.0	70.0	70.0	20.0	90.0	90.0	9.0	50.0	50.0	41.0	41.0	41.0								
Total Split (%)	50.0%	50.0%	50.0%	14.3%	64.3%	64.3%	6.4%	35.7%	35.7%	29.3%	29.3%	29.3%								
Maximum Green (s)	63.3	63.3	63.3	17.0	83.3	83.3	6.0	43.1	43.1	34.1	34.1	34.1								
Yellow Time (s)	4.6	4.6	4.6	3.0	4.6	4.6	3.0	4.0	4.0	4.0	4.0	4.0								
All-Red Time (s)	2.1	2.1	2.1	0.0	2.1	2.1	0.0	2.9	2.9	2.9	2.9	2.9								
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0								

Lanes, Volumes, Timings

8: Heart Lake Road & Mayfield Road

03-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.7	5.7	5.7	2.0	5.7	5.7	2.0	5.9	5.9	5.9	5.9	5.9
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	Yes
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
Minimum Gap (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
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Max	C-Max	C-Max	None	Max	Max	None	Max	Max	Max	Max	Max
Walk Time (s)	8.0	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0
Flash Dont Walk (s)	21.0	21.0	21.0		21.0	21.0		25.0	25.0	25.0	25.0	25.0
Pedestrian Calls (#/hr)	0	0	0		0	0		0	0	0	0	0
Act Effect Green (s)	64.9	64.9	64.9	88.0	84.3	84.3	48.0	44.1	44.1	35.1	35.1	35.1
Actuated g/C Ratio	0.46	0.46	0.46	0.63	0.60	0.60	0.34	0.32	0.32	0.25	0.25	0.25
v/c Ratio	0.13	0.76	0.63	0.90	0.40	0.02	0.31	0.03	0.06	0.12	0.21	0.12
Control Delay	30.5	36.7	11.6	72.9	15.1	0.1	35.2	33.4	3.2	41.7	43.0	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.5	36.7	11.6	72.9	15.1	0.1	35.2	33.4	3.2	41.7	43.0	4.1
LOS	C	D	B	E	B	A	D	C	A	D	D	A
Approach Delay		29.8			25.3			29.6			32.1	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	4.6	125.4	41.8	53.4	58.7	0.0	27.1	3.0	0.0	9.3	23.0	0.0
Queue Length 95th (m)	m5.9	144.2	m53.9	#103.5	69.0	0.0	44.1	8.6	3.2	19.9	39.5	6.0
Internal Link Dist (m)		237.4			316.3			451.3			806.2	
Turn Bay Length (m)	125.0		200.0	160.0		160.0	125.0		60.0	85.0		55.0
Base Capacity (vph)	204	2242	1021	278	2757	766	426	591	538	352	466	457
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	0.13	0.76	0.63	0.88	0.40	0.02	0.31	0.03	0.06	0.12	0.21	0.12

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 66 (47%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 28.4

Intersection LOS: C

Intersection Capacity Utilization 73.2%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 8: Heart Lake Road & Mayfield Road



Lanes, Volumes, Timings

11: Inder Heights Drive/Snellview Boulevard & Mayfield Road

03-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↓		↑	↑↑↓		↑	↑			↔	
Traffic Volume (vph)	14	1746	16	17	1383	5	23	0	30	24	1	54
Future Volume (vph)	14	1746	16	17	1383	5	23	0	30	24	1	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	45.0		0.0	45.0		45.0	45.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1384	4867	0	1668	4621	1331	1463	1500	0	0	1593	0
Flt Permitted	0.148			0.085			0.717				0.921	
Satd. Flow (perm)	215	4867	0	149	4621	1299	1095	1500	0	0	1489	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				28		23			51	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		115.1			416.2			144.8			122.1	
Travel Time (s)		6.9			25.0			13.0			11.0	
Confl. Peds. (#/hr)	1					1	6		1	1		6
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	29%	5%	36%	7%	11%	20%	22%	0%	5%	13%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	14	1746	16	17	1383	5	23	0	30	24	1	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	1762	0	17	1383	5	23	30	0	0	79	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Detector Phase	2	2		2	2	2	4	4		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0	12.0	8.0	8.0		8.0	8.0	
Minimum Split (s)	25.0	25.0		25.0	25.0	25.0	32.6	32.6		32.6	32.6	
Total Split (s)	90.0	90.0		90.0	90.0	90.0	50.0	50.0		50.0	50.0	
Total Split (%)	64.3%	64.3%		64.3%	64.3%	64.3%	35.7%	35.7%		35.7%	35.7%	
Maximum Green (s)	84.0	84.0		84.0	84.0	84.0	43.4	43.4		43.4	43.4	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

11: Inder Heights Drive/Snellview Boulevard & Mayfield Road

03-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.6	5.6			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max	C-Max	Max	Max		Max	Max	
Walk Time (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effect Green (s)	85.0	85.0		85.0	85.0	85.0	44.4	44.4			44.4	
Actuated g/C Ratio	0.61	0.61		0.61	0.61	0.61	0.32	0.32			0.32	
v/c Ratio	0.11	0.60		0.19	0.49	0.01	0.07	0.06			0.16	
Control Delay	14.1	18.0		13.2	10.2	0.0	34.2	15.6			9.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	14.1	18.0		13.2	10.2	0.0	34.2	15.6			9.4	
LOS	B	B		B	B	A	C	B			A	
Approach Delay		17.9			10.2			23.7			9.4	
Approach LOS		B			B			C			A	
Queue Length 50th (m)	1.7	110.0		1.3	48.0	0.0	4.7	1.4			3.6	
Queue Length 95th (m)	5.5	124.3		m3.0	51.6	m0.0	12.0	9.3			m12.8	
Internal Link Dist (m)		91.1			392.2			120.8			98.1	
Turn Bay Length (m)	45.0			45.0		45.0	45.0					
Base Capacity (vph)	130	2955		90	2805	799	347	491			507	
Starvation Cap Reductn	0	0		0	0	0	0	0			0	
Spillback Cap Reductn	0	0		0	0	0	0	0			0	
Storage Cap Reductn	0	0		0	0	0	0	0			0	
Reduced v/c Ratio	0.11	0.60		0.19	0.49	0.01	0.07	0.06			0.16	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 14.6 Intersection LOS: B

Intersection Capacity Utilization 64.6% ICU Level of Service C

Analysis Period (min) 15

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

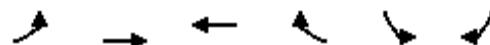
Splits and Phases: 11: Inder Heights Drive/Snellview Boulevard & Mayfield Road



Lanes, Volumes, Timings

14: Mayfield Road & Hwy 410 SB Off-Ramp

03-01-2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1181	1255	0	616	100
Future Volume (vph)	0	1181	1255	0	616	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	110.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Satd. Flow (prot)	0	4749	4706	0	3400	1453
Flt Permitted					0.953	
Satd. Flow (perm)	0	4749	4706	0	3400	1453
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					2	30
Link Speed (k/h)	60	60			80	
Link Distance (m)	340.3	442.1			199.5	
Travel Time (s)	20.4	26.5			9.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	8%	9%	0%	2%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	1181	1255	0	616	100
Shared Lane Traffic (%)					10%	
Lane Group Flow (vph)	0	1181	1255	0	626	90
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)	3.5	3.5			7.0	
Link Offset(m)	0.0	0.0			0.0	
Crosswalk Width(m)	4.8	4.8			4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Turn Type		NA	NA		Prot	Perm
Protected Phases		2	2		4	
Permitted Phases					4	
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)	16.0	16.0		8.0	8.0	
Minimum Split (s)	27.0	27.0		37.0	37.0	
Total Split (s)	46.0	46.0		41.0	41.0	
Total Split (%)	52.9%	52.9%		47.1%	47.1%	
Maximum Green (s)	40.0	40.0		35.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

14: Mayfield Road & Hwy 410 SB Off-Ramp

03-01-2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Total Lost Time (s)	5.0	5.0		5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	
Recall Mode	Max	Max		Min	Min	
Walk Time (s)	10.0	10.0		20.0	20.0	
Flash Dont Walk (s)	6.0	6.0		6.0	6.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effect Green (s)	54.1	54.1		22.9	22.9	
Actuated g/C Ratio	0.62	0.62		0.26	0.26	
v/c Ratio	0.40	0.43		0.70	0.22	
Control Delay	9.3	9.6		32.9	17.6	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	9.3	9.6		32.9	17.6	
LOS	A	A		C	B	
Approach Delay	9.3	9.6		31.0		
Approach LOS	A	A		C		
Queue Length 50th (m)	34.0	37.0		51.1	8.9	
Queue Length 95th (m)	52.2	56.5		62.8	20.0	
Internal Link Dist (m)	316.3	418.1		175.5		
Turn Bay Length (m)				110.0		
Base Capacity (vph)	2955	2928		1408	618	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.40	0.43		0.44	0.15	

Intersection Summary

Area Type: Other

Cycle Length: 87

Actuated Cycle Length: 87

Offset: 9.5 (11%), Referenced to phase 6:, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 14.3 Intersection LOS: B

Intersection Capacity Utilization 84.7% ICU Level of Service E

Analysis Period (min) 15

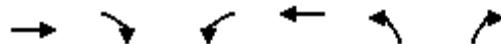
Splits and Phases: 14: Mayfield Road & Hwy 410 SB Off-Ramp



Lanes, Volumes, Timings

16: Hwy 410 NB Off-Ramp & Mayfield Road

03-01-2021



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑	↑↑	↑
Traffic Volume (vph)	1958	0	0	1427	300	903
Future Volume (vph)	1958	0	0	1427	300	903
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)		50.0	0.0		0.0	90.0
Storage Lanes		0	0		2	1
Taper Length (m)			7.5		7.5	
Satd. Flow (prot)	4885	0	0	4839	2977	1452
Flt Permitted					0.980	
Satd. Flow (perm)	4885	0	0	4839	2977	1452
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					7	7
Link Speed (k/h)	60			60	80	
Link Distance (m)	442.1			202.7	480.1	
Travel Time (s)	26.5			12.2	21.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	0%	0%	13%	8%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	1958	0	0	1427	300	903
Shared Lane Traffic (%)					50%	
Lane Group Flow (vph)	1958	0	0	1427	752	451
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases					4	
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	12.0			12.0	10.0	10.0
Minimum Split (s)	33.6			33.6	24.9	24.9
Total Split (s)	70.0			70.0	50.0	50.0
Total Split (%)	58.3%			58.3%	41.7%	41.7%
Maximum Green (s)	63.4			63.4	43.1	43.1
Yellow Time (s)	4.6			4.6	4.6	4.6
All-Red Time (s)	2.0			2.0	2.3	2.3
Lost Time Adjust (s)	-1.0			-1.0	-1.0	-1.0

Lanes, Volumes, Timings

16: Hwy 410 NB Off-Ramp & Mayfield Road

03-01-2021



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Total Lost Time (s)	5.6			5.6	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Minimum Gap (s)	3.0			3.0	3.0	3.0
Time Before Reduce (s)	0.0			0.0	0.0	0.0
Time To Reduce (s)	0.0			0.0	0.0	0.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	8.0			8.0		
Flash Dont Walk (s)	19.0			19.0		
Pedestrian Calls (#/hr)	0			0		
Act Effect Green (s)	67.4			67.4	41.1	41.1
Actuated g/C Ratio	0.56			0.56	0.34	0.34
v/c Ratio	0.71			0.53	0.90dr	0.90
Control Delay	21.7			17.7	38.8	58.6
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	21.7			17.7	38.8	58.6
LOS	C			B	D	E
Approach Delay	21.7			17.7	46.2	
Approach LOS	C			B	D	
Queue Length 50th (m)	131.9			76.6	79.7	99.9
Queue Length 95th (m)	151.5			89.7	102.3	#158.5
Internal Link Dist (m)	418.1			178.7	456.1	
Turn Bay Length (m)						90.0
Base Capacity (vph)	2742			2716	1098	538
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.71			0.53	0.68	0.84

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 32 (27%), Referenced to phase 2:EBWB and 6:, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 26.9 Intersection LOS: C

Intersection Capacity Utilization 84.7% ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 16: Hwy 410 NB Off-Ramp & Mayfield Road



HCM Unsigned Intersection Capacity Analysis

18: Kennedy Road & Snellview Boulevard

03-01-2021



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑↓	
Traffic Volume (veh/h)	2	55	25	495	1239	2
Future Volume (Veh/h)	2	55	25	495	1239	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	55	25	495	1239	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)				287		
pX, platoon unblocked	0.95					
vC, conflicting volume	1785	620	1241			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1799	620	1241			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	87	96			
cM capacity (veh/h)	66	435	568			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	2	55	25	495	826	415
Volume Left	2	0	25	0	0	0
Volume Right	0	55	0	0	0	2
cSH	66	435	568	1700	1700	1700
Volume to Capacity	0.03	0.13	0.04	0.29	0.49	0.24
Queue Length 95th (m)	0.7	3.4	1.1	0.0	0.0	0.0
Control Delay (s)	60.9	14.5	11.6	0.0	0.0	0.0
Lane LOS	F	B	B			
Approach Delay (s)	16.1		0.6		0.0	
Approach LOS	C					
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			44.4%		ICU Level of Service	
Analysis Period (min)			15			A

HCM Unsignalized Intersection Capacity Analysis

20: Stonegate Drive & Mayfield Road

03-01-2021



Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑↓		↑	↑↑↑	↑↓			
Traffic Volume (veh/h)	2427	3	26	1333	2	80		
Future Volume (Veh/h)	2427	3	26	1333	2	80		
Sign Control	Free			Free	Stop			
Grade	0%			0%	0%			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Hourly flow rate (vph)	2427	3	26	1333	2	80		
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		2430		2925	810			
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol		2430		2925	810			
tC, single (s)		4.3		6.8	7.0			
tC, 2 stage (s)								
tF (s)		2.3		3.5	3.3			
p0 queue free %		85		81	75			
cM capacity (veh/h)		174		11	321			
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1
Volume Total	971	971	488	26	444	444	444	82
Volume Left	0	0	0	26	0	0	0	2
Volume Right	0	0	3	0	0	0	0	80
cSH	1700	1700	1700	174	1700	1700	1700	187
Volume to Capacity	0.57	0.57	0.29	0.15	0.26	0.26	0.26	0.44
Queue Length 95th (m)	0.0	0.0	0.0	4.1	0.0	0.0	0.0	16.3
Control Delay (s)	0.0	0.0	0.0	29.2	0.0	0.0	0.0	38.6
Lane LOS				D			E	
Approach Delay (s)	0.0			0.6			38.6	
Approach LOS							E	
Intersection Summary								
Average Delay			1.0					
Intersection Capacity Utilization		58.7%		ICU Level of Service			B	
Analysis Period (min)		15						

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	275	920	85	168	1430	616	119	276	108	293	159	188	
Future Volume (vph)	275	920	85	168	1430	616	119	276	108	293	159	188	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
Grade (%)	0%			0%			0%			0%			
Storage Length (m)	45.0	0.0			85.0			40.0			45.0		
Storage Lanes	1	1			1			0			1		
Taper Length (m)	7.5	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1785	4885	1507	1785	4795	0	1785	3400	0	1719	3241	0	
Flt Permitted	0.066	0.278			0.544			0.397					
Satd. Flow (perm)	124	4885	1480	522	4795	0	1015	3400	0	715	3241	0	
Right Turn on Red	Yes			Yes			Yes			Yes			
Satd. Flow (RTOR)	85			94			40			188			
Link Speed (k/h)	60			60			50			50			
Link Distance (m)	416.2			542.7			529.5			286.9			
Travel Time (s)	25.0			32.6			38.1			20.7			
Confl. Peds. (#/hr)	2	4			2			7			6		
Confl. Bikes (#/hr)													
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	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	0%	5%	6%	0%	2%	0%	0%	0%	0%	3%	0%	0%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	2	0	0	
Parking (#/hr)													
Mid-Block Traffic (%)	0%			0%			0%			0%			
Adj. Flow (vph)	275	920	85	168	1430	616	119	276	108	293	159	188	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	275	920	85	168	2046	0	119	384	0	293	347	0	
Enter Blocked Intersection	No	No	No										
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(m)	3.5			3.5			3.5			3.5			
Link Offset(m)	0.0			0.0			0.0			0.0			
Crosswalk Width(m)	4.8			4.8			4.8			4.8			
Two way Left Turn Lane													
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.03	1.01	1.01	
Turning Speed (k/h)	25	15			25			15			25		
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm			NA			pm+pt	NA
Protected Phases	5	2	1			6			4			3	8
Permitted Phases	2	2			6			4			8		
Detector Phase	5	2	2	1	6	4			4			3	8
Switch Phase													
Minimum Initial (s)	6.0	8.0	8.0	6.0	8.0	12.0			12.0			6.0	12.0
Minimum Split (s)	9.0	34.6	34.6	9.0	34.6	34.9			34.9			9.0	34.9
Total Split (s)	23.0	66.0	66.0	20.0	63.0	42.0			42.0			12.0	54.0
Total Split (%)	16.4%	47.1%	47.1%	14.3%	45.0%	30.0%			30.0%			8.6%	38.6%
Maximum Green (s)	20.0	59.4	59.4	17.0	56.4	35.1			35.1			9.0	47.1
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0			4.0			3.0	4.0
All-Red Time (s)	0.0	2.6	2.6	0.0	2.6	2.9			2.9			0.0	2.9
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0			-1.0			-1.0	-1.0

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	2.0	5.6	5.6	2.0	5.6		5.9	5.9		2.0	5.9	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	None	C-Max	C-Max	None	Max		Max	Max		Max	None	
Walk Time (s)		8.0	8.0		8.0		8.0	8.0			8.0	
Flash Dont Walk (s)		20.0	20.0		20.0		20.0	20.0			20.0	
Pedestrian Calls (#/hr)		0	0		0		0	0			0	
Act Effect Green (s)	84.0	66.0	66.0	74.5	58.5		36.1	36.1		52.0	48.1	
Actuated g/C Ratio	0.60	0.47	0.47	0.53	0.42		0.26	0.26		0.37	0.34	
v/c Ratio	0.89	0.40	0.11	0.43	0.99		0.46	0.42		0.87	0.28	
Control Delay	67.6	25.0	4.7	16.5	57.2		50.4	40.2		62.6	15.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	67.6	25.0	4.7	16.5	57.2		50.4	40.2		62.6	15.4	
LOS	E	C	A	B	E		D	D		E	B	
Approach Delay		32.8			54.1			42.6			37.0	
Approach LOS		C			D			D			D	
Queue Length 50th (m)	61.1	62.6	0.0	20.6	~216.5		29.3	44.0		64.4	16.7	
Queue Length 95th (m)	#110.2	78.2	10.1	32.1	#253.4		50.5	60.2		#113.1	29.3	
Internal Link Dist (m)		392.2			518.7			505.5			262.9	
Turn Bay Length (m)	45.0			85.0			45.0				90.0	
Base Capacity (vph)	323	2304	742	460	2058		261	906		337	1236	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.85	0.40	0.11	0.37	0.99		0.46	0.42		0.87	0.28	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 13 (9%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 44.6 Intersection LOS: D

Intersection Capacity Utilization 112.5% ICU Level of Service H

Analysis Period (min) 15

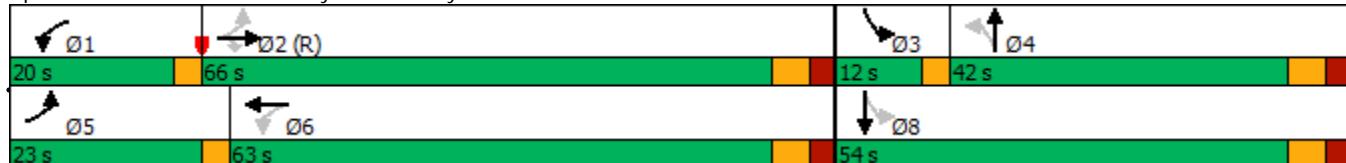
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 5: Kennedy Road & Mayfield Road



Lanes, Volumes, Timings

8: Heart Lake Road & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR								
Lane Configurations	↑	↑↑↑	↑	↑	↑↑↑	↑	↑	↑	↑	↑	↑	↑								
Traffic Volume (vph)	39	1207	145	59	1754	53	379	53	41	34	33	26								
Future Volume (vph)	39	1207	145	59	1754	53	379	53	41	34	33	26								
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900								
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5								
Grade (%)	0%			0%			0%			0%										
Storage Length (m)	125.0	200.0			160.0	160.0	125.0	60.0			85.0		55.0							
Storage Lanes	1	1			1	1	1	1			1	1	1							
Taper Length (m)	7.5	7.5			7.5	7.5			7.5			7.5								
Satd. Flow (prot)	1733	4706	1507	1700	4980	1566	1767	1879	1465	1668	1807	1521								
Flt Permitted	0.093	0.170			0.696			0.722												
Satd. Flow (perm)	170	4706	1507	304	4980	1566	1295	1879	1465	1268	1807	1521								
Right Turn on Red	Yes			Yes			Yes			Yes		Yes								
Satd. Flow (RTOR)	145			56			54			78										
Link Speed (k/h)	60			60			50			50										
Link Distance (m)	261.4			340.3			475.3			830.2										
Travel Time (s)	15.7			20.4			34.2			59.8										
Confl. Peds. (#/hr)																				
Confl. Bikes (#/hr)																				
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								
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%								
Heavy Vehicles (%)	3%	9%	6%	5%	3%	2%	1%	0%	9%	7%	4%	5%								
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0								
Parking (#/hr)																				
Mid-Block Traffic (%)	0%			0%			0%			0%										
Adj. Flow (vph)	39	1207	145	59	1754	53	379	53	41	34	33	26								
Shared Lane Traffic (%)																				
Lane Group Flow (vph)	39	1207	145	59	1754	53	379	53	41	34	33	26								
Enter Blocked Intersection	No																			
Lane Alignment	Left	Left	Right																	
Median Width(m)	3.5			3.5			3.5			3.5										
Link Offset(m)	0.0			0.0			0.0			0.0										
Crosswalk Width(m)	4.8			4.8			4.8			4.8										
Two way Left Turn Lane																				
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01								
Turning Speed (k/h)	25	15			25			15			25									
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm								
Protected Phases	2			1			6			7		4								
Permitted Phases	2			6			6			4		8								
Detector Phase	2			1			6			7		4								
Switch Phase																				
Minimum Initial (s)	12.0	12.0	12.0	5.0	12.0	12.0	5.0	8.0	8.0	8.0	8.0	8.0								
Minimum Split (s)	35.7	35.7	35.7	9.0	35.7	35.7	9.0	39.9	39.9	39.9	39.9	39.9								
Total Split (s)	76.0	76.0	76.0	9.0	85.0	85.0	9.0	50.0	50.0	41.0	41.0	41.0								
Total Split (%)	56.3%	56.3%	56.3%	6.7%	63.0%	63.0%	6.7%	37.0%	37.0%	30.4%	30.4%	30.4%								
Maximum Green (s)	69.3	69.3	69.3	6.0	78.3	78.3	6.0	43.1	43.1	34.1	34.1	34.1								
Yellow Time (s)	4.6	4.6	4.6	3.0	4.6	4.6	3.0	4.0	4.0	4.0	4.0	4.0								
All-Red Time (s)	2.1	2.1	2.1	0.0	2.1	2.1	0.0	2.9	2.9	2.9	2.9	2.9								
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0								

Lanes, Volumes, Timings

8: Heart Lake Road & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.7	5.7	5.7	2.0	5.7	5.7	2.0	5.9	5.9	5.9	5.9	5.9
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	Yes
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
Minimum Gap (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
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Max	C-Max	C-Max	None	Max	Max	None	Max	Max	Max	Max	Max
Walk Time (s)	8.0	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0
Flash Dont Walk (s)	21.0	21.0	21.0		21.0	21.0		25.0	25.0	25.0	25.0	25.0
Pedestrian Calls (#/hr)	0	0	0		0	0		0	0	0	0	0
Act Effect Green (s)	72.1	72.1	72.1	83.0	79.3	79.3	48.0	44.1	44.1	35.1	35.1	35.1
Actuated g/C Ratio	0.53	0.53	0.53	0.61	0.59	0.59	0.36	0.33	0.33	0.26	0.26	0.26
v/c Ratio	0.43	0.48	0.17	0.23	0.60	0.06	0.78	0.09	0.08	0.10	0.07	0.06
Control Delay	38.8	20.8	3.0	12.5	18.8	2.9	50.7	32.1	5.3	39.2	38.3	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	0.0
Total Delay	38.8	20.8	3.0	12.5	18.8	2.9	50.7	32.1	5.3	39.2	38.3	0.2
LOS	D	C	A	B	B	A	D	C	A	D	D	A
Approach Delay		19.5			18.2			44.7			28.0	
Approach LOS		B			B			D			C	
Queue Length 50th (m)	6.6	77.6	0.0	6.3	109.5	0.0	86.9	10.3	0.0	7.3	7.0	0.0
Queue Length 95th (m)	21.2	90.6	10.6	12.3	124.2	5.5	#124.1	20.8	6.2	16.9	16.1	0.0
Internal Link Dist (m)		237.4			316.3			451.3			806.2	
Turn Bay Length (m)	125.0		200.0	160.0		160.0	125.0		60.0	85.0		55.0
Base Capacity (vph)	90	2513	872	259	2925	942	484	613	514	329	469	453
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	0.43	0.48	0.17	0.23	0.60	0.06	0.78	0.09	0.08	0.10	0.07	0.06

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 26 (19%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 22.2

Intersection LOS: C

Intersection Capacity Utilization 86.0%

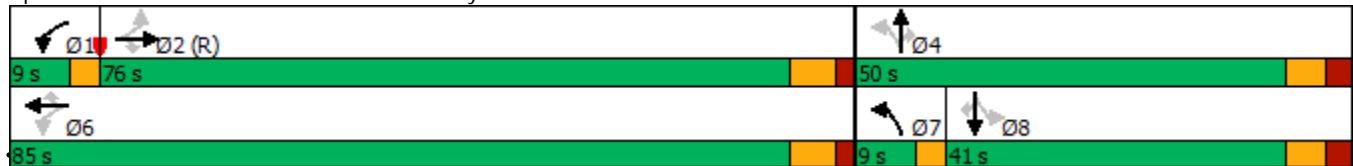
ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 8: Heart Lake Road & Mayfield Road



Lanes, Volumes, Timings

11: Inder Heights Drive/Snellview Boulevard & Mayfield Road

02-28-2021

	↑	→	↓	↶	←	↷	↶	↑	↷	↓	↶	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↑		↑	↑↑↑	↑	↑	↑			↔	
Traffic Volume (vph)	56	1417	29	26	1645	19	7	0	13	10	1	34
Future Volume (vph)	56	1417	29	26	1645	19	7	0	13	10	1	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	45.0		0.0	45.0		45.0	45.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1668	4649	0	1684	4885	1521	1785	1597	0	0	1545	0
Flt Permitted	0.112			0.145			0.728				0.955	
Satd. Flow (perm)	197	4649	0	257	4885	1521	1364	1597	0	0	1492	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				29		63			34	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		115.1			416.2			144.8			122.1	
Travel Time (s)		6.9			25.0			13.0			11.0	
Confl. Peds. (#/hr)			1	1			2				2	
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	10%	7%	6%	5%	5%	0%	0%	0%	0%	0%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	56	1417	29	26	1645	19	7	0	13	10	1	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	56	1446	0	26	1645	19	7	13	0	0	45	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Detector Phase	2	2		2	2	2	4	4		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0	12.0	8.0	8.0		8.0	8.0	
Minimum Split (s)	25.0	25.0		25.0	25.0	25.0	32.6	32.6		32.6	32.6	
Total Split (s)	95.0	95.0		95.0	95.0	95.0	40.0	40.0		40.0	40.0	
Total Split (%)	70.4%	70.4%		70.4%	70.4%	70.4%	29.6%	29.6%		29.6%	29.6%	
Maximum Green (s)	89.0	89.0		89.0	89.0	89.0	33.4	33.4		33.4	33.4	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

11: Inder Heights Drive/Snellview Boulevard & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.6	5.6			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max	C-Max	Max	Max		Max	Max	
Walk Time (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effect Green (s)	90.0	90.0		90.0	90.0	90.0	34.4	34.4			34.4	
Actuated g/C Ratio	0.67	0.67		0.67	0.67	0.67	0.25	0.25			0.25	
v/c Ratio	0.43	0.47		0.15	0.51	0.02	0.02	0.03			0.11	
Control Delay	22.8	11.4		11.0	12.0	1.5	38.1	0.2			16.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	22.8	11.4		11.0	12.0	1.5	38.1	0.2			16.8	
LOS	C	B		B	B	A	D	A			B	
Approach Delay		11.9			11.8			13.4			16.8	
Approach LOS		B			B			B			B	
Queue Length 50th (m)	6.8	66.3		2.5	78.7	0.0	1.5	0.0			2.3	
Queue Length 95th (m)	20.7	76.5		7.1	89.8	1.9	5.6	0.0			12.7	
Internal Link Dist (m)		91.1			392.2			120.8			98.1	
Turn Bay Length (m)	45.0			45.0		45.0	45.0					
Base Capacity (vph)	131	3101		171	3256	1023	347	453			405	
Starvation Cap Reductn	0	0		0	0	0	0	0			0	
Spillback Cap Reductn	0	0		0	0	0	0	0			0	
Storage Cap Reductn	0	0		0	0	0	0	0			0	
Reduced v/c Ratio	0.43	0.47		0.15	0.51	0.02	0.02	0.03			0.11	

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 15 (11%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.51

Intersection Signal Delay: 11.9 Intersection LOS: B

Intersection Capacity Utilization 76.5% ICU Level of Service D

Analysis Period (min) 15

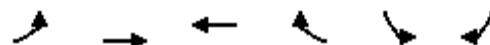
Splits and Phases: 11: Inder Heights Drive/Snellview Boulevard & Mayfield Road



Lanes, Volumes, Timings

14: Mayfield Road & Hwy 410 SB Off-Ramp

02-28-2021

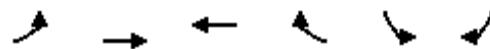


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	884	1952	0	137	14
Future Volume (vph)	0	884	1952	0	137	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	110.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Satd. Flow (prot)	0	4663	5029	0	3338	1453
Flt Permitted					0.953	
Satd. Flow (perm)	0	4663	5029	0	3338	1453
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					1	3
Link Speed (k/h)	60	60			80	
Link Distance (m)	340.3	442.1			199.5	
Travel Time (s)	20.4	26.5			9.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	10%	2%	0%	4%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	884	1952	0	137	14
Shared Lane Traffic (%)					10%	
Lane Group Flow (vph)	0	884	1952	0	138	13
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)	3.5	3.5			7.0	
Link Offset(m)	0.0	0.0			0.0	
Crosswalk Width(m)	4.8	4.8			4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Turn Type		NA	NA		Prot	Perm
Protected Phases		2	2		4	
Permitted Phases					4	
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)	16.0	16.0		8.0	8.0	
Minimum Split (s)	27.0	27.0		37.0	37.0	
Total Split (s)	46.0	46.0		41.0	41.0	
Total Split (%)	52.9%	52.9%		47.1%	47.1%	
Maximum Green (s)	40.0	40.0		35.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

14: Mayfield Road & Hwy 410 SB Off-Ramp

02-28-2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Total Lost Time (s)	5.0	5.0		5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	
Recall Mode	Max	Max		Min	Min	
Walk Time (s)	10.0	10.0				
Flash Dont Walk (s)	6.0	6.0				
Pedestrian Calls (#/hr)	0	0				
Act Effect Green (s)	66.7	66.7		10.3	10.3	
Actuated g/C Ratio	0.77	0.77		0.12	0.12	
v/c Ratio	0.25	0.51		0.35	0.07	
Control Delay	3.2	4.5		37.2	30.1	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	3.2	4.5		37.2	30.1	
LOS	A	A		D	C	
Approach Delay	3.2	4.5		36.6		
Approach LOS	A	A		D		
Queue Length 50th (m)	12.3	36.1		11.6	1.7	
Queue Length 95th (m)	18.8	51.6		19.8	7.3	
Internal Link Dist (m)	316.3	418.1		175.5		
Turn Bay Length (m)				110.0		
Base Capacity (vph)	3576	3856		1381	603	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.25	0.51		0.10	0.02	

Intersection Summary

Area Type: Other

Cycle Length: 87

Actuated Cycle Length: 87

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

Natural Cycle: 70

Control Type: Actuated-Coordinated

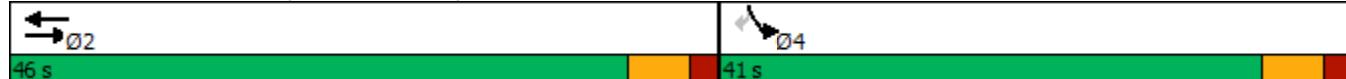
Maximum v/c Ratio: 0.51

Intersection Signal Delay: 5.8 Intersection LOS: A

Intersection Capacity Utilization 78.1% ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 14: Mayfield Road & Hwy 410 SB Off-Ramp



Lanes, Volumes, Timings

16: Hwy 410 NB Off-Ramp & Mayfield Road

02-28-2021



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑	↑↑	↑
Traffic Volume (vph)	1039	0	0	2115	635	906
Future Volume (vph)	1039	0	0	2115	635	906
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)		50.0	0.0		0.0	90.0
Storage Lanes		0	0		2	1
Taper Length (m)			7.5		7.5	
Satd. Flow (prot)	4706	0	0	5207	3191	1479
Flt Permitted					0.971	
Satd. Flow (perm)	4706	0	0	5207	3191	1479
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					66	66
Link Speed (k/h)	60			60	80	
Link Distance (m)	442.1			202.7	480.1	
Travel Time (s)	26.5			12.2	21.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	9%	0%	0%	5%	2%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	1039	0	0	2115	635	906
Shared Lane Traffic (%)					46%	
Lane Group Flow (vph)	1039	0	0	2115	1052	489
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases					4	
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	12.0			12.0	10.0	10.0
Minimum Split (s)	33.6			33.6	22.5	22.5
Total Split (s)	65.0			65.0	55.0	55.0
Total Split (%)	54.2%			54.2%	45.8%	45.8%
Maximum Green (s)	58.4			58.4	48.1	48.1
Yellow Time (s)	4.6			4.6	4.6	4.6
All-Red Time (s)	2.0			2.0	2.3	2.3
Lost Time Adjust (s)	-1.0			-1.0	-1.0	-1.0

Lanes, Volumes, Timings

16: Hwy 410 NB Off-Ramp & Mayfield Road

02-28-2021



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Total Lost Time (s)	5.6			5.6	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Minimum Gap (s)	3.0			3.0	3.0	3.0
Time Before Reduce (s)	0.0			0.0	0.0	0.0
Time To Reduce (s)	0.0			0.0	0.0	0.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	8.0			8.0		
Flash Dont Walk (s)	19.0			19.0		
Pedestrian Calls (#/hr)	0			0		
Act Effect Green (s)	63.6			63.6	44.9	44.9
Actuated g/C Ratio	0.53			0.53	0.37	0.37
v/c Ratio	0.42			0.77	0.85	0.82
Control Delay	18.2			25.4	39.5	41.2
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	18.2			25.4	39.5	41.2
LOS	B			C	D	D
Approach Delay	18.2			25.4	40.0	
Approach LOS	B			C	D	
Queue Length 50th (m)	56.1			140.5	113.6	94.0
Queue Length 95th (m)	71.3			168.6	136.3	135.6
Internal Link Dist (m)	418.1			178.7	456.1	
Turn Bay Length (m)					90.0	
Base Capacity (vph)	2492			2758	1344	644
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.42			0.77	0.78	0.76

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 19 (16%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 28.6

Intersection LOS: C

Intersection Capacity Utilization 78.1%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 16: Hwy 410 NB Off-Ramp & Mayfield Road



HCM Unsignalized Intersection Capacity Analysis

18: Kennedy Road & Snellview Boulevard

02-28-2021



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑↓	
Traffic Volume (veh/h)	2	44	75	1092	596	4
Future Volume (Veh/h)	2	44	75	1092	596	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	44	75	1092	596	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)				287		
pX, platoon unblocked	0.80					
vC, conflicting volume	1840	300	600			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1925	300	600			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	94	92			
cM capacity (veh/h)	44	702	987			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	2	44	75	1092	397	203
Volume Left	2	0	75	0	0	0
Volume Right	0	44	0	0	0	4
cSH	44	702	987	1700	1700	1700
Volume to Capacity	0.05	0.06	0.08	0.64	0.23	0.12
Queue Length 95th (m)	1.1	1.6	2.0	0.0	0.0	0.0
Control Delay (s)	89.9	10.5	8.9	0.0	0.0	0.0
Lane LOS	F	B	A			
Approach Delay (s)	13.9		0.6		0.0	
Approach LOS	B					
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			67.5%		ICU Level of Service	
Analysis Period (min)			15			C

HCM Unsignalized Intersection Capacity Analysis

20: Stonegate Drive & Mayfield Road

02-28-2021



Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑↓		↑	↑↑↑	↑↓			
Traffic Volume (veh/h)	1560	13	92	2454	2	36		
Future Volume (Veh/h)	1560	13	92	2454	2	36		
Sign Control	Free			Free	Stop			
Grade	0%			0%	0%			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Hourly flow rate (vph)	1560	13	92	2454	2	36		
Pedestrians	1							
Lane Width (m)	3.5							
Walking Speed (m/s)	1.2							
Percent Blockage	0							
Right turn flare (veh)								
Median type	None		None					
Median storage veh								
Upstream signal (m)								
pX, platoon unblocked								
vC, conflicting volume		1573		2570	526			
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol		1573		2570	526			
tC, single (s)		4.1		6.8	6.9			
tC, 2 stage (s)								
tF (s)		2.2		3.5	3.3			
p0 queue free %		78		88	93			
cM capacity (veh/h)		420		17	501			
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1
Volume Total	624	624	325	92	818	818	818	38
Volume Left	0	0	0	92	0	0	0	2
Volume Right	0	0	13	0	0	0	0	36
cSH	1700	1700	1700	420	1700	1700	1700	201
Volume to Capacity	0.37	0.37	0.19	0.22	0.48	0.48	0.48	0.19
Queue Length 95th (m)	0.0	0.0	0.0	6.6	0.0	0.0	0.0	5.4
Control Delay (s)	0.0	0.0	0.0	16.0	0.0	0.0	0.0	27.1
Lane LOS				C			D	
Approach Delay (s)	0.0			0.6			27.1	
Approach LOS							D	
Intersection Summary								
Average Delay			0.6					
Intersection Capacity Utilization		57.4%		ICU Level of Service			B	
Analysis Period (min)		15						

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	2004	133	70	997	298	62	100	119	739	367	322
Future Volume (vph)	175	2004	133	70	997	298	62	100	119	739	367	322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%				0%			0%			0%	
Storage Length (m)	45.0		0.0	85.0		40.0	45.0		55.0	90.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1580	5029	1452	1750	4449	0	1716	3113	0	1640	3196	0
Flt Permitted	0.094			0.078			0.390			0.558		
Satd. Flow (perm)	156	5029	1432	144	4449	0	702	3113	0	963	3196	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		89			56			106			196	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		416.2			542.7			529.5			286.9	
Travel Time (s)		25.0			32.6			38.1			20.7	
Confl. Peds. (#/hr)	1		1	1		1	6					6
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	13%	2%	10%	2%	10%	13%	4%	8%	3%	8%	1%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	2	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	175	2004	133	70	997	298	62	100	119	739	367	322
Shared Lane Traffic (%)												
Lane Group Flow (vph)	175	2004	133	70	1295	0	62	219	0	739	689	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.03	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	5	2		1	6			4		3	8	
Permitted Phases	2		2	6			4			8		
Detector Phase	5	2	2	1	6		4	4		3	8	
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	6.0	8.0		12.0	12.0		6.0	12.0	
Minimum Split (s)	9.0	34.6	34.6	9.0	34.6		34.9	34.9		9.0	34.9	
Total Split (s)	25.0	65.0	65.0	10.0	50.0		40.0	40.0		25.0	65.0	
Total Split (%)	17.9%	46.4%	46.4%	7.1%	35.7%		28.6%	28.6%		17.9%	46.4%	
Maximum Green (s)	22.0	58.4	58.4	7.0	43.4		33.1	33.1		22.0	58.1	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.6	2.6	0.0	2.6		2.9	2.9		0.0	2.9	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	2.0	5.6	5.6	2.0	5.6		5.9	5.9		2.0	5.9	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	None	C-Max	C-Max	None	Max		Max	Max		Max	None	
Walk Time (s)		8.0	8.0		8.0		8.0	8.0			8.0	
Flash Dont Walk (s)		20.0	20.0		20.0		20.0	20.0			20.0	
Pedestrian Calls (#/hr)	0	0		0			0	0			0	
Act Effect Green (s)	73.0	61.4	61.4	62.4	51.0		34.1	34.1		63.0	59.1	
Actuated g/C Ratio	0.52	0.44	0.44	0.45	0.36		0.24	0.24		0.45	0.42	
v/c Ratio	0.71	0.91	0.20	0.46	0.78		0.36	0.26		1.36	0.47	
Control Delay	64.2	25.9	5.1	22.3	37.7		51.4	22.5		203.3	21.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	64.2	25.9	5.1	22.3	37.7		51.4	22.5		203.3	21.4	
LOS	E	C	A	C	D		D	C		F	C	
Approach Delay		27.6			37.0			28.9			115.5	
Approach LOS		C			D			C			F	
Queue Length 50th (m)	35.1	69.9	2.7	9.8	120.3		15.1	13.6		~282.2	53.3	
Queue Length 95th (m)	m49.6	#158.3	m8.9	19.1	149.7		30.5	25.4		#360.8	71.3	
Internal Link Dist (m)		392.2			518.7			505.5			262.9	
Turn Bay Length (m)	45.0			85.0			45.0			90.0		
Base Capacity (vph)	315	2205	677	156	1655		170	838		544	1462	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.56	0.91	0.20	0.45	0.78		0.36	0.26		1.36	0.47	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 17 (12%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.36

Intersection Signal Delay: 53.3 Intersection LOS: D

Intersection Capacity Utilization 110.9% ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

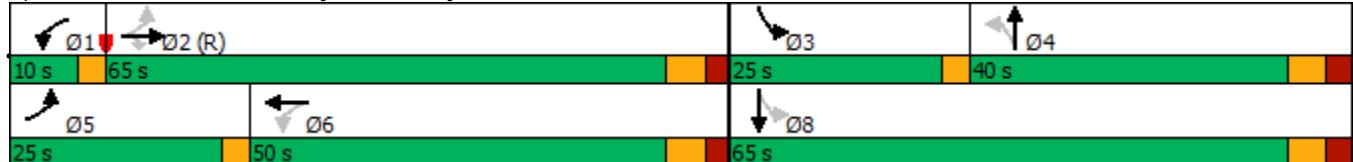
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 5: Kennedy Road & Mayfield Road



Lanes, Volumes, Timings

8: Heart Lake Road & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR								
Lane Configurations	1	2	1	1	2	1	1	1	1	1	1	1								
Traffic Volume (vph)	29	2162	708	260	1408	19	145	16	32	46	109	58								
Future Volume (vph)	29	2162	708	260	1408	19	145	16	32	46	109	58								
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900								
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5								
Grade (%)	0%			0%			0%			0%										
Storage Length (m)	125.0	200.0			160.0			160.0			60.0									
Storage Lanes	1	1			1			1			1									
Taper Length (m)	7.5	7.5			7.5			7.5			7.5									
Satd. Flow (prot)	1700	4839	1566	1733	4580	1238	1700	1879	1597	1785	1860	1597								
Flt Permitted	0.179	0.055			0.668			0.747												
Satd. Flow (perm)	320	4839	1566	100	4580	1238	1195	1879	1597	1404	1860	1597								
Right Turn on Red	Yes			Yes			Yes			Yes		Yes								
Satd. Flow (RTOR)	450			30			52			58										
Link Speed (k/h)	60			60			50			50										
Link Distance (m)	261.4			340.3			475.3			830.2										
Travel Time (s)	15.7			20.4			34.2			59.8										
Confl. Peds. (#/hr)																				
Confl. Bikes (#/hr)																				
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								
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%								
Heavy Vehicles (%)	5%	6%	2%	3%	12%	29%	5%	0%	0%	0%	1%	0%								
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0								
Parking (#/hr)																				
Mid-Block Traffic (%)	0%			0%			0%			0%										
Adj. Flow (vph)	29	2162	708	260	1408	19	145	16	32	46	109	58								
Shared Lane Traffic (%)																				
Lane Group Flow (vph)	29	2162	708	260	1408	19	145	16	32	46	109	58								
Enter Blocked Intersection	No																			
Lane Alignment	Left	Left	Right																	
Median Width(m)	3.5			3.5			3.5			3.5										
Link Offset(m)	0.0			0.0			0.0			0.0										
Crosswalk Width(m)	4.8			4.8			4.8			4.8										
Two way Left Turn Lane																				
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01								
Turning Speed (k/h)	25	15			25			15			25									
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm								
Protected Phases	2			1			6			4		8								
Permitted Phases	2			6			6			4		8								
Detector Phase	2			1			6			4		8								
Switch Phase																				
Minimum Initial (s)	12.0	12.0	12.0	5.0	12.0	12.0	8.0	8.0	8.0	8.0	8.0	8.0								
Minimum Split (s)	35.7	35.7	35.7	9.0	35.7	35.7	39.9	39.9	39.9	39.9	39.9	39.9								
Total Split (s)	70.0	70.0	70.0	30.0	100.0	100.0	40.0	40.0	40.0	40.0	40.0	40.0								
Total Split (%)	50.0%	50.0%	50.0%	21.4%	71.4%	71.4%	28.6%	28.6%	28.6%	28.6%	28.6%	28.6%								
Maximum Green (s)	63.3	63.3	63.3	27.0	93.3	93.3	33.1	33.1	33.1	33.1	33.1	33.1								
Yellow Time (s)	4.6	4.6	4.6	3.0	4.6	4.6	4.0	4.0	4.0	4.0	4.0	4.0								
All-Red Time (s)	2.1	2.1	2.1	0.0	2.1	2.1	2.9	2.9	2.9	2.9	2.9	2.9								
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0								

Lanes, Volumes, Timings

8: Heart Lake Road & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.7	5.7	5.7	2.0	5.7	5.7	5.9	5.9	5.9	5.9	5.9	5.9
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
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
Minimum Gap (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
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Max	C-Max	C-Max	None	Max	Max	Max	Max	Max	Max	Max	Max
Walk Time (s)	8.0	8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Flash Dont Walk (s)	21.0	21.0	21.0		21.0	21.0	25.0	25.0	25.0	25.0	25.0	25.0
Pedestrian Calls (#/hr)	0	0	0		0	0	0	0	0	0	0	0
Act Effect Green (s)	70.8	70.8	70.8	98.0	94.3	94.3	34.1	34.1	34.1	34.1	34.1	34.1
Actuated g/C Ratio	0.51	0.51	0.51	0.70	0.67	0.67	0.24	0.24	0.24	0.24	0.24	0.24
v/c Ratio	0.18	0.88	0.70	0.81	0.46	0.02	0.50	0.04	0.07	0.13	0.24	0.13
Control Delay	31.4	40.0	18.4	57.5	11.3	1.4	52.5	40.9	4.5	42.8	44.3	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.4	40.0	18.4	57.5	11.3	1.4	52.5	40.9	4.5	42.8	44.3	10.6
LOS	C	D	B	E	B	A	D	D	A	D	D	B
Approach Delay		34.6			18.3			43.6			34.8	
Approach LOS		C			B			D			C	
Queue Length 50th (m)	5.3	178.5	69.1	56.3	65.7	0.0	36.7	3.6	0.0	10.6	25.7	0.0
Queue Length 95th (m)	m7.0	m184.5	m82.5	86.0	75.6	1.8	60.2	10.0	4.3	22.1	43.2	12.0
Internal Link Dist (m)		237.4			316.3			451.3			806.2	
Turn Bay Length (m)	125.0		200.0	160.0		160.0	125.0		60.0	85.0		55.0
Base Capacity (vph)	161	2447	1014	396	3084	843	291	457	428	341	453	432
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	0.18	0.88	0.70	0.66	0.46	0.02	0.50	0.04	0.07	0.13	0.24	0.13

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 66 (47%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 29.5 Intersection LOS: C

Intersection Capacity Utilization 83.9% ICU Level of Service E

Analysis Period (min) 15

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

Splits and Phases: 8: Heart Lake Road & Mayfield Road



Lanes, Volumes, Timings

11: Inder Heights Drive/Snellview Boulevard & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↓		↑	↑↑↓	↑	↑	↑			↔	
Traffic Volume (vph)	14	2229	16	17	1765	5	23	0	30	24	1	54
Future Volume (vph)	14	2229	16	17	1765	5	23	0	30	24	1	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	45.0		0.0	45.0		45.0	45.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1384	4870	0	1668	4621	1331	1463	1500	0	0	1593	0
Flt Permitted	0.085			0.047			0.717				0.921	
Satd. Flow (perm)	124	4870	0	83	4621	1299	1095	1500	0	0	1489	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				28		23			21	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		115.1			416.2			144.8			122.1	
Travel Time (s)		6.9			25.0			13.0			11.0	
Confl. Peds. (#/hr)	1					1	6		1	1		6
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	29%	5%	36%	7%	11%	20%	22%	0%	5%	13%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	14	2229	16	17	1765	5	23	0	30	24	1	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	2245	0	17	1765	5	23	30	0	0	79	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Detector Phase	2	2		2	2	2	4	4		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0	12.0	8.0	8.0		8.0	8.0	
Minimum Split (s)	25.0	25.0		25.0	25.0	25.0	32.6	32.6		32.6	32.6	
Total Split (s)	90.0	90.0		90.0	90.0	90.0	50.0	50.0		50.0	50.0	
Total Split (%)	64.3%	64.3%		64.3%	64.3%	64.3%	35.7%	35.7%		35.7%	35.7%	
Maximum Green (s)	84.0	84.0		84.0	84.0	84.0	43.4	43.4		43.4	43.4	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

11: Inder Heights Drive/Snellview Boulevard & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.6	5.6			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max	C-Max	Max	Max		Max	Max	
Walk Time (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effect Green (s)	85.0	85.0		85.0	85.0	85.0	44.4	44.4			44.4	
Actuated g/C Ratio	0.61	0.61		0.61	0.61	0.61	0.32	0.32			0.32	
v/c Ratio	0.19	0.76		0.34	0.63	0.01	0.07	0.06			0.16	
Control Delay	19.6	22.2		35.4	16.3	0.6	34.2	15.6			22.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	19.6	22.2		35.4	16.3	0.6	34.2	15.6			22.1	
LOS	B	C		D	B	A	C	B			C	
Approach Delay		22.2			16.4			23.7			22.1	
Approach LOS		C			B			C			C	
Queue Length 50th (m)	1.7	166.1		1.7	72.3	0.0	4.7	1.4			10.4	
Queue Length 95th (m)	6.7	184.9		m5.1	116.3	m0.0	12.0	9.3			m21.6	
Internal Link Dist (m)		91.1			392.2			120.8			98.1	
Turn Bay Length (m)	45.0			45.0		45.0	45.0					
Base Capacity (vph)	75	2957		50	2805	799	347	491			486	
Starvation Cap Reductn	0	0		0	0	0	0	0			0	
Spillback Cap Reductn	0	0		0	0	0	0	0			0	
Storage Cap Reductn	0	0		0	0	0	0	0			0	
Reduced v/c Ratio	0.19	0.76		0.34	0.63	0.01	0.07	0.06			0.16	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 19.7 Intersection LOS: B

Intersection Capacity Utilization 73.9% ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 11: Inder Heights Drive/Snellview Boulevard & Mayfield Road



Lanes, Volumes, Timings

14: Mayfield Road & Hwy 410 SB Off-Ramp

02-28-2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1505	1576	0	680	110
Future Volume (vph)	0	1505	1576	0	680	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	110.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Satd. Flow (prot)	0	4749	4706	0	3400	1453
Flt Permitted					0.953	
Satd. Flow (perm)	0	4749	4706	0	3400	1453
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					2	11
Link Speed (k/h)	60	60			80	
Link Distance (m)	340.3	442.1			199.5	
Travel Time (s)	20.4	26.5			9.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	8%	9%	0%	2%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	1505	1576	0	680	110
Shared Lane Traffic (%)					10%	
Lane Group Flow (vph)	0	1505	1576	0	691	99
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)	3.5	3.5			7.0	
Link Offset(m)	0.0	0.0			0.0	
Crosswalk Width(m)	4.8	4.8			4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Turn Type		NA	NA		Prot	Perm
Protected Phases		2	2		4	
Permitted Phases					4	
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)	16.0	16.0		8.0	8.0	
Minimum Split (s)	27.0	27.0		37.0	37.0	
Total Split (s)	46.0	46.0		41.0	41.0	
Total Split (%)	52.9%	52.9%		47.1%	47.1%	
Maximum Green (s)	40.0	40.0		35.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

14: Mayfield Road & Hwy 410 SB Off-Ramp

02-28-2021

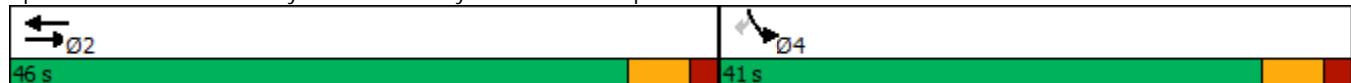


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Total Lost Time (s)		5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Minimum Gap (s)		3.0	3.0		3.0	3.0
Time Before Reduce (s)		0.0	0.0		0.0	0.0
Time To Reduce (s)		0.0	0.0		0.0	0.0
Recall Mode		Max	Max		Min	Min
Walk Time (s)		10.0	10.0		20.0	20.0
Flash Dont Walk (s)		6.0	6.0		6.0	6.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effect Green (s)		52.5	52.5		24.5	24.5
Actuated g/C Ratio		0.60	0.60		0.28	0.28
v/c Ratio		0.53	0.56		0.72	0.24
Control Delay		11.5	11.9		32.2	21.4
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		11.5	11.9		32.2	21.4
LOS		B	B		C	C
Approach Delay		11.5	11.9		30.9	
Approach LOS		B	B		C	
Queue Length 50th (m)		50.9	54.5		56.1	12.9
Queue Length 95th (m)		75.8	81.3		67.7	24.2
Internal Link Dist (m)		316.3	418.1		175.5	
Turn Bay Length (m)					110.0	
Base Capacity (vph)		2864	2838		1408	607
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.53	0.56		0.49	0.16

Intersection Summary

Area Type:	Other
Cycle Length:	87
Actuated Cycle Length:	87
Offset:	9.5 (11%), Referenced to phase 6:, Start of Green
Natural Cycle:	65
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.72
Intersection Signal Delay:	15.6
Intersection Capacity Utilization	99.0%
Analysis Period (min)	15

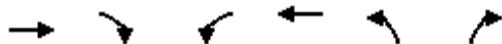
Splits and Phases: 14: Mayfield Road & Hwy 410 SB Off-Ramp



Lanes, Volumes, Timings

16: Hwy 410 NB Off-Ramp & Mayfield Road

02-28-2021



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑	↑↑	↑
Traffic Volume (vph)	2498	0	0	1816	324	997
Future Volume (vph)	2498	0	0	1816	324	997
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)		50.0	0.0		0.0	90.0
Storage Lanes		0	0		2	1
Taper Length (m)			7.5		7.5	
Satd. Flow (prot)	4885	0	0	4839	2976	1452
Flt Permitted					0.981	
Satd. Flow (perm)	4885	0	0	4839	2976	1452
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					2	2
Link Speed (k/h)	60			60	80	
Link Distance (m)	442.1			202.7	480.1	
Travel Time (s)	26.5			12.2	21.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	0%	0%	13%	8%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	2498	0	0	1816	324	997
Shared Lane Traffic (%)					50%	
Lane Group Flow (vph)	2498	0	0	1816	823	498
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases					4	
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	12.0			12.0	10.0	10.0
Minimum Split (s)	33.6			33.6	24.9	24.9
Total Split (s)	70.0			70.0	50.0	50.0
Total Split (%)	58.3%			58.3%	41.7%	41.7%
Maximum Green (s)	63.4			63.4	43.1	43.1
Yellow Time (s)	4.6			4.6	4.6	4.6
All-Red Time (s)	2.0			2.0	2.3	2.3
Lost Time Adjust (s)	-1.0			-1.0	-1.0	-1.0

Lanes, Volumes, Timings

16: Hwy 410 NB Off-Ramp & Mayfield Road

02-28-2021



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Total Lost Time (s)	5.6			5.6	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Minimum Gap (s)	3.0			3.0	3.0	3.0
Time Before Reduce (s)	0.0			0.0	0.0	0.0
Time To Reduce (s)	0.0			0.0	0.0	0.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	8.0			8.0		
Flash Dont Walk (s)	19.0			19.0		
Pedestrian Calls (#/hr)	0			0		
Act Effect Green (s)	65.3			65.3	43.2	43.2
Actuated g/C Ratio	0.54			0.54	0.36	0.36
v/c Ratio	0.94			0.69	0.95dr	0.95
Control Delay	34.3			21.9	39.4	66.7
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	34.3			21.9	39.4	66.7
LOS	C			C	D	E
Approach Delay	34.3			21.9	49.7	
Approach LOS	C			C	D	
Queue Length 50th (m)	206.4			110.1	90.8	117.3
Queue Length 95th (m)	#240.9			127.0	115.4	#187.0
Internal Link Dist (m)	418.1			178.7	456.1	
Turn Bay Length (m)					90.0	
Base Capacity (vph)	2657			2632	1094	534
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.94			0.69	0.75	0.93

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 32 (27%), Referenced to phase 2:EBWB and 6:, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 33.9 Intersection LOS: C

Intersection Capacity Utilization 99.0% ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 16: Hwy 410 NB Off-Ramp & Mayfield Road



HCM Unsigned Intersection Capacity Analysis

18: Kennedy Road & Snellview Boulevard

02-28-2021



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑↓	
Traffic Volume (veh/h)	2	55	25	548	1373	2
Future Volume (Veh/h)	2	55	25	548	1373	2
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	55	25	548	1373	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)				287		
pX, platoon unblocked	0.95					
vC, conflicting volume	1972	688	1375			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1996	688	1375			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	86	95			
cM capacity (veh/h)	49	394	505			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	2	55	25	548	915	460
Volume Left	2	0	25	0	0	0
Volume Right	0	55	0	0	0	2
cSH	49	394	505	1700	1700	1700
Volume to Capacity	0.04	0.14	0.05	0.32	0.54	0.27
Queue Length 95th (m)	1.0	3.9	1.2	0.0	0.0	0.0
Control Delay (s)	82.2	15.6	12.5	0.0	0.0	0.0
Lane LOS	F	C	B			
Approach Delay (s)	18.0		0.5		0.0	
Approach LOS	C					
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			48.1%		ICU Level of Service	
Analysis Period (min)			15			A

HCM Unsignalized Intersection Capacity Analysis

20: Stonegate Drive & Mayfield Road

02-28-2021



Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑↓		↑	↑↑↑	↑↓			
Traffic Volume (veh/h)	3098	3	26	1701	2	80		
Future Volume (Veh/h)	3098	3	26	1701	2	80		
Sign Control	Free			Free	Stop			
Grade	0%			0%	0%			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Hourly flow rate (vph)	3098	3	26	1701	2	80		
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		3101		3718	1034			
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol		3101		3718	1034			
tC, single (s)		4.3		6.8	7.0			
tC, 2 stage (s)								
tF (s)		2.3		3.5	3.3			
p0 queue free %		72		18	65			
cM capacity (veh/h)		92		2	227			
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1
Volume Total	1239	1239	623	26	567	567	567	82
Volume Left	0	0	0	26	0	0	0	2
Volume Right	0	0	3	0	0	0	0	80
cSH	1700	1700	1700	92	1700	1700	1700	70
Volume to Capacity	0.73	0.73	0.37	0.28	0.33	0.33	0.33	1.17
Queue Length 95th (m)	0.0	0.0	0.0	8.4	0.0	0.0	0.0	50.8
Control Delay (s)	0.0	0.0	0.0	58.9	0.0	0.0	0.0	264.1
Lane LOS				F			F	
Approach Delay (s)	0.0			0.9			264.1	
Approach LOS							F	
Intersection Summary								
Average Delay			4.7					
Intersection Capacity Utilization		71.7%		ICU Level of Service			C	
Analysis Period (min)		15						

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	2004	133	70	997	298	62	100	119	739	367	322
Future Volume (vph)	175	2004	133	70	997	298	62	100	119	739	367	322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%				0%			0%			0%	
Storage Length (m)	45.0		0.0	85.0		40.0	45.0		55.0	90.0		0.0
Storage Lanes	1		1	1		1	1		0	2		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1580	5029	1452	1750	4663	1413	1716	3113	0	3193	3196	0
Flt Permitted	0.181			0.076			0.390			0.558		
Satd. Flow (perm)	301	5029	1432	140	4663	1382	702	3113	0	1876	3196	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			89			184			106			196
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		416.2			542.7			529.5			286.9	
Travel Time (s)		25.0			32.6			38.1			20.7	
Confl. Peds. (#/hr)	1		1	1		1	6					6
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	13%	2%	10%	2%	10%	13%	4%	8%	3%	8%	1%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	2	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	175	2004	133	70	997	298	62	100	119	739	367	322
Shared Lane Traffic (%)												
Lane Group Flow (vph)	175	2004	133	70	997	298	62	219	0	739	689	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases	5	2		1	6			4		3	8	
Permitted Phases	2		2	6		6	4			8		
Detector Phase	5	2	2	1	6	6	4	4		3	8	
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	6.0	8.0	8.0	12.0	12.0		6.0	12.0	
Minimum Split (s)	9.0	34.6	34.6	9.0	34.6	34.6	34.9	34.9		9.0	34.9	
Total Split (s)	25.0	65.0	65.0	10.0	50.0	50.0	40.0	40.0		25.0	65.0	
Total Split (%)	17.9%	46.4%	46.4%	7.1%	35.7%	35.7%	28.6%	28.6%		17.9%	46.4%	
Maximum Green (s)	22.0	58.4	58.4	7.0	43.4	43.4	33.1	33.1		22.0	58.1	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.6	2.6	0.0	2.6	2.6	2.9	2.9		0.0	2.9	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	2.0	5.6	5.6	2.0	5.6	5.6	5.9	5.9		2.0	5.9	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recall Mode	None	C-Max	C-Max	None	Max	Max	Max	Max	Max	Max	None	
Walk Time (s)				8.0	8.0	8.0	8.0	8.0	8.0		8.0	
Flash Dont Walk (s)				20.0	20.0	20.0	20.0	20.0	20.0		20.0	
Pedestrian Calls (#/hr)				0	0	0	0	0	0		0	
Act Effect Green (s)	73.0	61.4	61.4	63.8	52.4	52.4	34.1	34.1		63.0	59.1	
Actuated g/C Ratio	0.52	0.44	0.44	0.46	0.37	0.37	0.24	0.24		0.45	0.42	
v/c Ratio	0.60	0.91	0.20	0.46	0.57	0.47	0.36	0.26		0.70	0.47	
Control Delay	33.8	25.9	5.1	21.5	32.2	14.3	51.4	22.5		31.9	21.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	33.8	25.9	5.1	21.5	32.2	14.3	51.4	22.5		31.9	21.4	
LOS	C	C	A	C	C	B	D	C		C	C	
Approach Delay				25.3			27.8			28.9		26.8
Approach LOS				C			C			C		C
Queue Length 50th (m)	17.3	69.9	2.7	9.8	87.1	35.1	15.1	13.6		78.2	53.3	
Queue Length 95th (m)	m34.2	#158.2	m8.9	18.5	108.6	59.7	30.5	25.4		97.1	71.3	
Internal Link Dist (m)				392.2			518.7			505.5		262.9
Turn Bay Length (m)	45.0			85.0			40.0	45.0			90.0	
Base Capacity (vph)	367	2205	677	156	1745	632	170	838		1060	1462	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.48	0.91	0.20	0.45	0.57	0.47	0.36	0.26		0.70	0.47	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 17 (12%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 26.5 Intersection LOS: C

Intersection Capacity Utilization 94.9% ICU Level of Service F

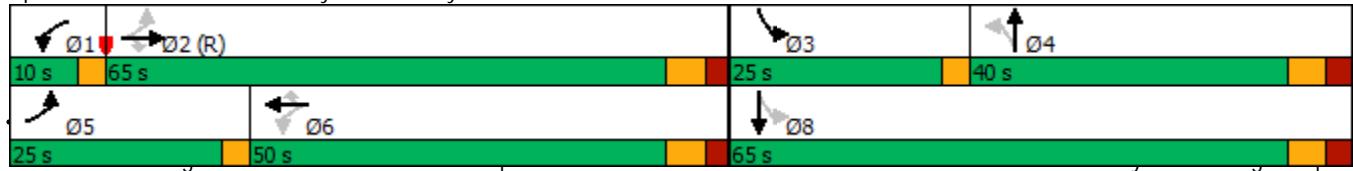
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 5: Kennedy Road & Mayfield Road



Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	303	1174	94	185	1825	680	132	304	119	323	175	208
Future Volume (vph)	303	1174	94	185	1825	680	132	304	119	323	175	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%				0%			0%			0%	
Storage Length (m)	45.0		0.0	85.0		40.0	45.0		55.0	90.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1785	4885	1507	1785	4816	0	1785	3400	0	1719	3241	0
Flt Permitted	0.067			0.188			0.525			0.362		
Satd. Flow (perm)	126	4885	1480	353	4816	0	980	3400	0	652	3241	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		94			81			40			208	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		416.2			542.7			529.5			286.9	
Travel Time (s)		25.0			32.6			38.1			20.7	
Confl. Peds. (#/hr)	2		4	4		2	7		6	6		7
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	5%	6%	0%	2%	0%	0%	0%	0%	3%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	2	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	303	1174	94	185	1825	680	132	304	119	323	175	208
Shared Lane Traffic (%)												
Lane Group Flow (vph)	303	1174	94	185	2505	0	132	423	0	323	383	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.03	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	5	2		1	6			4		3	8	
Permitted Phases	2		2	6			4			8		
Detector Phase	5	2	2	1	6		4	4		3	8	
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	6.0	8.0		12.0	12.0		6.0	12.0	
Minimum Split (s)	9.0	34.6	34.6	9.0	34.6		34.9	34.9		9.0	34.9	
Total Split (s)	23.0	66.0	66.0	20.0	63.0		42.0	42.0		12.0	54.0	
Total Split (%)	16.4%	47.1%	47.1%	14.3%	45.0%		30.0%	30.0%		8.6%	38.6%	
Maximum Green (s)	20.0	59.4	59.4	17.0	56.4		35.1	35.1		9.0	47.1	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.6	2.6	0.0	2.6		2.9	2.9		0.0	2.9	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	2.0	5.6	5.6	2.0	5.6		5.9	5.9		2.0	5.9	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	None	C-Max	C-Max	None	Max		Max	Max		Max	None	
Walk Time (s)		8.0	8.0		8.0		8.0	8.0			8.0	
Flash Dont Walk (s)		20.0	20.0		20.0		20.0	20.0			20.0	
Pedestrian Calls (#/hr)		0	0		0		0	0			0	
Act Effect Green (s)	84.0	65.3	65.3	74.3	57.6		36.1	36.1		52.0	48.1	
Actuated g/C Ratio	0.60	0.47	0.47	0.53	0.41		0.26	0.26		0.37	0.34	
v/c Ratio	0.94	0.52	0.13	0.58	1.23		0.52	0.47		1.02	0.31	
Control Delay	89.4	24.3	4.9	20.7	145.3		53.3	41.4		93.7	15.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	89.4	24.3	4.9	20.7	145.3		53.3	41.4		93.7	15.5	
LOS	F	C	A	C	F		D	D		F	B	
Approach Delay		35.7			136.7			44.3			51.2	
Approach LOS		D			F			D			D	
Queue Length 50th (m)	83.8	59.2	0.0	22.9	~326.9		33.2	49.7		~74.2	18.5	
Queue Length 95th (m)	#132.2	71.4	10.0	35.1	#355.2		56.4	67.1		#144.8	31.7	
Internal Link Dist (m)		392.2			518.7			505.5			262.9	
Turn Bay Length (m)	45.0			85.0			45.0			90.0		
Base Capacity (vph)	324	2277	740	383	2029		252	906		318	1250	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.94	0.52	0.13	0.48	1.23		0.52	0.47		1.02	0.31	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 13 (9%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.23

Intersection Signal Delay: 87.7

Intersection LOS: F

Intersection Capacity Utilization 124.8%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 5: Kennedy Road & Mayfield Road



Lanes, Volumes, Timings

8: Heart Lake Road & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↑	↑	↑	↑↑↑	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	43	1541	160	64	2235	58	419	58	42	38	37	29
Future Volume (vph)	43	1541	160	64	2235	58	419	58	42	38	37	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%			0%			0%		
Storage Length (m)	125.0		200.0	160.0		160.0	125.0		60.0	85.0		55.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1733	4706	1507	1700	4980	1566	1767	1879	1465	1668	1807	1521
Flt Permitted	0.056			0.105			0.693			0.719		
Satd. Flow (perm)	102	4706	1507	188	4980	1566	1289	1879	1465	1263	1807	1521
Right Turn on Red			Yes			Yes			Yes		Yes	
Satd. Flow (RTOR)			160			80			54			78
Link Speed (k/h)	60			60			50			50		
Link Distance (m)	261.4			340.3			475.3			830.2		
Travel Time (s)	15.7			20.4			34.2			59.8		
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	9%	6%	5%	3%	2%	1%	0%	9%	7%	4%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	43	1541	160	64	2235	58	419	58	42	38	37	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	1541	160	64	2235	58	419	58	42	38	37	29
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)	3.5			3.5			3.5			3.5		
Link Offset(m)	0.0			0.0			0.0			0.0		
Crosswalk Width(m)	4.8			4.8			4.8			4.8		
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		7	4			8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	12.0	5.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	9.0	35.7	35.7	9.0	35.7	35.7	9.0	39.9	39.9	39.9	39.9	39.9
Total Split (s)	9.0	76.0	76.0	9.0	76.0	76.0	9.0	50.0	50.0	41.0	41.0	41.0
Total Split (%)	6.7%	56.3%	56.3%	6.7%	56.3%	56.3%	6.7%	37.0%	37.0%	30.4%	30.4%	30.4%
Maximum Green (s)	6.0	69.3	69.3	6.0	69.3	69.3	6.0	43.1	43.1	34.1	34.1	34.1
Yellow Time (s)	3.0	4.6	4.6	3.0	4.6	4.6	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	0.0	2.1	2.1	0.0	2.1	2.1	0.0	2.9	2.9	2.9	2.9	2.9
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0

Lanes, Volumes, Timings

8: Heart Lake Road & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	2.0	5.7	5.7	2.0	5.7	5.7	2.0	5.9	5.9	5.9	5.9	5.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
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
Minimum Gap (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
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	C-Max	None	Max	Max	None	Max	Max	Max	Max	Max
Walk Time (s)		8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0
Flash Dont Walk (s)		21.0	21.0		21.0	21.0		25.0	25.0	25.0	25.0	25.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effect Green (s)	81.4	72.1	72.1	81.4	72.1	72.1	48.0	44.1	44.1	35.1	35.1	35.1
Actuated g/C Ratio	0.60	0.53	0.53	0.60	0.53	0.53	0.36	0.33	0.33	0.26	0.26	0.26
v/c Ratio	0.30	0.61	0.18	0.34	0.84	0.07	0.87	0.09	0.08	0.12	0.08	0.06
Control Delay	15.7	23.5	2.9	15.2	30.8	1.7	58.9	32.2	5.8	39.4	38.5	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.7	23.5	2.9	15.2	30.8	1.7	58.9	32.2	5.8	39.4	38.5	0.3
LOS	B	C	A	B	C	A	E	C	A	D	D	A
Approach Delay		21.4			29.6			51.6			28.2	
Approach LOS		C			C			D			C	
Queue Length 50th (m)	4.5	109.5	0.0	6.8	193.6	0.0	98.9	11.3	0.0	8.2	7.9	0.0
Queue Length 95th (m)	9.6	125.7	11.0	13.1	216.6	4.1	#158.2	22.3	6.4	18.1	17.5	0.0
Internal Link Dist (m)		237.4			316.3			451.3			806.2	
Turn Bay Length (m)	125.0		200.0	160.0		160.0	125.0		60.0	85.0		55.0
Base Capacity (vph)	145	2513	879	191	2659	873	483	613	514	328	469	453
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	0.30	0.61	0.18	0.34	0.84	0.07	0.87	0.09	0.08	0.12	0.08	0.06

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 26 (19%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 29.0

Intersection LOS: C

Intersection Capacity Utilization 90.2%

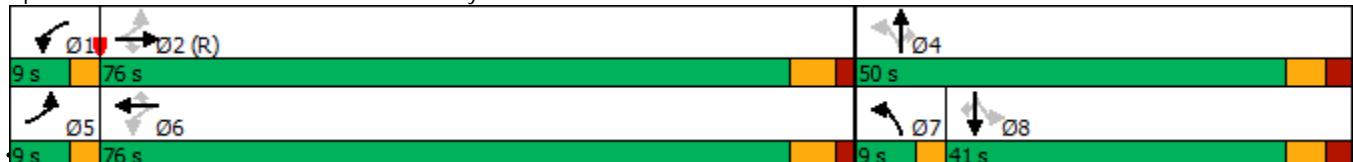
ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 8: Heart Lake Road & Mayfield Road



Lanes, Volumes, Timings

11: Inder Heights Drive/Snellview Boulevard & Mayfield Road

02-28-2021

	↑	→	↓	↶	←	↷	↶	↑	↷	↓	↶	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↑		↑	↑↑↑	↑	↑	↑			↔	
Traffic Volume (vph)	56	1808	29	26	2099	19	7	0	13	10	1	34
Future Volume (vph)	56	1808	29	26	2099	19	7	0	13	10	1	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	45.0		0.0	45.0		45.0	45.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1668	4654	0	1684	4885	1521	1785	1597	0	0	1545	0
Flt Permitted	0.050			0.087			0.779				0.955	
Satd. Flow (perm)	88	4654	0	154	4885	1521	1459	1597	0	0	1491	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				28		47			34	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		115.1			416.2			144.8			122.1	
Travel Time (s)		6.9			25.0			13.0			11.0	
Confl. Peds. (#/hr)			1	1			2				2	
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	10%	7%	6%	5%	5%	0%	0%	0%	0%	0%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	56	1808	29	26	2099	19	7	0	13	10	1	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	56	1837	0	26	2099	19	7	13	0	0	45	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		D.Pm	NA	custom	Perm	NA		Perm	NA	
Protected Phases	5	2			6			4			4	
Permitted Phases	2			2		2	4			4		
Detector Phase	5	2		2	6	2	4	4		4	4	
Switch Phase												
Minimum Initial (s)	5.0	12.0		12.0	12.0	12.0	8.0	8.0		8.0	8.0	
Minimum Split (s)	9.0	25.0		25.0	25.0	25.0	32.6	32.6		32.6	32.6	
Total Split (s)	9.0	100.0		100.0	91.0	100.0	40.0	40.0		40.0	40.0	
Total Split (%)	6.4%	71.4%		71.4%	65.0%	71.4%	28.6%	28.6%		28.6%	28.6%	
Maximum Green (s)	6.0	94.0		94.0	85.0	94.0	33.4	33.4		33.4	33.4	
Yellow Time (s)	3.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		2.0	2.0	2.0	2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

11: Inder Heights Drive/Snellview Boulevard & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	2.0	5.0		5.0	5.0	5.0	5.6	5.6			5.6	
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?	Yes				Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recall Mode	None	C-Max		C-Max	Max	C-Max	Max	Max	Max	Max	Max	
Walk Time (s)			8.0		8.0	8.0	8.0	8.0		8.0	8.0	
Flash Dont Walk (s)			11.0		11.0	11.0	11.0	18.0	18.0		18.0	18.0
Pedestrian Calls (#/hr)			0		0	0	0	0		0	0	
Act Effect Green (s)	98.0	95.0		95.0	87.8	95.0	34.4	34.4			34.4	
Actuated g/C Ratio	0.70	0.68		0.68	0.63	0.68	0.25	0.25			0.25	
v/c Ratio	0.40	0.58		0.25	0.69	0.02	0.02	0.03			0.11	
Control Delay	18.6	12.8		3.8	4.2	0.0	40.4	0.2			15.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	18.6	12.8		3.8	4.2	0.0	40.4	0.2			15.0	
LOS	B	B		A	A	A	D	A			B	
Approach Delay			13.0			4.2			14.3		15.0	
Approach LOS			B			A			B		B	
Queue Length 50th (m)	4.6	96.0		0.9	25.8	0.0	1.6	0.0			2.7	
Queue Length 95th (m)	12.9	108.8		m1.0	m24.7	m0.0	5.9	0.0			m3.6	
Internal Link Dist (m)			91.1			392.2			120.8		98.1	
Turn Bay Length (m)	45.0			45.0			45.0	45.0				
Base Capacity (vph)	140	3159		104	3063	1041	358	427			392	
Starvation Cap Reductn	0	0		0	0	0	0	0			0	
Spillback Cap Reductn	0	0		0	0	0	0	0			0	
Storage Cap Reductn	0	0		0	0	0	0	0			0	
Reduced v/c Ratio	0.40	0.58		0.25	0.69	0.02	0.02	0.03			0.11	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 15 (11%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

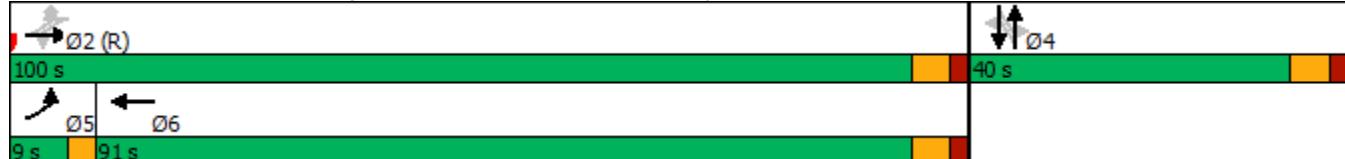
Intersection Signal Delay: 8.4 Intersection LOS: A

Intersection Capacity Utilization 77.0% ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 11: Inder Heights Drive/Snellview Boulevard & Mayfield Road



Lanes, Volumes, Timings

14: Mayfield Road & Hwy 410 SB Off-Ramp

02-28-2021

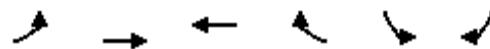


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1121	2488	0	151	15
Future Volume (vph)	0	1121	2488	0	151	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	110.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Satd. Flow (prot)	0	4663	5029	0	3335	1453
Flt Permitted					0.953	
Satd. Flow (perm)	0	4663	5029	0	3335	1453
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					1	1
Link Speed (k/h)	60	60			80	
Link Distance (m)	340.3	442.1			199.5	
Travel Time (s)	20.4	26.5			9.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	10%	2%	0%	4%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	1121	2488	0	151	15
Shared Lane Traffic (%)					10%	
Lane Group Flow (vph)	0	1121	2488	0	153	13
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)	3.5	3.5			7.0	
Link Offset(m)	0.0	0.0			0.0	
Crosswalk Width(m)	4.8	4.8			4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Turn Type		NA	NA		Prot	Perm
Protected Phases		2	2		4	
Permitted Phases					4	
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)	16.0	16.0		8.0	8.0	
Minimum Split (s)	27.0	27.0		37.0	37.0	
Total Split (s)	46.0	46.0		41.0	41.0	
Total Split (%)	52.9%	52.9%		47.1%	47.1%	
Maximum Green (s)	40.0	40.0		35.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

14: Mayfield Road & Hwy 410 SB Off-Ramp

02-28-2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Total Lost Time (s)		5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	
Recall Mode	Max	Max		Min	Min	
Walk Time (s)	10.0	10.0				
Flash Dont Walk (s)	6.0	6.0				
Pedestrian Calls (#/hr)	0	0				
Act Effect Green (s)	66.4	66.4		10.6	10.6	
Actuated g/C Ratio	0.76	0.76		0.12	0.12	
v/c Ratio	0.31	0.65		0.38	0.07	
Control Delay	3.6	6.0		37.3	32.2	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	3.6	6.0		37.3	32.2	
LOS	A	A		D	C	
Approach Delay	3.6	6.0		36.9		
Approach LOS	A	A		D		
Queue Length 50th (m)	17.2	57.4		12.8	2.0	
Queue Length 95th (m)	25.7	81.6		21.4	7.6	
Internal Link Dist (m)	316.3	418.1		175.5		
Turn Bay Length (m)				110.0		
Base Capacity (vph)	3559	3839		1380	601	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.31	0.65		0.11	0.02	

Intersection Summary

Area Type: Other

Cycle Length: 87

Actuated Cycle Length: 87

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

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 6.6 Intersection LOS: A

Intersection Capacity Utilization 92.2% ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 14: Mayfield Road & Hwy 410 SB Off-Ramp



Lanes, Volumes, Timings

16: Hwy 410 NB Off-Ramp & Mayfield Road

02-28-2021



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑	↑↑	↑
Traffic Volume (vph)	1320	0	0	2699	700	1001
Future Volume (vph)	1320	0	0	2699	700	1001
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)		50.0	0.0		0.0	90.0
Storage Lanes		0	0		2	1
Taper Length (m)			7.5		7.5	
Satd. Flow (prot)	4706	0	0	5207	3191	1479
Flt Permitted					0.971	
Satd. Flow (perm)	4706	0	0	5207	3191	1479
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					38	38
Link Speed (k/h)	60			60	80	
Link Distance (m)	442.1			202.7	480.1	
Travel Time (s)	26.5			12.2	21.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	9%	0%	0%	5%	2%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	1320	0	0	2699	700	1001
Shared Lane Traffic (%)					46%	
Lane Group Flow (vph)	1320	0	0	2699	1160	541
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases					4	
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	12.0			12.0	10.0	10.0
Minimum Split (s)	33.6			33.6	22.5	22.5
Total Split (s)	80.0			80.0	60.0	60.0
Total Split (%)	57.1%			57.1%	42.9%	42.9%
Maximum Green (s)	73.4			73.4	53.1	53.1
Yellow Time (s)	4.6			4.6	4.6	4.6
All-Red Time (s)	2.0			2.0	2.3	2.3
Lost Time Adjust (s)	-1.0			-1.0	-1.0	-1.0

Lanes, Volumes, Timings

16: Hwy 410 NB Off-Ramp & Mayfield Road

02-28-2021



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Total Lost Time (s)	5.6			5.6	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Minimum Gap (s)	3.0			3.0	3.0	3.0
Time Before Reduce (s)	0.0			0.0	0.0	0.0
Time To Reduce (s)	0.0			0.0	0.0	0.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	8.0			8.0		
Flash Dont Walk (s)	19.0			19.0		
Pedestrian Calls (#/hr)	0			0		
Act Effect Green (s)	75.3			75.3	53.2	53.2
Actuated g/C Ratio	0.54			0.54	0.38	0.38
v/c Ratio	0.52			0.96	0.94	0.92
Control Delay	21.9			41.8	55.0	61.4
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	21.9			41.8	55.0	61.4
LOS	C			D	E	E
Approach Delay	21.9			41.8	57.0	
Approach LOS	C			D	E	
Queue Length 50th (m)	89.0			255.0	160.9	140.1
Queue Length 95th (m)	102.8			#298.2	#205.8	#213.8
Internal Link Dist (m)	418.1			178.7	456.1	
Turn Bay Length (m)					90.0	
Base Capacity (vph)	2530			2800	1256	594
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.52			0.96	0.92	0.91

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 19 (14%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 41.7

Intersection LOS: D

Intersection Capacity Utilization 92.2%

ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 16: Hwy 410 NB Off-Ramp & Mayfield Road



HCM Unsigned Intersection Capacity Analysis

18: Kennedy Road & Snellview Boulevard

02-28-2021



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑↓	
Traffic Volume (veh/h)	2	44	75	1212	662	4
Future Volume (Veh/h)	2	44	75	1212	662	4
Sign Control	Stop		Free	Free		
Grade	0%		0%	0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	44	75	1212	662	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None	None		
Median storage (veh)						
Upstream signal (m)			287			
pX, platoon unblocked	0.77					
vC, conflicting volume	2026	333	666			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2186	333	666			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	93	92			
cM capacity (veh/h)	28	669	933			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	2	44	75	1212	441	225
Volume Left	2	0	75	0	0	0
Volume Right	0	44	0	0	0	4
cSH	28	669	933	1700	1700	1700
Volume to Capacity	0.07	0.07	0.08	0.71	0.26	0.13
Queue Length 95th (m)	1.7	1.7	2.1	0.0	0.0	0.0
Control Delay (s)	142.1	10.8	9.2	0.0	0.0	0.0
Lane LOS	F	B	A			
Approach Delay (s)	16.5		0.5		0.0	
Approach LOS	C					
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			73.8%	ICU Level of Service		D
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

20: Stonegate Drive & Mayfield Road

02-28-2021



Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑↓		↑	↑↑↑	↑↓			
Traffic Volume (veh/h)	1992	13	92	3132	2	36		
Future Volume (Veh/h)	1992	13	92	3132	2	36		
Sign Control	Free			Free	Stop			
Grade	0%			0%	0%			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Hourly flow rate (vph)	1992	13	92	3132	2	36		
Pedestrians	1							
Lane Width (m)	3.5							
Walking Speed (m/s)	1.2							
Percent Blockage	0							
Right turn flare (veh)								
Median type	None			None				
Median storage veh)								
Upstream signal (m)								
pX, platoon unblocked								
vC, conflicting volume		2005		3228	670			
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol		2005		3228	670			
tC, single (s)		4.1		6.8	6.9			
tC, 2 stage (s)								
tF (s)		2.2		3.5	3.3			
p0 queue free %		68		61	91			
cM capacity (veh/h)		285		5	404			
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1
Volume Total	797	797	411	92	1044	1044	1044	38
Volume Left	0	0	0	92	0	0	0	2
Volume Right	0	0	13	0	0	0	0	36
cSH	1700	1700	1700	285	1700	1700	1700	79
Volume to Capacity	0.47	0.47	0.24	0.32	0.61	0.61	0.61	0.48
Queue Length 95th (m)	0.0	0.0	0.0	10.8	0.0	0.0	0.0	15.9
Control Delay (s)	0.0	0.0	0.0	23.5	0.0	0.0	0.0	86.2
Lane LOS				C			F	
Approach Delay (s)	0.0			0.7			86.2	
Approach LOS							F	
Intersection Summary								
Average Delay	1.0							
Intersection Capacity Utilization	70.5%	ICU Level of Service					C	
Analysis Period (min)	15							

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	303	1174	94	185	1825	680	132	304	119	323	175	208
Future Volume (vph)	303	1174	94	185	1825	680	132	304	119	323	175	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%				0%			0%			0%	
Storage Length (m)	45.0		0.0	85.0		40.0	45.0		55.0	90.0		0.0
Storage Lanes	1		1	1		1	1		0	2		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1785	4885	1507	1785	5029	1597	1785	3400	0	3348	3241	0
Flt Permitted	0.072			0.189			0.525			0.373		
Satd. Flow (perm)	135	4885	1480	355	5029	1557	980	3400	0	1309	3241	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		94			248			40			208	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		416.2			542.7			529.5			286.9	
Travel Time (s)		25.0			32.6			38.1			20.7	
Confl. Peds. (#/hr)	2		4	4		2	7		6	6		7
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	5%	6%	0%	2%	0%	0%	0%	0%	3%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	2	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	303	1174	94	185	1825	680	132	304	119	323	175	208
Shared Lane Traffic (%)												
Lane Group Flow (vph)	303	1174	94	185	1825	680	132	423	0	323	383	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases	5	2		1	6			4		3	8	
Permitted Phases	2		2	6		6	4			8		
Detector Phase	5	2	2	1	6	6	4	4		3	8	
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	6.0	8.0	8.0	12.0	12.0		6.0	12.0	
Minimum Split (s)	9.0	34.6	34.6	9.0	34.6	34.6	34.9	34.9		9.0	34.9	
Total Split (s)	27.0	64.0	64.0	20.0	57.0	57.0	44.0	44.0		12.0	56.0	
Total Split (%)	19.3%	45.7%	45.7%	14.3%	40.7%	40.7%	31.4%	31.4%		8.6%	40.0%	
Maximum Green (s)	24.0	57.4	57.4	17.0	50.4	50.4	37.1	37.1		9.0	49.1	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.6	2.6	0.0	2.6	2.6	2.9	2.9		0.0	2.9	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	2.0	5.6	5.6	2.0	5.6	5.6	5.9	5.9		2.0	5.9	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recall Mode	None	C-Max	C-Max	None	Max	Max	Max	Max	Max	Max	None	
Walk Time (s)		8.0	8.0		8.0	8.0	8.0	8.0			8.0	
Flash Dont Walk (s)		20.0	20.0		20.0	20.0	20.0	20.0			20.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0			0	
Act Effect Green (s)	82.0	63.0	63.0	70.7	53.7	53.7	38.1	38.1		54.0	50.1	
Actuated g/C Ratio	0.59	0.45	0.45	0.50	0.38	0.38	0.27	0.27		0.39	0.36	
v/c Ratio	0.88	0.53	0.13	0.59	0.95	0.91	0.50	0.44		0.50	0.30	
Control Delay	78.5	26.4	5.8	22.6	53.2	43.1	50.5	39.7		32.3	14.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	78.5	26.4	5.8	22.6	53.2	43.1	50.5	39.7		32.3	14.8	
LOS	E	C	A	C	D	D	D	D		C	B	
Approach Delay		35.2			48.6			42.3			22.8	
Approach LOS		D			D			D			C	
Queue Length 50th (m)	83.6	61.1	0.0	23.9	192.6	135.0	32.5	48.7		32.7	18.1	
Queue Length 95th (m)	#117.4	76.1	11.2	36.5	#230.3	#220.2	55.3	65.7		44.7	31.0	
Internal Link Dist (m)		392.2			518.7			505.5			262.9	
Turn Bay Length (m)	45.0			85.0		40.0	45.0				90.0	
Base Capacity (vph)	373	2199	718	374	1929	750	266	954		650	1293	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.81	0.53	0.13	0.49	0.95	0.91	0.50	0.44		0.50	0.30	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 13 (9%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 40.8

Intersection LOS: D

Intersection Capacity Utilization 103.2%

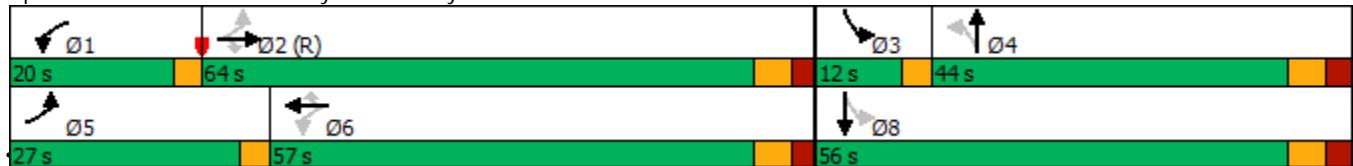
ICU Level of Service G

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 5: Kennedy Road & Mayfield Road



2028 Future Background PM Peak 02-24-2021 Improvements

Synchro 10 Light Report

Page 2

Appendix G

2016 Transportation Tomorrow Survey (TTS)

Data Analysis

Mode of Transportation - AM Peak Period

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Primary travel mode of trip - mode_prime

Column: 2006 GTA zone of household - gta06_hhld

Filters:

Primary travel mode of trip - mode_prime In B

C

D

G

J

M

P

T

U

W

and

2006 GTA zone of household - gta06_hhld In 3007

3008

3009

3010

and

Start time of trip - start_time In 600-900

Trip 2016

Table:

Mode of Transportation/Traffic Zones	3007	3008	3009	3010	Total	Percentage
Transit excluding GO rail	20	22	0	131	173	4%
Auto driver	782	790	62	2239	3873	81%
GO rail only	9	23	0	13	45	1%
Joint GO rail and local transit	0	10	0	13	23	0%
Auto passenger	103	87	0	385	575	12%
Paid rideshare	0	19	0	0	19	0%
Walk	0	0	0	103	103	2%
Total	914	951	62	2884	4811	100%

Mode of Transportation - PM Peak Period

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Primary travel mode of trip - mode_prime
Column: 2006 GTA zone of household - gta06_hhld

Filters:

Primary travel mode of trip - mode_prime In B C D G J M P T U w
and

2006 GTA zone of household - gta06_hhld In 3007 3008 3009 3010

and

Start time of trip - start_time In 1600-1900

Trip 2016

Table:

Mode of Transportation/Traffic Zones	3007	3008	3010	Total	Percentage
Transit excluding GO rail	16	0	83	99	2.0%
Auto driver	919	800	2306	4025	81.3%
GO rail only	9	23	13	45	0.9%
Joint GO rail and local transit	0	10	13	23	0.5%
Auto passenger	128	144	483	755	15.2%
Walk	0	0	6	6	0.1%
Total	1072	977	2904	4953	100%

Auto Distribution

Cross Tabulation Query Form - Trip - 2016 v1.1

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

Filters:	M	P	T
Primary travel mode of trip - mode_prime In D			
and			
2006 GTA zone of origin - gta06_orig In 3007	3008	3009	3010
and			
Start time of trip - start_time In 600-900			

Trip 2016
Table:

Transit Distribution

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of origin - gta06_orig

Column: Planning district of destination - pd_dest

Filters:

Primary travel mode of trip - mode_prime In B

C

G

J

W

and

2006 GTA zone of origin - gta06_orig In 3007

3008

3009

3010

and

Start time of trip - start_time In 600-900

Trip 2016

Table:

	PD 1 of Toronto	PD 8 of Toronto	PD 9 of Toronto	PD 11 of Toronto	Caledon	Brampton
3007	5	0	16	0	0	0
3008	45	0	0	10	0	0
3010	62	7	7	0	103	59
	112	7	23	10	103	59
	36%	2%	7%	3%	33%	19%
						314
						100%
Toronto		48%				
Caledon		33%				
Brampton		19%				
		100%				

Appendix H

Future Total Level of Service Calculations

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	1250	109	97	615	247	51	96	118	609	347	310
Future Volume (vph)	158	1250	109	97	615	247	51	96	118	609	347	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	45.0		0.0	85.0		40.0	45.0		55.0	90.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1580	3433	0	1750	3245	1413	1716	3111	0	1640	3192	0
Flt Permitted	0.324			0.071			0.402			0.548		
Satd. Flow (perm)	538	3433	0	131	3245	1394	724	3111	0	946	3192	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8				197		118			208	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		416.2			542.7			529.5			286.9	
Travel Time (s)		25.0			32.6			38.1			20.7	
Confl. Peds. (#/hr)	1		1	1		1	6					6
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	13%	2%	10%	2%	10%	13%	4%	8%	3%	8%	1%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	2	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	158	1250	109	97	615	247	51	96	118	609	347	310
Shared Lane Traffic (%)												
Lane Group Flow (vph)	158	1359	0	97	615	247	51	214	0	609	657	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.03	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases	5	2		1	6			4		3	8	
Permitted Phases	2			6		6	4			8		
Detector Phase	5	2		1	6	6	4	4		3	8	
Switch Phase												
Minimum Initial (s)	6.0	8.0		6.0	8.0	8.0	12.0	12.0		6.0	12.0	
Minimum Split (s)	9.0	34.6		9.0	34.6	34.6	34.9	34.9		9.0	34.9	
Total Split (s)	10.0	62.0		10.0	62.0	62.0	35.0	35.0		33.0	68.0	
Total Split (%)	7.1%	44.3%		7.1%	44.3%	44.3%	25.0%	25.0%		23.6%	48.6%	
Maximum Green (s)	7.0	55.4		7.0	55.4	55.4	28.1	28.1		30.0	61.1	
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.6		0.0	2.6	2.6	2.9	2.9		0.0	2.9	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	2.0	5.6		2.0	5.6	5.6	5.9	5.9		2.0	5.9	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recall Mode	None	C-Max		None	Max	Max	Max	Max		Max	None	
Walk Time (s)					8.0	8.0	8.0	8.0			8.0	
Flash Dont Walk (s)					20.0	20.0	20.0	20.0			20.0	
Pedestrian Calls (#/hr)					0	0	0	0			0	
Act Effect Green (s)	68.0	56.4		68.0	56.4	56.4	29.1	29.1		66.0	62.1	
Actuated g/C Ratio	0.49	0.40		0.49	0.40	0.40	0.21	0.21		0.47	0.44	
v/c Ratio	0.49	0.98		0.62	0.47	0.36	0.34	0.29		1.02	0.43	
Control Delay	17.9	42.1		33.8	26.1	6.3	54.8	21.7		73.9	18.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	17.9	42.1		33.8	26.1	6.3	54.8	21.7		73.9	18.5	
LOS	B	D		C	C	A	D	C		E	B	
Approach Delay				39.6			21.8			28.0		45.2
Approach LOS				D		C		C			D	
Queue Length 50th (m)	12.6	143.7		7.5	73.0	24.5	12.8	12.1		~150.7	45.7	
Queue Length 95th (m)	m19.3	#249.6		#25.6	93.1	38.8	27.1	24.1		#262.5	62.3	
Internal Link Dist (m)				392.2		518.7		505.5			262.9	
Turn Bay Length (m)	45.0			85.0		40.0	45.0			90.0		
Base Capacity (vph)	320	1388		156	1307	679	150	740		599	1531	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.49	0.98		0.62	0.47	0.36	0.34	0.29		1.02	0.43	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 17 (12%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 36.3

Intersection LOS: D

Intersection Capacity Utilization 103.4%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

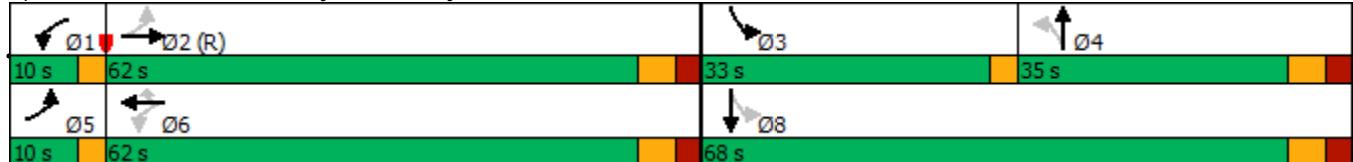
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 5: Kennedy Road & Mayfield Road



Lanes, Volumes, Timings

8: Heart Lake Road & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↑	↑	↑	↑↑↑	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	40	1349	587	231	881	46	124	23	28	136	117	97
Future Volume (vph)	40	1349	587	231	881	46	124	23	28	136	117	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%				0%			0%			0%	
Storage Length (m)	125.0		200.0	160.0		160.0	125.0		60.0	85.0		55.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1700	4839	1566	1733	4580	1238	1700	1879	1597	1785	1860	1597
Flt Permitted	0.310			0.129			0.619			0.742		
Satd. Flow (perm)	555	4839	1566	235	4580	1238	1108	1879	1597	1394	1860	1597
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		558				54			52			97
Link Speed (k/h)	60			60			50			50		
Link Distance (m)	261.4			340.3			475.3			238.8		
Travel Time (s)	15.7			20.4			34.2			17.2		
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	6%	2%	3%	12%	29%	5%	0%	0%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	40	1349	587	231	881	46	124	23	28	136	117	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	1349	587	231	881	46	124	23	28	136	117	97
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)	3.5			3.5			3.5			3.5		
Link Offset(m)	0.0			0.0			0.0			0.0		
Crosswalk Width(m)	4.8			4.8			4.8			4.8		
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		2		1	6		7	4			8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	2	2	2	1	6	6	7	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	12.0	12.0	12.0	5.0	12.0	12.0	5.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	35.7	35.7	35.7	9.0	35.7	35.7	9.0	39.9	39.9	39.9	39.9	39.9
Total Split (s)	75.0	75.0	75.0	15.0	90.0	90.0	9.0	50.0	50.0	41.0	41.0	41.0
Total Split (%)	53.6%	53.6%	53.6%	10.7%	64.3%	64.3%	6.4%	35.7%	35.7%	29.3%	29.3%	29.3%
Maximum Green (s)	68.3	68.3	68.3	12.0	83.3	83.3	6.0	43.1	43.1	34.1	34.1	34.1
Yellow Time (s)	4.6	4.6	4.6	3.0	4.6	4.6	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.1	2.1	2.1	0.0	2.1	2.1	0.0	2.9	2.9	2.9	2.9	2.9
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0

Lanes, Volumes, Timings

8: Heart Lake Road & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.7	5.7	5.7	2.0	5.7	5.7	2.0	5.9	5.9	5.9	5.9	5.9
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	Yes
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
Minimum Gap (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
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Max	C-Max	C-Max	None	Max	Max	None	Max	Max	Max	Max	Max
Walk Time (s)	8.0	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0
Flash Dont Walk (s)	21.0	21.0	21.0		21.0	21.0		25.0	25.0	25.0	25.0	25.0
Pedestrian Calls (#/hr)	0	0	0		0	0		0	0	0	0	0
Act Effect Green (s)	69.6	69.6	69.6	88.0	84.3	84.3	48.0	44.1	44.1	35.1	35.1	35.1
Actuated g/C Ratio	0.50	0.50	0.50	0.63	0.60	0.60	0.34	0.32	0.32	0.25	0.25	0.25
v/c Ratio	0.15	0.56	0.55	0.82	0.32	0.06	0.30	0.04	0.05	0.39	0.25	0.21
Control Delay	25.8	30.0	7.4	39.3	14.1	2.4	35.1	33.7	2.5	47.6	43.7	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.8	30.0	7.4	39.3	14.1	2.4	35.1	33.7	2.5	47.6	43.7	8.5
LOS	C	C	A	D	B	A	D	C	A	D	D	A
Approach Delay												
Approach LOS		C			B			C			D	
Queue Length 50th (m)	6.7	98.9	25.5	27.2	44.1	0.0	25.6	4.7	0.0	33.1	27.4	0.0
Queue Length 95th (m)	m7.7	m103.4	m27.2	#69.1	52.8	4.4	42.1	11.7	2.6	54.4	45.4	14.7
Internal Link Dist (m)			237.4			316.3			451.3			214.8
Turn Bay Length (m)	125.0		200.0	160.0		160.0	125.0		60.0	85.0		55.0
Base Capacity (vph)	275	2404	1058	286	2757	766	409	591	538	349	466	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	0.15	0.56	0.55	0.81	0.32	0.06	0.30	0.04	0.05	0.39	0.25	0.21

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 66 (47%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 23.2

Intersection LOS: C

Intersection Capacity Utilization 68.8%

ICU Level of Service C

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 8: Heart Lake Road & Mayfield Road



Lanes, Volumes, Timings

11: Inder Heights Drive/Snellview Boulevard & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↓		↑	↑↓	↑	↑	↑↓		↔		
Traffic Volume (vph)	14	1402	16	17	1170	5	23	0	30	24	1	54
Future Volume (vph)	14	1402	16	17	1170	5	23	0	30	24	1	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	45.0		0.0	45.0		45.0	45.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1384	3382	0	1668	3216	1331	1463	1500	0	0	1593	0
Flt Permitted	0.175			0.113			0.717				0.921	
Satd. Flow (perm)	255	3382	0	198	3216	1299	1095	1500	0	0	1489	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				28		49			54	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		115.1			416.2			144.8			122.1	
Travel Time (s)		6.9			25.0			13.0			11.0	
Confl. Peds. (#/hr)	1					1	6		1	1		6
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	29%	5%	36%	7%	11%	20%	22%	0%	5%	13%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	14	1402	16	17	1170	5	23	0	30	24	1	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	1418	0	17	1170	5	23	30	0	0	79	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Detector Phase	2	2		2	2	2	4	4		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0	12.0	8.0	8.0		8.0	8.0	
Minimum Split (s)	25.0	25.0		25.0	25.0	25.0	32.6	32.6		32.6	32.6	
Total Split (s)	90.0	90.0		90.0	90.0	90.0	50.0	50.0		50.0	50.0	
Total Split (%)	64.3%	64.3%		64.3%	64.3%	64.3%	35.7%	35.7%		35.7%	35.7%	
Maximum Green (s)	84.0	84.0		84.0	84.0	84.0	43.4	43.4		43.4	43.4	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

11: Inder Heights Drive/Snellview Boulevard & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.6	5.6			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max	C-Max	Max	Max		Max	Max	
Walk Time (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effect Green (s)	85.0	85.0		85.0	85.0	85.0	44.4	44.4			44.4	
Actuated g/C Ratio	0.61	0.61		0.61	0.61	0.61	0.32	0.32			0.32	
v/c Ratio	0.09	0.69		0.14	0.60	0.01	0.07	0.06			0.16	
Control Delay	13.3	20.8		12.4	13.6	0.0	34.2	3.8			11.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	13.3	20.8		12.4	13.6	0.0	34.2	3.8			11.8	
LOS	B	C		B	B	A	C	A			B	
Approach Delay		20.8			13.6				17.0		11.8	
Approach LOS		C			B				B		B	
Queue Length 50th (m)	1.6	139.8		1.5	71.4	0.0	4.7	0.0			3.8	
Queue Length 95th (m)	5.3	165.7		m3.9	83.4	m0.0	12.0	3.8			15.9	
Internal Link Dist (m)		91.1			392.2				120.8		98.1	
Turn Bay Length (m)	45.0			45.0		45.0	45.0					
Base Capacity (vph)	154	2053		120	1952	799	347	509			509	
Starvation Cap Reductn	0	0		0	0	0	0	0			0	
Spillback Cap Reductn	0	0		0	0	0	0	0			0	
Storage Cap Reductn	0	0		0	0	0	0	0			0	
Reduced v/c Ratio	0.09	0.69		0.14	0.60	0.01	0.07	0.06			0.16	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 17.3 Intersection LOS: B

Intersection Capacity Utilization 69.8% ICU Level of Service C

Analysis Period (min) 15

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

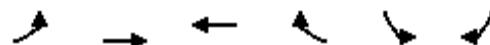
Splits and Phases: 11: Inder Heights Drive/Snellview Boulevard & Mayfield Road



Lanes, Volumes, Timings

14: Mayfield Road & Hwy 410 SB Off-Ramp

02-28-2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	943	1052	0	558	91
Future Volume (vph)	0	943	1052	0	558	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	110.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Satd. Flow (prot)	0	4749	4706	0	3400	1453
Flt Permitted					0.953	
Satd. Flow (perm)	0	4749	4706	0	3400	1453
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					2	55
Link Speed (k/h)	60	60			80	
Link Distance (m)	340.3	442.1			199.5	
Travel Time (s)	20.4	26.5			9.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	8%	9%	0%	2%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	943	1052	0	558	91
Shared Lane Traffic (%)					10%	
Lane Group Flow (vph)	0	943	1052	0	567	82
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)	3.5	3.5			7.0	
Link Offset(m)	0.0	0.0			0.0	
Crosswalk Width(m)	4.8	4.8			4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Turn Type		NA	NA		Prot	Perm
Protected Phases		2	2		4	
Permitted Phases					4	
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)	16.0	16.0		8.0	8.0	
Minimum Split (s)	27.0	27.0		37.0	37.0	
Total Split (s)	46.0	46.0		41.0	41.0	
Total Split (%)	52.9%	52.9%		47.1%	47.1%	
Maximum Green (s)	40.0	40.0		35.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

14: Mayfield Road & Hwy 410 SB Off-Ramp

02-28-2021

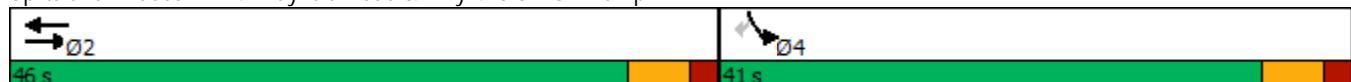


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Total Lost Time (s)	5.0	5.0		5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	
Recall Mode	Max	Max		Min	Min	
Walk Time (s)	10.0	10.0		20.0	20.0	
Flash Dont Walk (s)	6.0	6.0		6.0	6.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effect Green (s)	55.8	55.8		21.2	21.2	
Actuated g/C Ratio	0.64	0.64		0.24	0.24	
v/c Ratio	0.31	0.35		0.68	0.21	
Control Delay	7.8	8.1		33.8	11.9	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	7.8	8.1		33.8	11.9	
LOS	A	A		C	B	
Approach Delay	7.8	8.1		31.1		
Approach LOS	A	A		C		
Queue Length 50th (m)	23.9	27.6		46.5	4.0	
Queue Length 95th (m)	37.7	43.1		58.1	14.9	
Internal Link Dist (m)	316.3	418.1		175.5		
Turn Bay Length (m)				110.0		
Base Capacity (vph)	3046	3019		1408	633	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.31	0.35		0.40	0.13	

Intersection Summary

Area Type:	Other
Cycle Length:	87
Actuated Cycle Length:	87
Offset:	9.5 (11%), Referenced to phase 6:, Start of Green
Natural Cycle:	65
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.68
Intersection Signal Delay:	13.6
Intersection Capacity Utilization	73.3%
Analysis Period (min)	15

Splits and Phases: 14: Mayfield Road & Hwy 410 SB Off-Ramp



Lanes, Volumes, Timings

16: Hwy 410 NB Off-Ramp & Mayfield Road

02-28-2021

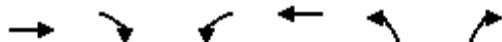


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑	↑↑	↑
Traffic Volume (vph)	1552	0	0	1130	320	818
Future Volume (vph)	1552	0	0	1130	320	818
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)		50.0	0.0		0.0	90.0
Storage Lanes		0	0		2	1
Taper Length (m)			7.5		7.5	
Satd. Flow (prot)	4885	0	0	4839	2995	1452
Flt Permitted					0.979	
Satd. Flow (perm)	4885	0	0	4839	2995	1452
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					21	21
Link Speed (k/h)	60			60	80	
Link Distance (m)	442.1			202.7	480.1	
Travel Time (s)	26.5			12.2	21.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	0%	0%	13%	8%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	1552	0	0	1130	320	818
Shared Lane Traffic (%)					50%	
Lane Group Flow (vph)	1552	0	0	1130	729	409
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases					4	
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	12.0			12.0	10.0	10.0
Minimum Split (s)	33.6			33.6	24.9	24.9
Total Split (s)	70.0			70.0	50.0	50.0
Total Split (%)	58.3%			58.3%	41.7%	41.7%
Maximum Green (s)	63.4			63.4	43.1	43.1
Yellow Time (s)	4.6			4.6	4.6	4.6
All-Red Time (s)	2.0			2.0	2.3	2.3
Lost Time Adjust (s)	-1.0			-1.0	-1.0	-1.0

Lanes, Volumes, Timings

16: Hwy 410 NB Off-Ramp & Mayfield Road

02-28-2021



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Total Lost Time (s)	5.6			5.6	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Minimum Gap (s)	3.0			3.0	3.0	3.0
Time Before Reduce (s)	0.0			0.0	0.0	0.0
Time To Reduce (s)	0.0			0.0	0.0	0.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	8.0			8.0		
Flash Dont Walk (s)	19.0			19.0		
Pedestrian Calls (#/hr)	0			0		
Act Effect Green (s)	70.1			70.1	38.4	38.4
Actuated g/C Ratio	0.58			0.58	0.32	0.32
v/c Ratio	0.54			0.40	0.85dr	0.85
Control Delay	16.9			14.8	40.1	53.2
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	16.9			14.8	40.1	53.2
LOS	B			B	D	D
Approach Delay	16.9			14.8	44.8	
Approach LOS	B			B	D	
Queue Length 50th (m)	85.0			51.7	78.7	88.0
Queue Length 95th (m)	106.9			66.7	96.4	124.9
Internal Link Dist (m)	418.1			178.7	456.1	
Turn Bay Length (m)					90.0	
Base Capacity (vph)	2851			2825	1113	546
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.54			0.40	0.65	0.75

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 32 (27%), Referenced to phase 2:EBWB and 6:, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 24.6

Intersection LOS: C

Intersection Capacity Utilization 73.3%

ICU Level of Service D

Analysis Period (min) 15

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 16: Hwy 410 NB Off-Ramp & Mayfield Road



HCM Unsignalized Intersection Capacity Analysis
18: Kennedy Road & Snellview Boulevard/Site Access #1

02-28-2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑↑		↑	↑↑	
Traffic Volume (veh/h)	2	0	55	93	0	14	25	448	28	4	1119	2
Future Volume (Veh/h)	2	0	55	93	0	14	25	448	28	4	1119	2
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	0	55	93	0	14	25	448	28	4	1119	2
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage veh)												
Upstream signal (m)							287					
pX, platoon unblocked												
vC, conflicting volume	1416	1654	560	1134	1641	238	1121			476		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1416	1654	560	1134	1641	238	1121			476		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	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 %	98	100	88	32	100	98	96			100		
cM capacity (veh/h)	94	95	476	137	97	769	631			1097		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3		
Volume Total	2	55	93	14	25	299	177	4	746	375		
Volume Left	2	0	93	0	25	0	0	4	0	0		
Volume Right	0	55	0	14	0	0	28	0	0	2		
cSH	94	476	137	769	631	1700	1700	1097	1700	1700		
Volume to Capacity	0.02	0.12	0.68	0.02	0.04	0.18	0.10	0.00	0.44	0.22		
Queue Length 95th (m)	0.5	3.1	30.2	0.4	1.0	0.0	0.0	0.1	0.0	0.0		
Control Delay (s)	44.1	13.5	74.5	9.8	10.9	0.0	0.0	8.3	0.0	0.0		
Lane LOS	E	B	F	A	B			A				
Approach Delay (s)	14.6		66.0		0.5			0.0				
Approach LOS	B		F									
Intersection Summary												
Average Delay			4.6									
Intersection Capacity Utilization		49.5%										
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
20: Stonegate Drive/Site Access 3 & Mayfield Road

02-28-2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	1918	3	26	1093	22	2	0	80	28	0	35
Future Volume (Veh/h)	27	1918	3	26	1093	22	2	0	80	28	0	35
Sign Control	Free			Free			Stop			Stop		
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)	27	1918	3	26	1093	22	2	0	80	28	0	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	1115			1921			2607	3140	960	2249	3131	558
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1115			1921			2607	3140	960	2249	3131	558
tC, single (s)	4.1			4.3			7.5	6.5	7.0	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			91			81	100	69	0	100	93
cM capacity (veh/h)	634			281			10	10	255	14	10	479
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1	SB 2			
Volume Total	27	1279	642	26	729	386	82	28	35			
Volume Left	27	0	0	26	0	0	2	28	0			
Volume Right	0	0	3	0	0	22	80	0	35			
cSH	634	1700	1700	281	1700	1700	162	14	479			
Volume to Capacity	0.04	0.75	0.38	0.09	0.43	0.23	0.51	1.94	0.07			
Queue Length 95th (m)	1.1	0.0	0.0	2.4	0.0	0.0	19.8	33.6	1.9			
Control Delay (s)	10.9	0.0	0.0	19.1	0.0	0.0	48.3	978.8	13.1			
Lane LOS	B			C			E	F	B			
Approach Delay (s)	0.2			0.4			48.3	442.3				
Approach LOS							E	F				
Intersection Summary												
Average Delay			10.1									
Intersection Capacity Utilization		68.0%			ICU Level of Service				C			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

27: Heart Lake Road & Access #2

02-28-2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑ ↗	↑ ↘		↑ ↗	↑ ↘		↑ ↗	↑ ↘		↑ ↗	↑ ↘	
Traffic Volume (veh/h)	1	2	83	92	5	1	25	54	29	1	174	1
Future Volume (Veh/h)	1	2	83	92	5	1	25	54	29	1	174	1
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)	1	2	83	92	5	1	25	54	29	1	174	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage veh												
Upstream signal (m)							239					
pX, platoon unblocked												
vC, conflicting volume	284	310	174	378	296	68	175			83		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	284	310	174	378	296	68	175			83		
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 %	100	100	91	82	99	100	98			100		
cM capacity (veh/h)	658	597	874	519	608	1000	1414			1527		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2				
Volume Total	1	85	92	6	25	83	1	175				
Volume Left	1	0	92	0	25	0	1	0				
Volume Right	0	83	0	1	0	29	0	1				
cSH	658	865	519	650	1414	1700	1527	1700				
Volume to Capacity	0.00	0.10	0.18	0.01	0.02	0.05	0.00	0.10				
Queue Length 95th (m)	0.0	2.6	5.1	0.2	0.4	0.0	0.0	0.0				
Control Delay (s)	10.5	9.6	13.4	10.6	7.6	0.0	7.4	0.0				
Lane LOS	B	A	B	B	A		A					
Approach Delay (s)	9.6		13.3		1.8		0.0					
Approach LOS	A		B									
Intersection Summary												
Average Delay			5.0									
Intersection Capacity Utilization		34.3%				ICU Level of Service				A		
Analysis Period (min)			15									

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-02-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑		↑	↑↑	↑	↑	↑↑		↑	↑↑	
Traffic Volume (vph)	158	1250	109	97	615	247	51	96	118	609	347	310
Future Volume (vph)	158	1250	109	97	615	247	51	96	118	609	347	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	45.0		0.0	85.0		40.0	45.0		55.0	90.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1580	3433	0	1750	3245	1413	1716	3111	0	1640	3192	0
Flt Permitted	0.321			0.072			0.402			0.548		
Satd. Flow (perm)	533	3433	0	133	3245	1394	724	3111	0	946	3192	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8				195		118			210	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		416.2			542.7			529.5			286.9	
Travel Time (s)		25.0			32.6			38.1			20.7	
Confl. Peds. (#/hr)	1		1	1		1	6					6
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	13%	2%	10%	2%	10%	13%	4%	8%	3%	8%	1%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	2	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	158	1250	109	97	615	247	51	96	118	609	347	310
Shared Lane Traffic (%)												
Lane Group Flow (vph)	158	1359	0	97	615	247	51	214	0	609	657	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.03	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases	5	2		1	6			4		3	8	
Permitted Phases	2			6		6	4			8		
Detector Phase	5	2		1	6	6	4	4		3	8	
Switch Phase												
Minimum Initial (s)	6.0	8.0		6.0	8.0	8.0	12.0	12.0		6.0	12.0	
Minimum Split (s)	9.0	34.6		9.0	34.6	34.6	34.9	34.9		9.0	34.9	
Total Split (s)	10.0	61.0		10.0	61.0	61.0	35.0	35.0		34.0	69.0	
Total Split (%)	7.1%	43.6%		7.1%	43.6%	43.6%	25.0%	25.0%		24.3%	49.3%	
Maximum Green (s)	7.0	54.4		7.0	54.4	54.4	28.1	28.1		31.0	62.1	
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.6		0.0	2.6	2.6	2.9	2.9		0.0	2.9	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-02-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	2.0	5.6		2.0	5.6	5.6	5.9	5.9		2.0	5.9	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recall Mode	None	C-Max		None	Max	Max	Max	Max		Max	None	
Walk Time (s)				8.0		8.0	8.0	8.0			8.0	
Flash Dont Walk (s)				20.0		20.0	20.0	20.0			20.0	
Pedestrian Calls (#/hr)				0		0	0	0			0	
Act Effect Green (s)	67.0	55.4		67.0	55.4	55.4	29.1	29.1		67.0	63.1	
Actuated g/C Ratio	0.48	0.40		0.48	0.40	0.40	0.21	0.21		0.48	0.45	
v/c Ratio	0.50	1.00		0.62	0.48	0.37	0.34	0.29		1.00	0.42	
Control Delay	18.8	47.0		39.9	33.1	8.7	54.8	21.7		68.1	18.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	18.8	47.0		39.9	33.1	8.7	54.8	21.7		68.1	18.0	
LOS	B	D		D	C	A	D	C		E	B	
Approach Delay				44.1			27.5			28.0		42.1
Approach LOS				D		C		C			D	
Queue Length 50th (m)	12.9	160.9		14.9	69.7	9.4	12.8	12.1		144.3	44.8	
Queue Length 95th (m)	m20.3	#253.6		#32.8	88.0	30.1	27.1	24.1		#259.0	61.2	
Internal Link Dist (m)				392.2		518.7		505.5			262.9	
Turn Bay Length (m)	45.0			85.0		40.0	45.0			90.0		
Base Capacity (vph)	314	1363		156	1284	669	150	740		611	1554	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.50	1.00		0.62	0.48	0.37	0.34	0.29		1.00	0.42	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 17 (12%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 38.4

Intersection LOS: D

Intersection Capacity Utilization 103.4%

ICU Level of Service G

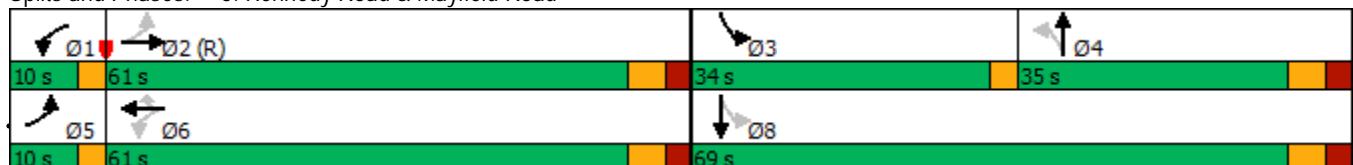
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 5: Kennedy Road & Mayfield Road



Lanes, Volumes, Timings

20: Stonegate Drive/Site Access 3 & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑		↑	↑↑			↔		↑	↑	
Traffic Volume (vph)	27	1918	3	26	1093	22	2	0	80	28	0	35
Future Volume (vph)	27	1918	3	26	1093	22	2	0	80	28	0	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	35.0		0.0	190.0		0.0	0.0		0.0	15.0		0.0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1785	3398	0	1653	3157	0	0	1583	0	1785	1597	0
Flt Permitted	0.199			0.053				0.997		0.724		
Satd. Flow (perm)	374	3398	0	92	3157	0	0	1580	0	1360	1597	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					3			33			106	
Link Speed (k/h)		60			60			40			20	
Link Distance (m)		542.7			294.3			223.4			133.0	
Travel Time (s)		32.6			17.7			20.1			23.9	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	5%	33%	8%	13%	0%	0%	0%	3%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	27	1918	3	26	1093	22	2	0	80	28	0	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	1921	0	26	1115	0	0	82	0	28	35	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA										
Protected Phases		2			6			4			4	
Permitted Phases	2			6			4			4		
Detector Phase	2	2		6	6		4	4		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Minimum Split (s)	35.6	35.6		35.6	35.6		39.6	39.6		39.6	39.6	
Total Split (s)	80.0	80.0		80.4	80.4		40.0	40.0		40.0	40.0	
Total Split (%)	66.4%	66.4%		66.8%	66.8%		33.2%	33.2%		33.2%	33.2%	
Maximum Green (s)	73.4	73.4		73.8	73.8		33.4	33.4		33.4	33.4	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.6	2.6		2.6	2.6		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

20: Stonegate Drive/Site Access 3 & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.6	5.6		5.6	5.6			5.6		5.6	5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max		Max	Max		Max	Max		Max	Max	
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		25.0	25.0		25.0	25.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	74.8	74.8		74.8	74.8			34.4		34.4	34.4	
Actuated g/C Ratio	0.62	0.62		0.62	0.62			0.29		0.29	0.29	
v/c Ratio	0.12	0.91		0.46	0.57			0.17		0.07	0.07	
Control Delay	10.9	27.8		43.0	14.7			21.3		32.2	0.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	10.9	27.8		43.0	14.7			21.3		32.2	0.2	
LOS	B	C		D	B			C		C	A	
Approach Delay		27.6			15.4			21.3			14.4	
Approach LOS		C			B			C			B	
Queue Length 50th (m)	2.6	204.7		3.2	79.7			9.0		5.1	0.0	
Queue Length 95th (m)	7.2	249.9		#18.9	98.7			21.9		12.7	0.0	
Internal Link Dist (m)		518.7			270.3			199.4			109.0	
Turn Bay Length (m)	35.0		190.0							15.0		
Base Capacity (vph)	232	2111		57	1962			475		388	532	
Starvation Cap Reductn	0	0		0	0			0		0	0	
Spillback Cap Reductn	0	0		0	0			0		0	0	
Storage Cap Reductn	0	0		0	0			0		0	0	
Reduced v/c Ratio	0.12	0.91		0.46	0.57			0.17		0.07	0.07	

Intersection Summary

Area Type: Other

Cycle Length: 120.4

Actuated Cycle Length: 120.4

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

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 22.9

Intersection LOS: C

Intersection Capacity Utilization 72.4%

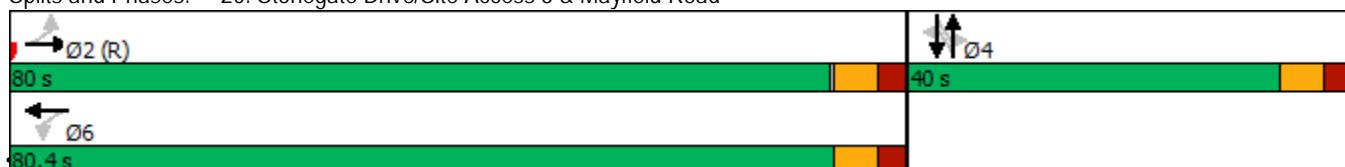
ICU Level of Service C

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 20: Stonegate Drive/Site Access 3 & Mayfield Road



2023 Future Total AM Peak 02-24-2021 Optimization

Synchro 10 Light Report

Page 2

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	293	776	77	194	1162	563	108	294	153	271	170	197
Future Volume (vph)	293	776	77	194	1162	563	108	294	153	271	170	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	45.0		0.0	85.0		40.0	45.0		55.0	90.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1785	3344	0	1785	3500	1597	1785	3364	0	1719	3242	0
Flt Permitted	0.079			0.207			0.533			0.393		
Satd. Flow (perm)	148	3344	0	389	3500	1573	995	3364	0	708	3242	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9				229			75			197
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		416.2			542.7			529.5			286.9	
Travel Time (s)		25.0			32.6			38.1			20.7	
Confl. Peds. (#/hr)	2		4	4		2	7		6	6		7
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	5%	6%	0%	2%	0%	0%	0%	0%	3%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	2	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	293	776	77	194	1162	563	108	294	153	271	170	197
Shared Lane Traffic (%)												
Lane Group Flow (vph)	293	853	0	194	1162	563	108	447	0	271	367	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.03	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases	5	2		1	6			4		3	8	
Permitted Phases	2			6		6	4			8		
Detector Phase	5	2		1	6	6	4	4		3	8	
Switch Phase												
Minimum Initial (s)	6.0	8.0		6.0	8.0	8.0	12.0	12.0		6.0	12.0	
Minimum Split (s)	9.0	34.6		9.0	34.6	34.6	34.9	34.9		9.0	34.9	
Total Split (s)	20.0	54.0		20.0	54.0	54.0	51.0	51.0		10.0	61.0	
Total Split (%)	14.8%	40.0%		14.8%	40.0%	40.0%	37.8%	37.8%		7.4%	45.2%	
Maximum Green (s)	17.0	47.4		17.0	47.4	47.4	44.1	44.1		7.0	54.1	
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.6		0.0	2.6	2.6	2.9	2.9		0.0	2.9	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	2.0	5.6		2.0	5.6	5.6	5.9	5.9		2.0	5.9	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recall Mode	None	C-Max		None	Max	Max	Max	Max		Max	None	
Walk Time (s)				8.0		8.0	8.0	8.0			8.0	
Flash Dont Walk (s)				20.0		20.0	20.0	20.0			20.0	
Pedestrian Calls (#/hr)				0		0	0	0			0	
Act Effect Green (s)	71.6	52.2		66.2	48.4	48.4	45.1	45.1		59.0	55.1	
Actuated g/C Ratio	0.53	0.39		0.49	0.36	0.36	0.33	0.33		0.44	0.41	
v/c Ratio	0.99	0.66		0.58	0.93	0.79	0.33	0.38		0.73	0.26	
Control Delay	99.3	39.3		21.2	55.1	31.9	37.0	29.3		41.3	12.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	99.3	39.3		21.2	55.1	31.9	37.0	29.3		41.3	12.2	
LOS	F	D		C	E	C	D	C		D	B	
Approach Delay				54.6		44.9				30.8		24.6
Approach LOS				D		D				C		C
Queue Length 50th (m)	79.1	78.3		34.4	174.5	102.8	22.6	41.4		50.1	15.5	
Queue Length 95th (m)	#130.5	101.4		m51.8	#210.7	156.6	39.9	57.0		#73.7	26.7	
Internal Link Dist (m)				392.2		518.7				505.5		262.9
Turn Bay Length (m)	45.0			85.0		40.0	45.0			90.0		
Base Capacity (vph)	297	1299		387	1254	710	332	1173		369	1439	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.99	0.66		0.50	0.93	0.79	0.33	0.38		0.73	0.26	

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 13 (10%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 42.6 Intersection LOS: D

Intersection Capacity Utilization 103.0% ICU Level of Service G

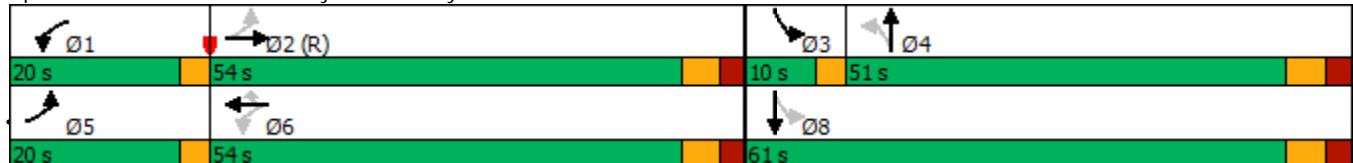
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 5: Kennedy Road & Mayfield Road



Lanes, Volumes, Timings

8: Heart Lake Road & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↑	↑	↑	↑↑↑	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	84	983	142	55	1420	144	355	75	39	88	46	54
Future Volume (vph)	84	983	142	55	1420	144	355	75	39	88	46	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%			0%			0%		
Storage Length (m)	125.0		200.0	160.0		160.0	125.0		60.0	85.0		55.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1733	4706	1507	1700	4980	1566	1767	1879	1465	1668	1807	1521
Flt Permitted	0.154			0.233			0.688			0.708		
Satd. Flow (perm)	281	4706	1507	417	4980	1566	1280	1879	1465	1243	1807	1521
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			142			144			54			78
Link Speed (k/h)	60			60			50			50		
Link Distance (m)	261.4			340.3			475.3			238.8		
Travel Time (s)	15.7			20.4			34.2			17.2		
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	9%	6%	5%	3%	2%	1%	0%	9%	7%	4%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	84	983	142	55	1420	144	355	75	39	88	46	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	84	983	142	55	1420	144	355	75	39	88	46	54
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)	3.5			3.5			3.5			3.5		
Link Offset(m)	0.0			0.0			0.0			0.0		
Crosswalk Width(m)	4.8			4.8			4.8			4.8		
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		2		1	6		7	4			8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	2	2	2	1	6	6	7	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	12.0	12.0	12.0	5.0	12.0	12.0	5.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	35.7	35.7	35.7	9.0	35.7	35.7	9.0	39.9	39.9	39.9	39.9	39.9
Total Split (s)	76.0	76.0	76.0	9.0	85.0	85.0	9.0	50.0	50.0	41.0	41.0	41.0
Total Split (%)	56.3%	56.3%	56.3%	6.7%	63.0%	63.0%	6.7%	37.0%	37.0%	30.4%	30.4%	30.4%
Maximum Green (s)	69.3	69.3	69.3	6.0	78.3	78.3	6.0	43.1	43.1	34.1	34.1	34.1
Yellow Time (s)	4.6	4.6	4.6	3.0	4.6	4.6	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.1	2.1	2.1	0.0	2.1	2.1	0.0	2.9	2.9	2.9	2.9	2.9
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0

Lanes, Volumes, Timings

8: Heart Lake Road & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.7	5.7	5.7	2.0	5.7	5.7	2.0	5.9	5.9	5.9	5.9	5.9
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	Yes
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
Minimum Gap (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
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Max	C-Max	C-Max	None	Max	Max	None	Max	Max	Max	Max	Max
Walk Time (s)	8.0	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0
Flash Dont Walk (s)	21.0	21.0	21.0		21.0	21.0		25.0	25.0	25.0	25.0	25.0
Pedestrian Calls (#/hr)	0	0	0		0	0		0	0	0	0	0
Act Effect Green (s)	72.1	72.1	72.1	83.0	79.3	79.3	48.0	44.1	44.1	35.1	35.1	35.1
Actuated g/C Ratio	0.53	0.53	0.53	0.61	0.59	0.59	0.36	0.33	0.33	0.26	0.26	0.26
v/c Ratio	0.56	0.39	0.16	0.17	0.49	0.15	0.74	0.12	0.08	0.27	0.10	0.12
Control Delay	53.5	31.6	11.5	11.6	16.8	2.2	47.8	32.6	4.7	42.6	38.8	4.0
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	53.5	31.6	11.5	11.6	16.8	2.2	47.8	32.6	4.7	42.6	38.8	4.0
LOS	D	C	B	B	B	A	D	C	A	D	D	A
Approach Delay		30.8			15.3			41.8			30.6	
Approach LOS		C			B			D			C	
Queue Length 50th (m)	22.1	88.3	9.2	5.8	80.4	0.0	80.0	14.7	0.0	19.8	9.9	0.0
Queue Length 95th (m)	m38.3	99.1	m24.8	11.6	92.4	8.9	113.3	27.2	5.6	35.9	20.7	5.5
Internal Link Dist (m)		237.4			316.3			451.3			214.8	
Turn Bay Length (m)	125.0		200.0	160.0		160.0	125.0		60.0	85.0		55.0
Base Capacity (vph)	150	2513	870	322	2925	979	480	613	514	323	469	453
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	0.56	0.39	0.16	0.17	0.49	0.15	0.74	0.12	0.08	0.27	0.10	0.12

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 26 (19%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 25.1

Intersection LOS: C

Intersection Capacity Utilization 78.2%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 8: Heart Lake Road & Mayfield Road



Lanes, Volumes, Timings

11: Inder Heights Drive/Snellview Boulevard & Mayfield Road

02-28-2021

	↑	→	↓	↶	←	↷	↖	↗	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑		↑	↑↑	↑	↑	↑			↔	
Traffic Volume (vph)	56	1209	29	26	1356	19	7	0	13	10	1	34
Future Volume (vph)	56	1209	29	26	1356	19	7	0	13	10	1	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	45.0		0.0	45.0		45.0	45.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1668	3233	0	1684	3400	1521	1785	1597	0	0	1545	0
Flt Permitted	0.146			0.174			0.728				0.955	
Satd. Flow (perm)	256	3233	0	308	3400	1521	1364	1597	0	0	1492	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				29		98			34	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		115.1			416.2			144.8			122.1	
Travel Time (s)		6.9			25.0			13.0			11.0	
Confl. Peds. (#/hr)			1	1			2				2	
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	10%	7%	6%	5%	5%	0%	0%	0%	0%	0%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	56	1209	29	26	1356	19	7	0	13	10	1	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	56	1238	0	26	1356	19	7	13	0	0	45	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Detector Phase	2	2		2	2	2	4	4		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0	12.0	8.0	8.0		8.0	8.0	
Minimum Split (s)	25.0	25.0		25.0	25.0	25.0	32.6	32.6		32.6	32.6	
Total Split (s)	95.0	95.0		95.0	95.0	95.0	40.0	40.0		40.0	40.0	
Total Split (%)	70.4%	70.4%		70.4%	70.4%	70.4%	29.6%	29.6%		29.6%	29.6%	
Maximum Green (s)	89.0	89.0		89.0	89.0	89.0	33.4	33.4		33.4	33.4	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

11: Inder Heights Drive/Snellview Boulevard & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.6	5.6			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max	C-Max	Max	Max		Max	Max	
Walk Time (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effect Green (s)	90.0	90.0		90.0	90.0	90.0	34.4	34.4			34.4	
Actuated g/C Ratio	0.67	0.67		0.67	0.67	0.67	0.25	0.25			0.25	
v/c Ratio	0.33	0.57		0.13	0.60	0.02	0.02	0.03			0.11	
Control Delay	16.1	13.4		4.0	4.1	0.0	38.1	0.1			19.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	16.1	13.4		4.0	4.1	0.0	38.1	0.1			19.9	
LOS	B	B		A	A	A	D	A			B	
Approach Delay		13.5			4.1				13.4		19.9	
Approach LOS		B			A				B		B	
Queue Length 50th (m)	6.2	91.2		0.8	21.8	0.0	1.5	0.0			4.1	
Queue Length 95th (m)	16.2	109.8		m1.2	m25.1	m0.0	5.6	0.0			m7.0	
Internal Link Dist (m)		91.1			392.2			120.8			98.1	
Turn Bay Length (m)	45.0			45.0		45.0	45.0					
Base Capacity (vph)	170	2156		205	2266	1023	347	479			405	
Starvation Cap Reductn	0	0		0	0	0	0	0			0	
Spillback Cap Reductn	0	0		0	0	0	0	0			0	
Storage Cap Reductn	0	0		0	0	0	0	0			0	
Reduced v/c Ratio	0.33	0.57		0.13	0.60	0.02	0.02	0.03			0.11	

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 15 (11%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 8.8 Intersection LOS: A

Intersection Capacity Utilization 77.0% ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 11: Inder Heights Drive/Snellview Boulevard & Mayfield Road



Lanes, Volumes, Timings

14: Mayfield Road & Hwy 410 SB Off-Ramp

02-28-2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↑↑↑	↑
Traffic Volume (vph)	0	711	1671	0	124	12
Future Volume (vph)	0	711	1671	0	124	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	110.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Satd. Flow (prot)	0	4663	5029	0	3338	1453
Flt Permitted					0.953	
Satd. Flow (perm)	0	4663	5029	0	3338	1453
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					1	8
Link Speed (k/h)		60	60		80	
Link Distance (m)		340.3	442.1		199.5	
Travel Time (s)		20.4	26.5		9.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	10%	2%	0%	4%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	711	1671	0	124	12
Shared Lane Traffic (%)					10%	
Lane Group Flow (vph)	0	711	1671	0	125	11
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		7.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Turn Type		NA	NA		Prot	Perm
Protected Phases		2	2		4	
Permitted Phases					4	
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)		16.0	16.0		8.0	8.0
Minimum Split (s)		27.0	27.0		37.0	37.0
Total Split (s)		46.0	46.0		41.0	41.0
Total Split (%)		52.9%	52.9%		47.1%	47.1%
Maximum Green (s)		40.0	40.0		35.0	35.0
Yellow Time (s)		4.0	4.0		4.0	4.0
All-Red Time (s)		2.0	2.0		2.0	2.0
Lost Time Adjust (s)		-1.0	-1.0		-1.0	-1.0

Lanes, Volumes, Timings

14: Mayfield Road & Hwy 410 SB Off-Ramp

02-28-2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Total Lost Time (s)	5.0	5.0		5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	
Recall Mode	Max	Max		Min	Min	
Walk Time (s)	10.0	10.0				
Flash Dont Walk (s)	6.0	6.0				
Pedestrian Calls (#/hr)	0	0				
Act Effect Green (s)	67.0	67.0		10.0	10.0	
Actuated g/C Ratio	0.77	0.77		0.11	0.11	
v/c Ratio	0.20	0.43		0.32	0.06	
Control Delay	3.0	3.9		37.1	22.7	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	3.0	3.9		37.1	22.7	
LOS	A	A		D	C	
Approach Delay	3.0	3.9		35.9		
Approach LOS	A	A		D		
Queue Length 50th (m)	9.3	27.8		10.5	0.5	
Queue Length 95th (m)	14.4	39.5		18.4	5.7	
Internal Link Dist (m)	316.3	418.1		175.5		
Turn Bay Length (m)				110.0		
Base Capacity (vph)	3588	3870		1381	605	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.20	0.43		0.09	0.02	

Intersection Summary

Area Type: Other

Cycle Length: 87

Actuated Cycle Length: 87

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

Natural Cycle: 65

Control Type: Actuated-Coordinated

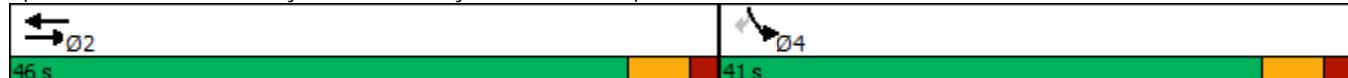
Maximum v/c Ratio: 0.43

Intersection Signal Delay: 5.4 Intersection LOS: A

Intersection Capacity Utilization 70.4% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 14: Mayfield Road & Hwy 410 SB Off-Ramp



Lanes, Volumes, Timings

16: Hwy 410 NB Off-Ramp & Mayfield Road

02-28-2021



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑	↑↑	↑
Traffic Volume (vph)	832	0	0	1678	695	821
Future Volume (vph)	832	0	0	1678	695	821
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)		50.0	0.0		0.0	90.0
Storage Lanes		0	0		2	1
Taper Length (m)			7.5		7.5	
Satd. Flow (prot)	4706	0	0	5207	3224	1479
Flt Permitted					0.967	
Satd. Flow (perm)	4706	0	0	5207	3224	1479
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					88	118
Link Speed (k/h)	60			60	80	
Link Distance (m)	442.1			202.7	480.1	
Travel Time (s)	26.5			12.2	21.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	9%	0%	0%	5%	2%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	832	0	0	1678	695	821
Shared Lane Traffic (%)					41%	
Lane Group Flow (vph)	832	0	0	1678	1032	484
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases					4	
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	12.0			12.0	10.0	10.0
Minimum Split (s)	33.6			33.6	22.5	22.5
Total Split (s)	65.0			65.0	55.0	55.0
Total Split (%)	54.2%			54.2%	45.8%	45.8%
Maximum Green (s)	58.4			58.4	48.1	48.1
Yellow Time (s)	4.6			4.6	4.6	4.6
All-Red Time (s)	2.0			2.0	2.3	2.3
Lost Time Adjust (s)	-1.0			-1.0	-1.0	-1.0

Lanes, Volumes, Timings

16: Hwy 410 NB Off-Ramp & Mayfield Road

02-28-2021



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Total Lost Time (s)	5.6			5.6	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Minimum Gap (s)	3.0			3.0	3.0	3.0
Time Before Reduce (s)	0.0			0.0	0.0	0.0
Time To Reduce (s)	0.0			0.0	0.0	0.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	8.0			8.0		
Flash Dont Walk (s)	19.0			19.0		
Pedestrian Calls (#/hr)	0			0		
Act Effect Green (s)	64.7			64.7	43.8	43.8
Actuated g/C Ratio	0.54			0.54	0.36	0.36
v/c Ratio	0.33			0.60	0.84	0.79
Control Delay	16.6			20.6	38.2	34.8
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	16.6			20.6	38.2	34.8
LOS	B			C	D	C
Approach Delay	16.6			20.6	37.1	
Approach LOS	B			C	D	
Queue Length 50th (m)	41.3			95.1	109.1	81.3
Queue Length 95th (m)	55.2			118.7	128.7	119.7
Internal Link Dist (m)	418.1			178.7	456.1	
Turn Bay Length (m)					90.0	
Base Capacity (vph)	2536			2806	1371	674
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.33			0.60	0.75	0.72

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 19 (16%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 26.0 Intersection LOS: C

Intersection Capacity Utilization 70.4% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 16: Hwy 410 NB Off-Ramp & Mayfield Road



HCM Unsignalized Intersection Capacity Analysis
18: Kennedy Road & Snellview Boulevard/Access #1

02-28-2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑↑		↑	↑↑	
Traffic Volume (veh/h)	2	0	44	51	0	8	75	987	88	14	542	4
Future Volume (Veh/h)	2	0	44	51	0	8	75	987	88	14	542	4
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	0	44	51	0	8	75	987	88	14	542	4
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage veh)												
Upstream signal (m)							287					
pX, platoon unblocked												
vC, conflicting volume	1224	1797	273	1524	1755	538	546			1075		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1224	1797	273	1524	1755	538	546			1075		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	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 %	98	100	94	29	100	98	93			98		
cM capacity (veh/h)	126	74	731	72	78	493	1033			656		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3		
Volume Total	2	44	51	8	75	658	417	14	361	185		
Volume Left	2	0	51	0	75	0	0	14	0	0		
Volume Right	0	44	0	8	0	0	88	0	0	4		
cSH	126	731	72	493	1033	1700	1700	656	1700	1700		
Volume to Capacity	0.02	0.06	0.71	0.02	0.07	0.39	0.25	0.02	0.21	0.11		
Queue Length 95th (m)	0.4	1.5	26.0	0.4	1.9	0.0	0.0	0.5	0.0	0.0		
Control Delay (s)	34.1	10.2	131.7	12.4	8.8	0.0	0.0	10.6	0.0	0.0		
Lane LOS	D	B	F	B	A			B				
Approach Delay (s)	11.3		115.5		0.6			0.3				
Approach LOS	B		F									
Intersection Summary												
Average Delay			4.5									
Intersection Capacity Utilization		52.9%				ICU Level of Service			A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
20: Stonegate Drive/Access #3 & Mayfield Road

02-28-2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑		↑	↑↑			↔		↑	↑↑	
Traffic Volume (veh/h)	67	1272	13	92	1953	55	2	0	36	48	0	58
Future Volume (Veh/h)	67	1272	13	92	1953	55	2	0	36	48	0	58
Sign Control	Free			Free			Stop			Stop		
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)	67	1272	13	92	1953	55	2	0	36	48	0	58
Pedestrians	1											
Lane Width (m)	3.5											
Walking Speed (m/s)	1.2											
Percent Blockage	0											
Right turn flare (veh)												
Median type	None			None								
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	2008			1285			2632	3604	642	2970	3584	1005
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2008			1285			2632	3604	642	2970	3584	1005
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	77			83			69	100	91	0	100	76
cM capacity (veh/h)	289			541			6	3	421	4	4	243
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1	SB 2			
Volume Total	67	848	437	92	1302	706	38	48	58			
Volume Left	67	0	0	92	0	0	2	48	0			
Volume Right	0	0	13	0	0	55	36	0	58			
cSH	289	1700	1700	541	1700	1700	96	4	243			
Volume to Capacity	0.23	0.50	0.26	0.17	0.77	0.42	0.39	11.32	0.24			
Queue Length 95th (m)	7.0	0.0	0.0	4.9	0.0	0.0	12.8	Err	7.2			
Control Delay (s)	21.2	0.0	0.0	13.0	0.0	0.0	64.8	Err	24.4			
Lane LOS	C			B			F	F	C			
Approach Delay (s)	1.1			0.6			64.8	4541.2				
Approach LOS							F	F				
Intersection Summary												
Average Delay				135.3								
Intersection Capacity Utilization				78.8%			ICU Level of Service		D			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

27: Heart Lake Road & Access #2

02-28-2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑		↑	↑	
Traffic Volume (veh/h)	1	5	46	57	3	1	79	131	93	1	85	1
Future Volume (Veh/h)	1	5	46	57	3	1	79	131	93	1	85	1
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)	1	5	46	57	3	1	79	131	93	1	85	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage veh)												
Upstream signal (m)							239					
pX, platoon unblocked												
vC, conflicting volume	379	470	86	471	424	178	86			224		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	379	470	86	471	424	178	86			224		
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 %	100	99	95	88	99	100	95			100		
cM capacity (veh/h)	556	469	979	459	498	871	1523			1357		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2				
Volume Total	1	51	57	4	79	224	1	86				
Volume Left	1	0	57	0	79	0	1	0				
Volume Right	0	46	0	1	0	93	0	1				
cSH	556	885	459	557	1523	1700	1357	1700				
Volume to Capacity	0.00	0.06	0.12	0.01	0.05	0.13	0.00	0.05				
Queue Length 95th (m)	0.0	1.5	3.4	0.2	1.3	0.0	0.0	0.0				
Control Delay (s)	11.5	9.3	13.9	11.5	7.5	0.0	7.7	0.0				
Lane LOS	B	A	B	B	A		A					
Approach Delay (s)	9.4		13.8		2.0		0.1					
Approach LOS	A		B									
Intersection Summary												
Average Delay			3.8									
Intersection Capacity Utilization		29.1%			ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	293	776	77	194	1162	563	108	294	153	271	170	197
Future Volume (vph)	293	776	77	194	1162	563	108	294	153	271	170	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	45.0		0.0	85.0		40.0	45.0		55.0	90.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1785	3344	0	1785	3500	1597	1785	3364	0	1719	3241	0
Flt Permitted	0.075			0.238			0.533			0.381		
Satd. Flow (perm)	141	3344	0	447	3500	1573	995	3364	0	687	3241	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9				219			70			197
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		416.2			542.7			529.5			286.9	
Travel Time (s)		25.0			32.6			38.1			20.7	
Confl. Peds. (#/hr)	2		4	4		2	7		6	6		7
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	5%	6%	0%	2%	0%	0%	0%	0%	3%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	2	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	293	776	77	194	1162	563	108	294	153	271	170	197
Shared Lane Traffic (%)												
Lane Group Flow (vph)	293	853	0	194	1162	563	108	447	0	271	367	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.03	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases	5	2		1	6			4		3	8	
Permitted Phases	2			6		6	4			8		
Detector Phase	5	2		1	6	6	4	4		3	8	
Switch Phase												
Minimum Initial (s)	6.0	8.0		6.0	8.0	8.0	12.0	12.0		6.0	12.0	
Minimum Split (s)	9.0	34.6		9.0	34.6	34.6	34.9	34.9		9.0	34.9	
Total Split (s)	25.0	60.0		20.0	55.0	55.0	50.0	50.0		10.0	60.0	
Total Split (%)	17.9%	42.9%		14.3%	39.3%	39.3%	35.7%	35.7%		7.1%	42.9%	
Maximum Green (s)	22.0	53.4		17.0	48.4	48.4	43.1	43.1		7.0	53.1	
Yellow Time (s)	3.0	4.0		3.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.6		0.0	2.6	2.6	2.9	2.9		0.0	2.9	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	2.0	5.6		2.0	5.6	5.6	5.9	5.9		2.0	5.9	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recall Mode	None	C-Max		None	Max	Max	Max	Max		Max	None	
Walk Time (s)				8.0		8.0	8.0	8.0			8.0	
Flash Dont Walk (s)				20.0		20.0	20.0	20.0			20.0	
Pedestrian Calls (#/hr)				0		0	0	0			0	
Act Effect Green (s)	78.0	58.3		68.7	51.1	51.1	44.1	44.1		58.0	54.1	
Actuated g/C Ratio	0.56	0.42		0.49	0.36	0.36	0.32	0.32		0.41	0.39	
v/c Ratio	0.89	0.61		0.55	0.91	0.79	0.35	0.40		0.79	0.27	
Control Delay	66.8	34.3		22.2	54.0	33.2	40.8	32.6		49.8	13.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	66.8	34.3		22.2	54.0	33.2	40.8	32.6		49.8	13.6	
LOS	E	C		C	D	C	D	C		D	B	
Approach Delay		42.6			44.7			34.2			29.0	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	65.8	100.1		27.1	172.2	96.2	24.2	45.1		54.4	16.7	
Queue Length 95th (m)	#114.8	129.1		41.2	#217.5	150.1	42.7	61.3		#87.4	28.6	
Internal Link Dist (m)				392.2		518.7		505.5			262.9	
Turn Bay Length (m)	45.0			85.0		40.0	45.0				90.0	
Base Capacity (vph)	348	1398		403	1276	712	313	1107		343	1373	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.84	0.61		0.48	0.91	0.79	0.35	0.40		0.79	0.27	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 13 (9%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 40.4

Intersection LOS: D

Intersection Capacity Utilization 103.0%

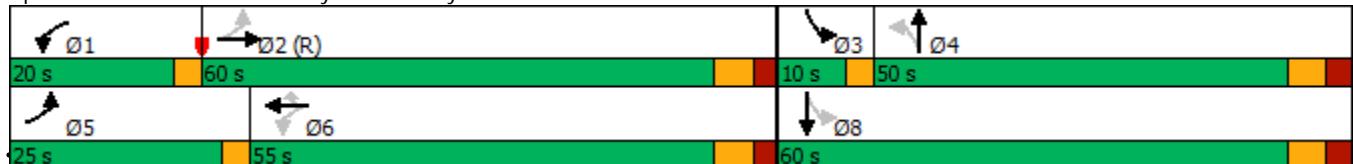
ICU Level of Service G

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 5: Kennedy Road & Mayfield Road



2023 Future Total PM Peak 02-24-2021 Optimization

Synchro 10 Light Report

Page 2

Lanes, Volumes, Timings

20: Stonegate Drive/Access #3 & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑		↑	↑↑			↔		↑	↑	
Traffic Volume (vph)	67	1272	13	92	1953	55	2	0	36	48	0	58
Future Volume (vph)	67	1272	13	92	1953	55	2	0	36	48	0	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	30.0		0.0	190.0		0.0	0.0		0.0	15.0		0.0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1785	3395	0	1767	3488	0	0	1633	0	1785	1597	0
Flt Permitted	0.076			0.198				0.983		0.732		
Satd. Flow (perm)	143	3395	0	368	3488	0	0	1610	0	1375	1597	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			4			36			33	
Link Speed (k/h)		60			60			40			20	
Link Distance (m)		542.7			294.3			223.4			133.0	
Travel Time (s)		32.6			17.7			20.1			23.9	
Confl. Peds. (#/hr)							1					
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	5%	0%	1%	2%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	67	1272	13	92	1953	55	2	0	36	48	0	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	1285	0	92	2008	0	0	38	0	48	58	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA										
Protected Phases		2			6			4			4	
Permitted Phases	2			6			4			4		
Detector Phase	2	2		6	6		4	4		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Minimum Split (s)	39.6	39.6		39.6	39.6		39.6	39.6		39.6	39.6	
Total Split (s)	80.0	80.0		80.0	80.0		40.0	40.0		40.0	40.0	
Total Split (%)	66.7%	66.7%		66.7%	66.7%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	73.4	73.4		73.4	73.4		33.4	33.4		33.4	33.4	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.6	2.6		2.6	2.6		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

20: Stonegate Drive/Access #3 & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.6	5.6		5.6	5.6			5.6		5.6	5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max		Max	Max		None	None		None	None	
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		25.0	25.0		25.0	25.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	100.3	100.3		100.3	100.3			13.4		13.4	13.4	
Actuated g/C Ratio	0.84	0.84		0.84	0.84			0.11		0.11	0.11	
v/c Ratio	0.56	0.45		0.30	0.69			0.18		0.32	0.28	
Control Delay	27.4	4.1		6.2	6.8			18.3		55.0	29.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	27.4	4.1		6.2	6.8			18.3		55.0	29.1	
LOS	C	A		A	A			B		D	C	
Approach Delay		5.3			6.7			18.3			40.8	
Approach LOS		A			A			B			D	
Queue Length 50th (m)	5.1	44.0		5.0	100.5			0.5		11.2	5.7	
Queue Length 95th (m)	#36.6	58.9		12.6	134.5			11.1		23.5	18.8	
Internal Link Dist (m)		518.7			270.3			199.4			109.0	
Turn Bay Length (m)	30.0			190.0						15.0		
Base Capacity (vph)	119	2837		307	2915			487		394	481	
Starvation Cap Reductn	0	0		0	0			0		0	0	
Spillback Cap Reductn	0	0		0	0			0		0	0	
Storage Cap Reductn	0	0		0	0			0		0	0	
Reduced v/c Ratio	0.56	0.45		0.30	0.69			0.08		0.12	0.12	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 7.3

Intersection LOS: A

Intersection Capacity Utilization 89.7%

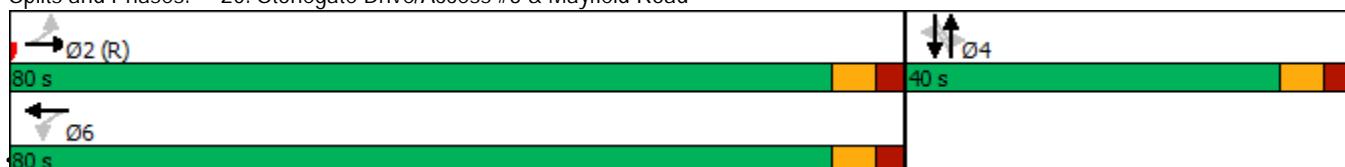
ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 20: Stonegate Drive/Access #3 & Mayfield Road



2023 Future Total PM Peak 02-24-2021 Optimization

Synchro 10 Light Report

Page 2

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	173	1590	121	103	784	273	56	105	128	672	378	338
Future Volume (vph)	173	1590	121	103	784	273	56	105	128	672	378	338
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%				0%			0%			0%	
Storage Length (m)	45.0		0.0	85.0		40.0	45.0		55.0	90.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1580	5029	1452	1750	4434	0	1716	3114	0	1640	3192	0
Flt Permitted	0.158			0.081			0.379			0.525		
Satd. Flow (perm)	263	5029	1432	149	4434	0	682	3114	0	906	3192	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		91			70			128			186	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		416.2			542.7			529.5			286.9	
Travel Time (s)		25.0			32.6			38.1			20.7	
Confl. Peds. (#/hr)	1		1	1		1	6					6
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	13%	2%	10%	2%	10%	13%	4%	8%	3%	8%	1%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	2	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	173	1590	121	103	784	273	56	105	128	672	378	338
Shared Lane Traffic (%)												
Lane Group Flow (vph)	173	1590	121	103	1057	0	56	233	0	672	716	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.03	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	5	2		1	6			4		3	8	
Permitted Phases	2		2	6			4			8		
Detector Phase	5	2	2	1	6		4	4		3	8	
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	6.0	8.0		12.0	12.0		6.0	12.0	
Minimum Split (s)	9.0	34.6	34.6	9.0	34.6		34.9	34.9		9.0	34.9	
Total Split (s)	10.0	55.0	55.0	10.0	55.0		35.0	35.0		40.0	75.0	
Total Split (%)	7.1%	39.3%	39.3%	7.1%	39.3%		25.0%	25.0%		28.6%	53.6%	
Maximum Green (s)	7.0	48.4	48.4	7.0	48.4		28.1	28.1		37.0	68.1	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.6	2.6	0.0	2.6		2.9	2.9		0.0	2.9	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	2.0	5.6	5.6	2.0	5.6		5.9	5.9		2.0	5.9	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	None	C-Max	C-Max	None	Max		Max	Max		Max	None	
Walk Time (s)		8.0	8.0		8.0		8.0	8.0			8.0	
Flash Dont Walk (s)		20.0	20.0		20.0		20.0	20.0			20.0	
Pedestrian Calls (#/hr)		0	0		0		0	0			0	
Act Effect Green (s)	61.0	49.4	49.4	61.0	49.4		29.1	29.1		73.0	69.1	
Actuated g/C Ratio	0.44	0.35	0.35	0.44	0.35		0.21	0.21		0.52	0.49	
v/c Ratio	0.92	0.90	0.21	0.66	0.66		0.40	0.31		1.00	0.43	
Control Delay	81.1	33.5	4.9	37.3	30.1		57.7	21.9		64.3	17.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	81.1	33.5	4.9	37.3	30.1		57.7	21.9		64.3	17.1	
LOS	F	C	A	D	C		E	C		E	B	
Approach Delay		36.0			30.8			28.8			40.0	
Approach LOS		D			C			C			D	
Queue Length 50th (m)	27.3	79.3	2.5	12.6	91.9		14.2	13.3		~154.6	50.2	
Queue Length 95th (m)	#44.8	101.4	8.7	#35.7	110.0		29.3	25.8		#280.1	66.3	
Internal Link Dist (m)		392.2			518.7			505.5			262.9	
Turn Bay Length (m)	45.0			85.0			45.0			90.0		
Base Capacity (vph)	189	1774	564	156	1609		141	748		671	1669	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.92	0.90	0.21	0.66	0.66		0.40	0.31		1.00	0.43	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 17 (12%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 35.4 Intersection LOS: D

Intersection Capacity Utilization 99.9% ICU Level of Service F

Analysis Period (min) 15

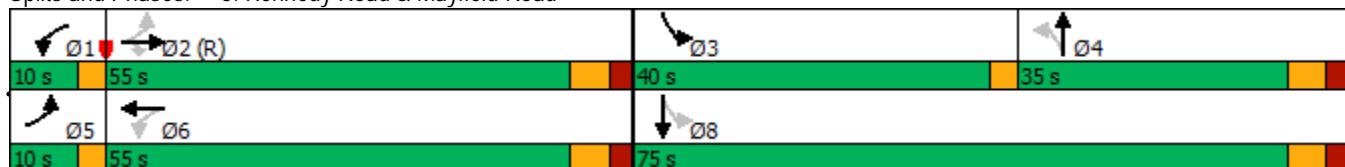
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 5: Kennedy Road & Mayfield Road



Lanes, Volumes, Timings

8: Heart Lake Road & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↑	↑	↑	↑↑↑	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	42	1716	647	245	1120	47	136	24	30	140	127	102
Future Volume (vph)	42	1716	647	245	1120	47	136	24	30	140	127	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%			0%			0%		0%
Storage Length (m)	125.0		200.0	160.0		160.0	125.0		60.0	85.0		55.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		7.5
Satd. Flow (prot)	1700	4839	1566	1733	4580	1238	1700	1879	1597	1785	1860	1597
Flt Permitted	0.242			0.060			0.602			0.742		
Satd. Flow (perm)	433	4839	1566	109	4580	1238	1077	1879	1597	1394	1860	1597
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			498			54			52			102
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		261.4			340.3			475.3			238.8	
Travel Time (s)		15.7			20.4			34.2			17.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	6%	2%	3%	12%	29%	5%	0%	0%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	42	1716	647	245	1120	47	136	24	30	140	127	102
Shared Lane Traffic (%)												
Lane Group Flow (vph)	42	1716	647	245	1120	47	136	24	30	140	127	102
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		2		1	6		7	4			8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	2	2	2	1	6	6	7	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	12.0	12.0	12.0	5.0	12.0	12.0	5.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	35.7	35.7	35.7	9.0	35.7	35.7	9.0	39.9	39.9	39.9	39.9	39.9
Total Split (s)	70.0	70.0	70.0	20.0	90.0	90.0	9.0	50.0	50.0	41.0	41.0	41.0
Total Split (%)	50.0%	50.0%	50.0%	14.3%	64.3%	64.3%	6.4%	35.7%	35.7%	29.3%	29.3%	29.3%
Maximum Green (s)	63.3	63.3	63.3	17.0	83.3	83.3	6.0	43.1	43.1	34.1	34.1	34.1
Yellow Time (s)	4.6	4.6	4.6	3.0	4.6	4.6	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.1	2.1	2.1	0.0	2.1	2.1	0.0	2.9	2.9	2.9	2.9	2.9
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0

Lanes, Volumes, Timings

8: Heart Lake Road & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.7	5.7	5.7	2.0	5.7	5.7	2.0	5.9	5.9	5.9	5.9	5.9
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	Yes
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
Minimum Gap (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
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Max	C-Max	C-Max	None	Max	Max	None	Max	Max	Max	Max	Max
Walk Time (s)	8.0	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0
Flash Dont Walk (s)	21.0	21.0	21.0		21.0	21.0		25.0	25.0	25.0	25.0	25.0
Pedestrian Calls (#/hr)	0	0	0		0	0		0	0	0	0	0
Act Effect Green (s)	64.9	64.9	64.9	88.0	84.3	84.3	48.0	44.1	44.1	35.1	35.1	35.1
Actuated g/C Ratio	0.46	0.46	0.46	0.63	0.60	0.60	0.34	0.32	0.32	0.25	0.25	0.25
v/c Ratio	0.21	0.77	0.65	0.91	0.41	0.06	0.34	0.04	0.06	0.40	0.27	0.21
Control Delay	32.0	37.4	14.0	74.0	15.2	2.5	35.9	33.7	3.2	47.8	44.1	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.0	37.4	14.0	74.0	15.2	2.5	35.9	33.7	3.2	47.8	44.1	8.5
LOS	C	D	B	E	B	A	D	C	A	D	D	A
Approach Delay		31.0			25.0			30.4			35.7	
Approach LOS		C			C			C			D	
Queue Length 50th (m)	7.5	128.4	45.0	53.8	60.0	0.0	28.3	4.9	0.0	34.2	30.0	0.0
Queue Length 95th (m)	m9.8	m148.1	m59.1	#104.1	70.3	4.6	45.8	12.2	3.2	55.9	49.0	14.9
Internal Link Dist (m)		237.4			316.3			451.3			214.8	
Turn Bay Length (m)	125.0		200.0	160.0		160.0	125.0		60.0	85.0		55.0
Base Capacity (vph)	200	2242	992	277	2757	766	400	591	538	349	466	476
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	0.21	0.77	0.65	0.88	0.41	0.06	0.34	0.04	0.06	0.40	0.27	0.21

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 66 (47%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 29.4

Intersection LOS: C

Intersection Capacity Utilization 79.1%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 8: Heart Lake Road & Mayfield Road



Lanes, Volumes, Timings

11: Inder Heights Drive/Snellview Boulevard & Mayfield Road

02-28-2021

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↓		↑	↑↑↓	↑	↑	↑			↔	
Traffic Volume (vph)	14	1780	16	17	1469	5	23	0	30	24	1	54
Future Volume (vph)	14	1780	16	17	1469	5	23	0	30	24	1	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	45.0		0.0	45.0		45.0	45.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1384	4867	0	1668	4621	1331	1463	1500	0	0	1593	0
Flt Permitted	0.131			0.081			0.717				0.921	
Satd. Flow (perm)	191	4867	0	142	4621	1299	1095	1500	0	0	1489	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				28		23			42	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		115.1			416.2			144.8			122.1	
Travel Time (s)		6.9			25.0			13.0			11.0	
Confl. Peds. (#/hr)	1					1	6		1	1		6
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	29%	5%	36%	7%	11%	20%	22%	0%	5%	13%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	14	1780	16	17	1469	5	23	0	30	24	1	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	1796	0	17	1469	5	23	30	0	0	79	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Detector Phase	2	2		2	2	2	4	4		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0	12.0	8.0	8.0		8.0	8.0	
Minimum Split (s)	25.0	25.0		25.0	25.0	25.0	32.6	32.6		32.6	32.6	
Total Split (s)	90.0	90.0		90.0	90.0	90.0	50.0	50.0		50.0	50.0	
Total Split (%)	64.3%	64.3%		64.3%	64.3%	64.3%	35.7%	35.7%		35.7%	35.7%	
Maximum Green (s)	84.0	84.0		84.0	84.0	84.0	43.4	43.4		43.4	43.4	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

11: Inder Heights Drive/Snellview Boulevard & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.6	5.6			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max	C-Max	Max	Max		Max	Max	
Walk Time (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effect Green (s)	85.0	85.0		85.0	85.0	85.0	44.4	44.4			44.4	
Actuated g/C Ratio	0.61	0.61		0.61	0.61	0.61	0.32	0.32			0.32	
v/c Ratio	0.12	0.61		0.20	0.52	0.01	0.07	0.06			0.16	
Control Delay	14.9	18.2		14.7	11.5	0.0	34.2	15.6			12.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	14.9	18.2		14.7	11.5	0.0	34.2	15.6			12.4	
LOS	B	B		B	B	A	C	B			B	
Approach Delay		18.2			11.5			23.7			12.4	
Approach LOS		B			B			C			B	
Queue Length 50th (m)	1.6	113.5		1.6	57.0	0.0	4.7	1.4			5.5	
Queue Length 95th (m)	5.7	128.0		m3.3	61.7	m0.0	12.0	9.3			m15.2	
Internal Link Dist (m)		91.1			392.2			120.8			98.1	
Turn Bay Length (m)	45.0			45.0		45.0	45.0					
Base Capacity (vph)	115	2955		86	2805	799	347	491			500	
Starvation Cap Reductn	0	0		0	0	0	0	0			0	
Spillback Cap Reductn	0	0		0	0	0	0	0			0	
Storage Cap Reductn	0	0		0	0	0	0	0			0	
Reduced v/c Ratio	0.12	0.61		0.20	0.52	0.01	0.07	0.06			0.16	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 15.2 Intersection LOS: B

Intersection Capacity Utilization 65.2% ICU Level of Service C

Analysis Period (min) 15

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

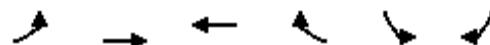
Splits and Phases: 11: Inder Heights Drive/Snellview Boulevard & Mayfield Road



Lanes, Volumes, Timings

14: Mayfield Road & Hwy 410 SB Off-Ramp

02-28-2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1198	1303	0	616	100
Future Volume (vph)	0	1198	1303	0	616	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	110.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Satd. Flow (prot)	0	4749	4706	0	3400	1453
Flt Permitted					0.953	
Satd. Flow (perm)	0	4749	4706	0	3400	1453
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					2	26
Link Speed (k/h)	60	60			80	
Link Distance (m)	340.3	442.1			199.5	
Travel Time (s)	20.4	26.5			9.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	8%	9%	0%	2%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	1198	1303	0	616	100
Shared Lane Traffic (%)					10%	
Lane Group Flow (vph)	0	1198	1303	0	626	90
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)	3.5	3.5			7.0	
Link Offset(m)	0.0	0.0			0.0	
Crosswalk Width(m)	4.8	4.8			4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Turn Type		NA	NA		Prot	Perm
Protected Phases		2	2		4	
Permitted Phases					4	
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)	16.0	16.0		8.0	8.0	
Minimum Split (s)	27.0	27.0		37.0	37.0	
Total Split (s)	46.0	46.0		41.0	41.0	
Total Split (%)	52.9%	52.9%		47.1%	47.1%	
Maximum Green (s)	40.0	40.0		35.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

14: Mayfield Road & Hwy 410 SB Off-Ramp

02-28-2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Total Lost Time (s)	5.0	5.0		5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	
Recall Mode	Max	Max		Min	Min	
Walk Time (s)	10.0	10.0		20.0	20.0	
Flash Dont Walk (s)	6.0	6.0		6.0	6.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effect Green (s)	54.1	54.1		22.9	22.9	
Actuated g/C Ratio	0.62	0.62		0.26	0.26	
v/c Ratio	0.41	0.45		0.70	0.22	
Control Delay	9.4	9.8		32.9	18.5	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	9.4	9.8		32.9	18.5	
LOS	A	A		C	B	
Approach Delay	9.4	9.8		31.1		
Approach LOS	A	A		C		
Queue Length 50th (m)	34.6	38.9		51.1	9.5	
Queue Length 95th (m)	53.1	59.4		62.8	20.6	
Internal Link Dist (m)	316.3	418.1		175.5		
Turn Bay Length (m)				110.0		
Base Capacity (vph)	2955	2928		1408	616	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.41	0.45		0.44	0.15	

Intersection Summary

Area Type: Other

Cycle Length: 87

Actuated Cycle Length: 87

Offset: 9.5 (11%), Referenced to phase 6:, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 14.4 Intersection LOS: B

Intersection Capacity Utilization 85.0% ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 14: Mayfield Road & Hwy 410 SB Off-Ramp



Lanes, Volumes, Timings

16: Hwy 410 NB Off-Ramp & Mayfield Road

02-28-2021



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑	↑↑	↑
Traffic Volume (vph)	1975	0	0	1434	341	903
Future Volume (vph)	1975	0	0	1434	341	903
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)		50.0	0.0		0.0	90.0
Storage Lanes		0	0		2	1
Taper Length (m)			7.5		7.5	
Satd. Flow (prot)	4885	0	0	4839	2992	1452
Flt Permitted					0.979	
Satd. Flow (perm)	4885	0	0	4839	2992	1452
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					7	7
Link Speed (k/h)	60			60	80	
Link Distance (m)	442.1			202.7	480.1	
Travel Time (s)	26.5			12.2	21.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	0%	0%	13%	8%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	1975	0	0	1434	341	903
Shared Lane Traffic (%)					50%	
Lane Group Flow (vph)	1975	0	0	1434	793	451
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases					4	
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	12.0			12.0	10.0	10.0
Minimum Split (s)	33.6			33.6	24.9	24.9
Total Split (s)	70.0			70.0	50.0	50.0
Total Split (%)	58.3%			58.3%	41.7%	41.7%
Maximum Green (s)	63.4			63.4	43.1	43.1
Yellow Time (s)	4.6			4.6	4.6	4.6
All-Red Time (s)	2.0			2.0	2.3	2.3
Lost Time Adjust (s)	-1.0			-1.0	-1.0	-1.0

Lanes, Volumes, Timings

16: Hwy 410 NB Off-Ramp & Mayfield Road

02-28-2021



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Total Lost Time (s)	5.6			5.6	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Minimum Gap (s)	3.0			3.0	3.0	3.0
Time Before Reduce (s)	0.0			0.0	0.0	0.0
Time To Reduce (s)	0.0			0.0	0.0	0.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	8.0			8.0		
Flash Dont Walk (s)	19.0			19.0		
Pedestrian Calls (#/hr)	0			0		
Act Effect Green (s)	67.4			67.4	41.1	41.1
Actuated g/C Ratio	0.56			0.56	0.34	0.34
v/c Ratio	0.72			0.53	0.90dr	0.90
Control Delay	21.9			17.8	40.3	58.6
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	21.9			17.8	40.3	58.6
LOS	C			B	D	E
Approach Delay	21.9			17.8	46.9	
Approach LOS	C			B	D	
Queue Length 50th (m)	133.8			77.2	85.6	99.9
Queue Length 95th (m)	153.5			90.4	109.2	#158.5
Internal Link Dist (m)	418.1			178.7	456.1	
Turn Bay Length (m)						90.0
Base Capacity (vph)	2742			2716	1103	538
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.72			0.53	0.72	0.84

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 32 (27%), Referenced to phase 2:EBWB and 6:, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 27.3 Intersection LOS: C

Intersection Capacity Utilization 85.0% ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 16: Hwy 410 NB Off-Ramp & Mayfield Road



HCM Unsignalized Intersection Capacity Analysis
18: Kennedy Road & Snellview Boulevard/Site Access #1

02-28-2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑↑		↑	↑↑	
Traffic Volume (veh/h)	2	0	55	93	0	14	25	498	28	4	1241	2
Future Volume (Veh/h)	2	0	55	93	0	14	25	498	28	4	1241	2
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	0	55	93	0	14	25	498	28	4	1241	2
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage veh)												
Upstream signal (m)							287					
pX, platoon unblocked												
vC, conflicting volume	1563	1826	622	1246	1813	263	1243			526		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1563	1826	622	1246	1813	263	1243			526		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	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 %	97	100	87	17	100	98	96			100		
cM capacity (veh/h)	73	74	435	111	75	742	567			1051		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3		
Volume Total	2	55	93	14	25	332	194	4	827	416		
Volume Left	2	0	93	0	25	0	0	4	0	0		
Volume Right	0	55	0	14	0	0	28	0	0	2		
cSH	73	435	111	742	567	1700	1700	1051	1700	1700		
Volume to Capacity	0.03	0.13	0.83	0.02	0.04	0.20	0.11	0.00	0.49	0.24		
Queue Length 95th (m)	0.7	3.4	38.9	0.5	1.1	0.0	0.0	0.1	0.0	0.0		
Control Delay (s)	55.8	14.5	116.2	9.9	11.6	0.0	0.0	8.4	0.0	0.0		
Lane LOS	F	B	F	A	B			A				
Approach Delay (s)	15.9		102.3		0.5			0.0				
Approach LOS	C		F									
Intersection Summary												
Average Delay			6.2									
Intersection Capacity Utilization		52.9%										
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
20: Stonegate Drive/Site Access 3 & Mayfield Road

02-28-2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	2443	3	26	1382	22	2	0	80	28	0	35
Future Volume (Veh/h)	27	2443	3	26	1382	22	2	0	80	28	0	35
Sign Control	Free			Free			Stop			Stop		
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)	27	2443	3	26	1382	22	2	0	80	28	0	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	1404			2446			3046	3954	816	2393	3945	472
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1404			2446			3046	3954	816	2393	3945	472
tC, single (s)	4.1			4.3			7.5	6.5	7.0	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			85			55	100	75	0	100	94
cM capacity (veh/h)	493			172			4	3	318	11	3	544
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1	SB 2	
Volume Total	27	977	977	492	26	553	553	298	82	28	35	
Volume Left	27	0	0	0	26	0	0	0	2	28	0	
Volume Right	0	0	0	3	0	0	0	22	80	0	35	
cSH	493	1700	1700	1700	172	1700	1700	1700	117	11	544	
Volume to Capacity	0.05	0.57	0.57	0.29	0.15	0.33	0.33	0.18	0.70	2.44	0.06	
Queue Length 95th (m)	1.4	0.0	0.0	0.0	4.2	0.0	0.0	0.0	30.1	35.5	1.6	
Control Delay (s)	12.7	0.0	0.0	0.0	29.6	0.0	0.0	0.0	87.3	1309.8	12.1	
Lane LOS	B				D				F	F	B	
Approach Delay (s)	0.1				0.5				87.3	588.9		
Approach LOS									F	F		
Intersection Summary												
Average Delay				11.2								
Intersection Capacity Utilization				62.2%			ICU Level of Service			B		
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

27: Heart Lake Road & Access #2

02-28-2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑		↑	↑	
Traffic Volume (veh/h)	1	2	83	92	5	1	25	58	29	1	193	1
Future Volume (Veh/h)	1	2	83	92	5	1	25	58	29	1	193	1
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)	1	2	83	92	5	1	25	58	29	1	193	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage veh)												
Upstream signal (m)							239					
pX, platoon unblocked												
vC, conflicting volume	307	332	194	402	318	72	194			87		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	307	332	194	402	318	72	194			87		
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 %	100	100	90	82	99	100	98			100		
cM capacity (veh/h)	635	580	853	500	590	995	1391			1522		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2				
Volume Total	1	85	92	6	25	87	1	194				
Volume Left	1	0	92	0	25	0	1	0				
Volume Right	0	83	0	1	0	29	0	1				
cSH	635	844	500	633	1391	1700	1522	1700				
Volume to Capacity	0.00	0.10	0.18	0.01	0.02	0.05	0.00	0.11				
Queue Length 95th (m)	0.0	2.7	5.3	0.2	0.4	0.0	0.0	0.0				
Control Delay (s)	10.7	9.7	13.8	10.7	7.6	0.0	7.4	0.0				
Lane LOS	B	A	B	B	A		A					
Approach Delay (s)	9.8		13.6		1.7		0.0					
Approach LOS	A		B									
Intersection Summary												
Average Delay			4.8									
Intersection Capacity Utilization		35.3%				ICU Level of Service				A		
Analysis Period (min)			15									

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-02-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	173	1590	121	103	784	273	56	105	128	672	378	338
Future Volume (vph)	173	1590	121	103	784	273	56	105	128	672	378	338
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%				0%			0%			0%	
Storage Length (m)	45.0		0.0	85.0		40.0	45.0		55.0	90.0		0.0
Storage Lanes	1		1	1		1	1		0	2		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1580	5029	1452	1750	4663	1413	1716	3114	0	3193	3192	0
Flt Permitted	0.287			0.067			0.379			0.525		
Satd. Flow (perm)	477	5029	1432	123	4663	1394	682	3114	0	1765	3192	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		102			255		109			200		
Link Speed (k/h)	60			60			50			50		
Link Distance (m)	416.2			542.7			529.5			286.9		
Travel Time (s)	25.0			32.6			38.1			20.7		
Confl. Peds. (#/hr)	1		1	1		1	6					6
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	13%	2%	10%	2%	10%	13%	4%	8%	3%	8%	1%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	2	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	173	1590	121	103	784	273	56	105	128	672	378	338
Shared Lane Traffic (%)												
Lane Group Flow (vph)	173	1590	121	103	784	273	56	233	0	672	716	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)	3.5			3.5			7.0			7.0		
Link Offset(m)	0.0			0.0			0.0			0.0		
Crosswalk Width(m)	4.8			4.8			4.8			4.8		
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases	5	2		1	6			4		3	8	
Permitted Phases	2		2	6		6	4			8		
Detector Phase	5	2	2	1	6	6	4	4		3	8	
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	6.0	8.0	8.0	12.0	12.0		6.0	12.0	
Minimum Split (s)	9.0	34.6	34.6	9.0	34.6	34.6	34.9	34.9		9.0	34.9	
Total Split (s)	10.0	65.0	65.0	10.0	65.0	65.0	35.0	35.0		30.0	65.0	
Total Split (%)	7.1%	46.4%	46.4%	7.1%	46.4%	46.4%	25.0%	25.0%		21.4%	46.4%	
Maximum Green (s)	7.0	58.4	58.4	7.0	58.4	58.4	28.1	28.1		27.0	58.1	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.6	2.6	0.0	2.6	2.6	2.9	2.9		0.0	2.9	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-02-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	2.0	5.6	5.6	2.0	5.6	5.6	5.9	5.9		2.0	5.9	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recall Mode	None	C-Max	C-Max	None	Max	Max	Max	Max	Max	Max	None	
Walk Time (s)		8.0	8.0		8.0	8.0	8.0	8.0			8.0	
Flash Dont Walk (s)		20.0	20.0		20.0	20.0	20.0	20.0			20.0	
Pedestrian Calls (#/hr)	0	0			0	0	0	0			0	
Act Effect Green (s)	71.0	59.4	59.4	71.0	59.4	59.4	29.1	29.1		63.0	59.1	
Actuated g/C Ratio	0.51	0.42	0.42	0.51	0.42	0.42	0.21	0.21		0.45	0.42	
v/c Ratio	0.57	0.75	0.18	0.66	0.40	0.37	0.40	0.32		0.62	0.49	
Control Delay	20.2	20.3	2.4	43.3	28.6	5.2	57.7	25.8		29.8	21.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	20.2	20.3	2.4	43.3	28.6	5.2	57.7	25.8		29.8	21.8	
LOS	C	C	A	D	C	A	E	C		C	C	
Approach Delay		19.2			24.4			32.0			25.7	
Approach LOS		B			C			C			C	
Queue Length 50th (m)	12.6	48.0	1.1	14.8	57.2	3.0	14.2	15.8		69.2	56.4	
Queue Length 95th (m)	20.4	53.1	5.6	#38.1	69.2	21.4	29.3	28.5		86.6	75.0	
Internal Link Dist (m)		392.2			518.7			505.5			262.9	
Turn Bay Length (m)	45.0			85.0		40.0	45.0			90.0		
Base Capacity (vph)	304	2133	666	155	1978	738	141	733		1079	1463	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.57	0.75	0.18	0.66	0.40	0.37	0.40	0.32		0.62	0.49	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 17 (12%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 23.2

Intersection LOS: C

Intersection Capacity Utilization 87.6%

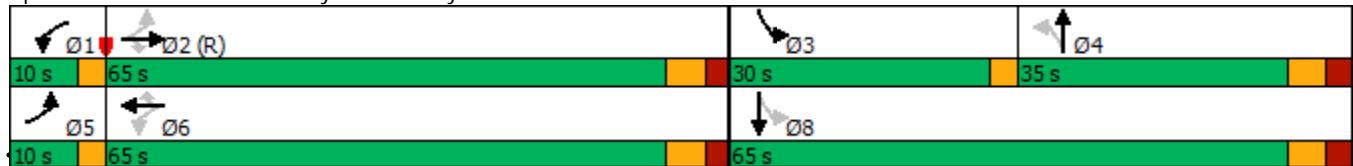
ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 5: Kennedy Road & Mayfield Road



2028 Future Total AM Peak 02-24-2021 Optimization

Synchro 10 Light Report

Page 2

Lanes, Volumes, Timings

20: Stonegate Drive/Site Access 3 & Mayfield Road

02-28-2021

	↑	→	↓	↶	←	↷	↶	↑	↷	↓	↶	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↓		↑	↑↑↓			↔		↑	↑	
Traffic Volume (vph)	27	2443	3	26	1382	22	2	0	80	28	0	35
Future Volume (vph)	27	2443	3	26	1382	22	2	0	80	28	0	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	35.0		0.0	190.0		0.0	0.0		0.0	15.0		0.0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1785	4884	0	1653	4538	0	0	1583	0	1785	1597	0
Flt Permitted	0.174			0.048				0.992		0.632		
Satd. Flow (perm)	327	4884	0	84	4538	0	0	1572	0	1187	1597	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					4			33			55	
Link Speed (k/h)		60			60			40			20	
Link Distance (m)		542.7			294.3			223.4			133.0	
Travel Time (s)		32.6			17.7			20.1			23.9	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	5%	33%	8%	13%	0%	0%	0%	3%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	27	2443	3	26	1382	22	2	0	80	28	0	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	2446	0	26	1404	0	0	82	0	28	35	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA										
Protected Phases		2			6			4			4	
Permitted Phases	2			6			4			4		
Detector Phase	2	2		6	6		4	4		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Minimum Split (s)	35.6	35.6		35.6	35.6		39.6	39.6		39.6	39.6	
Total Split (s)	80.0	80.0		80.0	80.0		40.0	40.0		40.0	40.0	
Total Split (%)	66.7%	66.7%		66.7%	66.7%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	73.4	73.4		73.4	73.4		33.4	33.4		33.4	33.4	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.6	2.6		2.6	2.6		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

20: Stonegate Drive/Site Access 3 & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.6	5.6		5.6	5.6			5.6		5.6	5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max		Max	Max		None	None		None	None	
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		25.0	25.0		25.0	25.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	100.2	100.2		100.2	100.2			13.4		13.4	13.4	
Actuated g/C Ratio	0.84	0.84		0.84	0.84			0.11		0.11	0.11	
v/c Ratio	0.10	0.60		0.37	0.37			0.40		0.21	0.15	
Control Delay	3.8	5.1		21.6	3.5			37.2		52.4	7.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	3.8	5.1		21.6	3.5			37.2		52.4	7.1	
LOS	A	A		C	A			D		D	A	
Approach Delay		5.1			3.8			37.2			27.2	
Approach LOS		A			A			D			C	
Queue Length 50th (m)	1.2	72.7		1.5	30.0			11.4		6.5	0.0	
Queue Length 95th (m)	3.8	92.2		13.0	39.5			27.4		15.8	5.4	
Internal Link Dist (m)		518.7			270.3			199.4			109.0	
Turn Bay Length (m)	35.0			190.0						15.0		
Base Capacity (vph)	273	4079		70	3790			474		340	497	
Starvation Cap Reductn	0	0		0	0			0		0	0	
Spillback Cap Reductn	0	0		0	0			0		0	0	
Storage Cap Reductn	0	0		0	0			0		0	0	
Reduced v/c Ratio	0.10	0.60		0.37	0.37			0.17		0.08	0.07	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 5.6

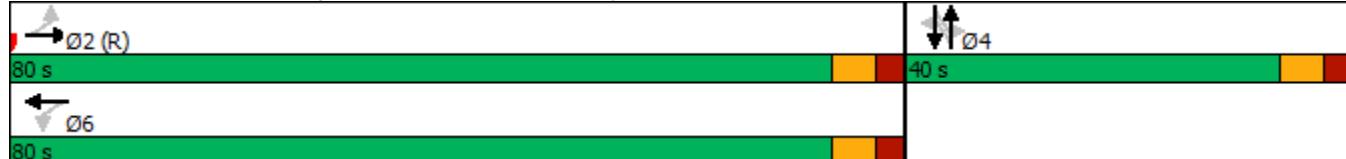
Intersection LOS: A

Intersection Capacity Utilization 66.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 20: Stonegate Drive/Site Access 3 & Mayfield Road



Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	319	975	85	210	1472	621	119	320	163	299	185	214
Future Volume (vph)	319	975	85	210	1472	621	119	320	163	299	185	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%				0%			0%			0%	
Storage Length (m)	45.0		0.0	85.0		40.0	45.0		55.0	90.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1785	4885	1507	1785	4809	0	1785	3364	0	1719	3245	0
Flt Permitted	0.067			0.282			0.517			0.257		
Satd. Flow (perm)	126	4885	1480	529	4809	0	966	3364	0	463	3245	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		85			92			58			214	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		416.2			542.7			529.5			286.9	
Travel Time (s)		25.0			32.6			38.1			20.7	
Confl. Peds. (#/hr)	2		4	4		2	7		6	6		7
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	5%	6%	0%	2%	0%	0%	0%	0%	3%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	2	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	319	975	85	210	1472	621	119	320	163	299	185	214
Shared Lane Traffic (%)												
Lane Group Flow (vph)	319	975	85	210	2093	0	119	483	0	299	399	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.03	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	5	2		1	6			4		3	8	
Permitted Phases	2		2	6			4			8		
Detector Phase	5	2	2	1	6		4	4		3	8	
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	6.0	8.0		12.0	12.0		6.0	12.0	
Minimum Split (s)	9.0	34.6	34.6	9.0	34.6		34.9	34.9		9.0	34.9	
Total Split (s)	23.0	77.0	77.0	9.0	63.0		35.0	35.0		19.0	54.0	
Total Split (%)	16.4%	55.0%	55.0%	6.4%	45.0%		25.0%	25.0%		13.6%	38.6%	
Maximum Green (s)	20.0	70.4	70.4	6.0	56.4		28.1	28.1		16.0	47.1	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.6	2.6	0.0	2.6		2.9	2.9		0.0	2.9	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	2.0	5.6	5.6	2.0	5.6		5.9	5.9		2.0	5.9	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	None	C-Max	C-Max	None	Max		Max	Max		Max	None	
Walk Time (s)		8.0	8.0		8.0		8.0	8.0			8.0	
Flash Dont Walk (s)		20.0	20.0		20.0		20.0	20.0			20.0	
Pedestrian Calls (#/hr)		0	0		0		0	0			0	
Act Effect Green (s)	84.0	71.4	71.4	68.0	57.4		29.1	29.1		52.0	48.1	
Actuated g/C Ratio	0.60	0.51	0.51	0.49	0.41		0.21	0.21		0.37	0.34	
v/c Ratio	0.98	0.39	0.11	0.66	1.03		0.59	0.65		0.92	0.32	
Control Delay	87.7	21.6	3.8	27.9	67.9		63.8	49.1		69.7	15.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	87.7	21.6	3.8	27.9	67.9		63.8	49.1		69.7	15.8	
LOS	F	C	A	C	E		E	D		E	B	
Approach Delay		35.8			64.2			52.0			38.9	
Approach LOS		D			E			D			D	
Queue Length 50th (m)	76.0	62.0	0.0	26.5	~233.2		31.6	60.4		66.0	19.6	
Queue Length 95th (m)	#139.7	73.3	8.9	39.8	#263.5		54.8	80.2		#107.1	33.4	
Internal Link Dist (m)		392.2			518.7			505.5			262.9	
Turn Bay Length (m)	45.0			85.0			45.0			90.0		
Base Capacity (vph)	324	2491	796	319	2025		200	745		324	1255	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.98	0.39	0.11	0.66	1.03		0.59	0.65		0.92	0.32	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 13 (9%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 51.3

Intersection LOS: D

Intersection Capacity Utilization 116.2%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 5: Kennedy Road & Mayfield Road



Lanes, Volumes, Timings

8: Heart Lake Road & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↑	↑	↑	↑↑↑	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	88	1244	156	59	1797	149	391	80	41	91	49	56
Future Volume (vph)	88	1244	156	59	1797	149	391	80	41	91	49	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%			0%			0%		0%
Storage Length (m)	125.0		200.0	160.0		160.0	125.0		60.0	85.0		55.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1733	4706	1507	1700	4980	1566	1767	1879	1465	1668	1807	1521
Flt Permitted	0.064			0.168			0.686			0.705		
Satd. Flow (perm)	117	4706	1507	301	4980	1566	1276	1879	1465	1238	1807	1521
Right Turn on Red			Yes			Yes			Yes		Yes	
Satd. Flow (RTOR)			156			149			54			78
Link Speed (k/h)	60			60			50			50		
Link Distance (m)	261.4			340.3			475.3			238.8		
Travel Time (s)	15.7			20.4			34.2			17.2		
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	9%	6%	5%	3%	2%	1%	0%	9%	7%	4%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	88	1244	156	59	1797	149	391	80	41	91	49	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	88	1244	156	59	1797	149	391	80	41	91	49	56
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)	3.5			3.5			3.5			3.5		
Link Offset(m)	0.0			0.0			0.0			0.0		
Crosswalk Width(m)	4.8			4.8			4.8			4.8		
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		7	4			8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	12.0	5.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	9.0	35.7	35.7	9.0	35.7	35.7	9.0	39.9	39.9	39.9	39.9	39.9
Total Split (s)	9.0	76.0	76.0	9.0	76.0	76.0	9.0	50.0	50.0	41.0	41.0	41.0
Total Split (%)	6.7%	56.3%	56.3%	6.7%	56.3%	56.3%	6.7%	37.0%	37.0%	30.4%	30.4%	30.4%
Maximum Green (s)	6.0	69.3	69.3	6.0	69.3	69.3	6.0	43.1	43.1	34.1	34.1	34.1
Yellow Time (s)	3.0	4.6	4.6	3.0	4.6	4.6	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	0.0	2.1	2.1	0.0	2.1	2.1	0.0	2.9	2.9	2.9	2.9	2.9
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0

Lanes, Volumes, Timings

8: Heart Lake Road & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	2.0	5.7	5.7	2.0	5.7	5.7	2.0	5.9	5.9	5.9	5.9	5.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
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
Minimum Gap (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
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	C-Max	None	Max	Max	None	Max	Max	Max	Max	Max
Walk Time (s)					8.0	8.0		8.0	8.0	8.0	8.0	8.0
Flash Dont Walk (s)					21.0	21.0		21.0	25.0	25.0	25.0	25.0
Pedestrian Calls (#/hr)	0	0			0	0		0	0	0	0	0
Act Effect Green (s)	81.4	72.1	72.1	80.9	70.3	70.3	48.0	44.1	44.1	35.1	35.1	35.1
Actuated g/C Ratio	0.60	0.53	0.53	0.60	0.52	0.52	0.36	0.33	0.33	0.26	0.26	0.26
v/c Ratio	0.58	0.50	0.18	0.23	0.69	0.17	0.82	0.13	0.08	0.28	0.10	0.12
Control Delay	30.0	21.1	2.9	12.7	26.0	2.9	53.5	32.8	5.3	42.9	38.9	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.0	21.1	2.9	12.7	26.0	2.9	53.5	32.8	5.3	42.9	38.9	4.3
LOS	C	C	A	B	C	A	D	C	A	D	D	A
Approach Delay					19.7		23.9		46.4			30.9
Approach LOS					B		C		D			C
Queue Length 50th (m)	9.5	80.8	0.0	6.3	134.3	0.0	90.4	15.8	0.0	20.5	10.5	0.0
Queue Length 95th (m)	23.8	94.3	11.0	12.3	152.0	10.9	#136.0	28.6	6.2	37.0	21.4	6.4
Internal Link Dist (m)					237.4		316.3		451.3			214.8
Turn Bay Length (m)	125.0		200.0	160.0		160.0	125.0		60.0	85.0		55.0
Base Capacity (vph)	153	2513	877	253	2593	886	479	613	514	321	469	453
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	0.58	0.50	0.18	0.23	0.69	0.17	0.82	0.13	0.08	0.28	0.10	0.12

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 26 (19%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 25.5 Intersection LOS: C

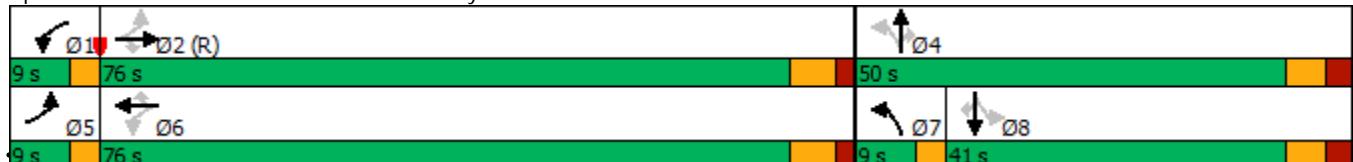
Intersection Capacity Utilization 80.9% ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 8: Heart Lake Road & Mayfield Road



2028 Future Total PM Peak 02-24-2021

Synchro 10 Light Report

Page 4

Lanes, Volumes, Timings

11: Inder Heights Drive/Snellview Boulevard & Mayfield Road

02-28-2021

	↑	→	↓	↶	←	↷	↶	↑	↷	↓	↶	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↑		↑	↑↑↑	↑	↑	↑			↔	
Traffic Volume (vph)	56	1516	29	26	1712	19	7	0	13	10	1	34
Future Volume (vph)	56	1516	29	26	1712	19	7	0	13	10	1	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	45.0		0.0	45.0		45.0	45.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1668	4649	0	1684	4885	1521	1785	1597	0	0	1545	0
Flt Permitted	0.102			0.128			0.728				0.955	
Satd. Flow (perm)	179	4649	0	227	4885	1521	1364	1597	0	0	1492	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				29		51			34	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		115.1			416.2			144.8			122.1	
Travel Time (s)		6.9			25.0			13.0			11.0	
Confl. Peds. (#/hr)			1	1			2				2	
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	10%	7%	6%	5%	5%	0%	0%	0%	0%	0%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	56	1516	29	26	1712	19	7	0	13	10	1	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	56	1545	0	26	1712	19	7	13	0	0	45	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2		2	4			4		
Detector Phase	2	2		2	2	2	4	4		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0	12.0	8.0	8.0		8.0	8.0	
Minimum Split (s)	25.0	25.0		25.0	25.0	25.0	32.6	32.6		32.6	32.6	
Total Split (s)	95.0	95.0		95.0	95.0	95.0	40.0	40.0		40.0	40.0	
Total Split (%)	70.4%	70.4%		70.4%	70.4%	70.4%	29.6%	29.6%		29.6%	29.6%	
Maximum Green (s)	89.0	89.0		89.0	89.0	89.0	33.4	33.4		33.4	33.4	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

11: Inder Heights Drive/Snellview Boulevard & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.6	5.6			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max	C-Max	Max	Max		Max	Max	
Walk Time (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effect Green (s)	90.0	90.0		90.0	90.0	90.0	34.4	34.4			34.4	
Actuated g/C Ratio	0.67	0.67		0.67	0.67	0.67	0.25	0.25			0.25	
v/c Ratio	0.47	0.50		0.17	0.53	0.02	0.02	0.03			0.11	
Control Delay	26.8	11.9		11.8	12.3	1.5	38.1	0.2			16.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	26.8	11.9		11.8	12.3	1.5	38.1	0.2			16.8	
LOS	C	B		B	B	A	D	A			B	
Approach Delay		12.4			12.1				13.4		16.8	
Approach LOS		B			B				B		B	
Queue Length 50th (m)	7.1	73.2		2.6	83.6	0.0	1.5	0.0			2.3	
Queue Length 95th (m)	23.6	84.1		7.4	95.1	1.9	5.6	0.0			12.7	
Internal Link Dist (m)		91.1			392.2				120.8		98.1	
Turn Bay Length (m)	45.0			45.0		45.0	45.0					
Base Capacity (vph)	119	3100		151	3256	1023	347	444			405	
Starvation Cap Reductn	0	0		0	0	0	0	0			0	
Spillback Cap Reductn	0	0		0	0	0	0	0			0	
Storage Cap Reductn	0	0		0	0	0	0	0			0	
Reduced v/c Ratio	0.47	0.50		0.17	0.53	0.02	0.02	0.03			0.11	

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 15 (11%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.53

Intersection Signal Delay: 12.3

Intersection LOS: B

Intersection Capacity Utilization 77.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 11: Inder Heights Drive/Snellview Boulevard & Mayfield Road



Lanes, Volumes, Timings

14: Mayfield Road & Hwy 410 SB Off-Ramp

02-28-2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	897	2091	0	137	14
Future Volume (vph)	0	897	2091	0	137	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	110.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Satd. Flow (prot)	0	4663	5029	0	3338	1453
Flt Permitted					0.953	
Satd. Flow (perm)	0	4663	5029	0	3338	1453
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					1	2
Link Speed (k/h)	60	60			80	
Link Distance (m)	340.3	442.1			199.5	
Travel Time (s)	20.4	26.5			9.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	10%	2%	0%	4%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	897	2091	0	137	14
Shared Lane Traffic (%)					10%	
Lane Group Flow (vph)	0	897	2091	0	138	13
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)	3.5	3.5			7.0	
Link Offset(m)	0.0	0.0			0.0	
Crosswalk Width(m)	4.8	4.8			4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Turn Type		NA	NA		Prot	Perm
Protected Phases		2	2		4	
Permitted Phases					4	
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)	16.0	16.0		8.0	8.0	
Minimum Split (s)	27.0	27.0		37.0	37.0	
Total Split (s)	46.0	46.0		41.0	41.0	
Total Split (%)	52.9%	52.9%		47.1%	47.1%	
Maximum Green (s)	40.0	40.0		35.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

14: Mayfield Road & Hwy 410 SB Off-Ramp

02-28-2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Total Lost Time (s)	5.0	5.0		5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	
Recall Mode	Max	Max		Min	Min	
Walk Time (s)	10.0	10.0				
Flash Dont Walk (s)	6.0	6.0				
Pedestrian Calls (#/hr)	0	0				
Act Effect Green (s)	66.7	66.7		10.3	10.3	
Actuated g/C Ratio	0.77	0.77		0.12	0.12	
v/c Ratio	0.25	0.54		0.35	0.08	
Control Delay	3.2	4.8		37.2	31.3	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	3.2	4.8		37.2	31.3	
LOS	A	A		D	C	
Approach Delay	3.2	4.8		36.7		
Approach LOS	A	A		D		
Queue Length 50th (m)	12.6	40.5		11.6	1.9	
Queue Length 95th (m)	19.1	58.0		19.8	7.5	
Internal Link Dist (m)	316.3	418.1		175.5		
Turn Bay Length (m)				110.0		
Base Capacity (vph)	3576	3856		1381	602	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.25	0.54		0.10	0.02	

Intersection Summary

Area Type: Other

Cycle Length: 87

Actuated Cycle Length: 87

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

Natural Cycle: 75

Control Type: Actuated-Coordinated

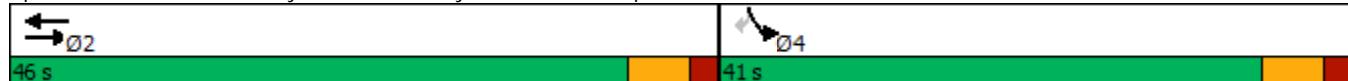
Maximum v/c Ratio: 0.54

Intersection Signal Delay: 5.9 Intersection LOS: A

Intersection Capacity Utilization 81.8% ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 14: Mayfield Road & Hwy 410 SB Off-Ramp



Lanes, Volumes, Timings

16: Hwy 410 NB Off-Ramp & Mayfield Road

02-28-2021



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑	↑↑	↑
Traffic Volume (vph)	1052	0	0	2135	754	906
Future Volume (vph)	1052	0	0	2135	754	906
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)		50.0	0.0		0.0	90.0
Storage Lanes		0	0		2	1
Taper Length (m)			7.5		7.5	
Satd. Flow (prot)	4706	0	0	5207	3223	1479
Flt Permitted					0.968	
Satd. Flow (perm)	4706	0	0	5207	3223	1479
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					64	64
Link Speed (k/h)	60			60	80	
Link Distance (m)	442.1			202.7	480.1	
Travel Time (s)	26.5			12.2	21.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	9%	0%	0%	5%	2%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	1052	0	0	2135	754	906
Shared Lane Traffic (%)					42%	
Lane Group Flow (vph)	1052	0	0	2135	1135	525
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases					4	
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	12.0			12.0	10.0	10.0
Minimum Split (s)	33.6			33.6	22.5	22.5
Total Split (s)	65.0			65.0	55.0	55.0
Total Split (%)	54.2%			54.2%	45.8%	45.8%
Maximum Green (s)	58.4			58.4	48.1	48.1
Yellow Time (s)	4.6			4.6	4.6	4.6
All-Red Time (s)	2.0			2.0	2.3	2.3
Lost Time Adjust (s)	-1.0			-1.0	-1.0	-1.0

Lanes, Volumes, Timings

16: Hwy 410 NB Off-Ramp & Mayfield Road

02-28-2021



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Total Lost Time (s)	5.6			5.6	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Minimum Gap (s)	3.0			3.0	3.0	3.0
Time Before Reduce (s)	0.0			0.0	0.0	0.0
Time To Reduce (s)	0.0			0.0	0.0	0.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	8.0			8.0		
Flash Dont Walk (s)	19.0			19.0		
Pedestrian Calls (#/hr)	0			0		
Act Effect Green (s)	61.9			61.9	46.6	46.6
Actuated g/C Ratio	0.52			0.52	0.39	0.39
v/c Ratio	0.43			0.80	0.88	0.86
Control Delay	19.2			27.2	40.8	44.0
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	19.2			27.2	40.8	44.0
LOS	B			C	D	D
Approach Delay	19.2			27.2	41.8	
Approach LOS	B			C	D	
Queue Length 50th (m)	60.1			150.7	122.5	102.0
Queue Length 95th (m)	72.4			171.2	152.2	#163.6
Internal Link Dist (m)	418.1			178.7	456.1	
Turn Bay Length (m)					90.0	
Base Capacity (vph)	2426			2685	1356	642
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.43			0.80	0.84	0.82

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 19 (16%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 30.5

Intersection LOS: C

Intersection Capacity Utilization 81.8%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 16: Hwy 410 NB Off-Ramp & Mayfield Road



HCM Unsignalized Intersection Capacity Analysis
18: Kennedy Road & Snellview Boulevard/Access #1

02-28-2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑↑		↑	↑↑	
Traffic Volume (veh/h)	2	0	44	51	0	8	75	1097	88	14	602	4
Future Volume (Veh/h)	2	0	44	51	0	8	75	1097	88	14	602	4
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	0	44	51	0	8	75	1097	88	14	602	4
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage veh)												
Upstream signal (m)							287					
pX, platoon unblocked												
vC, conflicting volume	1338	1967	303	1664	1925	592	606			1185		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1338	1967	303	1664	1925	592	606			1185		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	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 %	98	100	94	9	100	98	92			98		
cM capacity (veh/h)	103	57	699	56	61	454	982			596		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3		
Volume Total	2	44	51	8	75	731	454	14	401	205		
Volume Left	2	0	51	0	75	0	0	14	0	0		
Volume Right	0	44	0	8	0	0	88	0	0	4		
cSH	103	699	56	454	982	1700	1700	596	1700	1700		
Volume to Capacity	0.02	0.06	0.91	0.02	0.08	0.43	0.27	0.02	0.24	0.12		
Queue Length 95th (m)	0.5	1.6	32.5	0.4	2.0	0.0	0.0	0.6	0.0	0.0		
Control Delay (s)	40.7	10.5	211.5	13.1	9.0	0.0	0.0	11.2	0.0	0.0		
Lane LOS	E	B	F	B	A			B				
Approach Delay (s)	11.8		184.6		0.5			0.3				
Approach LOS	B		F									
Intersection Summary												
Average Delay			6.2									
Intersection Capacity Utilization		56.0%				ICU Level of Service			B			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
20: Stonegate Drive/Access #3 & Mayfield Road

02-28-2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↓		↑	↑↑↓			↔		↑	↑↓	
Traffic Volume (veh/h)	67	1609	13	92	2484	55	2	0	36	48	58	0
Future Volume (Veh/h)	67	1609	13	92	2484	55	2	0	36	48	58	0
Sign Control	Free			Free			Stop			Stop		
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)	67	1609	13	92	2484	55	2	0	36	48	58	0
Pedestrians	1											
Lane Width (m)	3.5											
Walking Speed (m/s)	1.2											
Percent Blockage	0											
Right turn flare (veh)												
Median type	None			None								
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	2539			1622			2792	4472	543	3402	4452	856
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2539			1622			2792	4472	543	3402	4452	856
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	63			77			0	100	93	0	0	100
cM capacity (veh/h)	179			402			0	1	489	2	1	305
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1	SB 2	
Volume Total	67	644	644	335	92	994	994	552	38	48	58	
Volume Left	67	0	0	0	92	0	0	0	2	48	0	
Volume Right	0	0	0	13	0	0	0	55	36	0	0	
cSH	179	1700	1700	1700	402	1700	1700	1700	0	2	1	
Volume to Capacity	0.37	0.38	0.38	0.20	0.23	0.58	0.58	0.32	Err	29.68	83.04	
Queue Length 95th (m)	12.9	0.0	0.0	0.0	7.0	0.0	0.0	0.0	Err	Err	Err	
Control Delay (s)	36.7	0.0	0.0	0.0	16.6	0.0	0.0	0.0	Err	Err	Err	
Lane LOS	E				C				F	F	F	
Approach Delay (s)	1.5				0.6				Err	Err		
Approach LOS									F	F		
Intersection Summary												
Average Delay					Err							
Intersection Capacity Utilization					72.3%				ICU Level of Service			
Analysis Period (min)					15				C			

HCM Unsignalized Intersection Capacity Analysis

27: Heart Lake Road & Access #2

02-28-2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑		↑	↑	
Traffic Volume (veh/h)	1	5	46	57	3	1	79	145	93	1	93	1
Future Volume (Veh/h)	1	5	46	57	3	1	79	145	93	1	93	1
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)	1	5	46	57	3	1	79	145	93	1	93	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage veh												
Upstream signal (m)							239					
pX, platoon unblocked												
vC, conflicting volume	401	492	94	493	446	192	94			238		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	401	492	94	493	446	192	94			238		
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 %	100	99	95	87	99	100	95			100		
cM capacity (veh/h)	537	455	969	444	483	855	1513			1341		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2				
Volume Total	1	51	57	4	79	238	1	94				
Volume Left	1	0	57	0	79	0	1	0				
Volume Right	0	46	0	1	0	93	0	1				
cSH	537	873	444	542	1513	1700	1341	1700				
Volume to Capacity	0.00	0.06	0.13	0.01	0.05	0.14	0.00	0.06				
Queue Length 95th (m)	0.0	1.5	3.5	0.2	1.3	0.0	0.0	0.0				
Control Delay (s)	11.7	9.4	14.3	11.7	7.5	0.0	7.7	0.0				
Lane LOS	B	A	B	B	A		A					
Approach Delay (s)	9.4		14.1		1.9		0.1					
Approach LOS	A		B									
Intersection Summary												
Average Delay			3.7									
Intersection Capacity Utilization		29.8%			ICU Level of Service				A			
Analysis Period (min)		15										

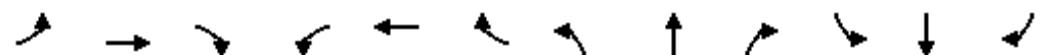
Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-02-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	319	975	85	210	1472	621	119	320	163	299	185	214
Future Volume (vph)	319	975	85	210	1472	621	119	320	163	299	185	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%				0%			0%			0%	
Storage Length (m)	45.0		0.0	85.0		40.0	45.0		55.0	90.0		0.0
Storage Lanes	1		1	1		1	1		0	2		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1785	4885	1507	1785	5029	1597	1785	3364	0	3348	3245	0
Flt Permitted	0.071			0.282			0.486			0.312		
Satd. Flow (perm)	133	4885	1480	529	5029	1573	908	3364	0	1096	3245	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		101			291			62			211	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		416.2			542.7			529.5			286.9	
Travel Time (s)		25.0			32.6			38.1			20.7	
Confl. Peds. (#/hr)	2		4	4		2	7		6	6		7
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	5%	6%	0%	2%	0%	0%	0%	0%	3%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	2	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	319	975	85	210	1472	621	119	320	163	299	185	214
Shared Lane Traffic (%)												
Lane Group Flow (vph)	319	975	85	210	1472	621	119	483	0	299	399	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4			8		
Detector Phase	5	2	2	1	6	6	7	4		3	8	
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	6.0	8.0	8.0	5.0	12.0		6.0	12.0	
Minimum Split (s)	9.0	34.6	34.6	9.0	34.6	34.6	9.0	34.9		9.0	34.9	
Total Split (s)	24.0	75.0	75.0	9.0	60.0	60.0	9.0	42.0		14.0	47.0	
Total Split (%)	17.1%	53.6%	53.6%	6.4%	42.9%	42.9%	6.4%	30.0%		10.0%	33.6%	
Maximum Green (s)	21.0	68.4	68.4	6.0	53.4	53.4	6.0	35.1		11.0	40.1	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.6	2.6	0.0	2.6	2.6	0.0	2.9		0.0	2.9	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-02-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	2.0	5.6	5.6	2.0	5.6	5.6	2.0	5.9		2.0	5.9	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recall Mode	None	C-Max	C-Max	None	Max	Max	None	Max		Max	None	
Walk Time (s)		8.0	8.0		8.0	8.0		8.0			8.0	
Flash Dont Walk (s)		20.0	20.0		20.0	20.0		20.0			20.0	
Pedestrian Calls (#/hr)	0	0		0	0		0				0	
Act Effect Green (s)	82.0	69.4	69.4	65.1	54.5	54.5	47.0	36.1		54.0	41.1	
Actuated g/C Ratio	0.59	0.50	0.50	0.46	0.39	0.39	0.34	0.26		0.39	0.29	
v/c Ratio	0.95	0.40	0.11	0.68	0.75	0.79	0.34	0.53		0.49	0.36	
Control Delay	78.3	22.9	2.6	31.1	39.9	27.5	32.3	41.0		31.9	18.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	78.3	22.9	2.6	31.1	39.9	27.5	32.3	41.0		31.9	18.7	
LOS	E	C	A	C	D	C	C	D		C	B	
Approach Delay		34.4			35.8			39.3			24.4	
Approach LOS		C			D			D			C	
Queue Length 50th (m)	75.1	64.1	0.0	27.5	134.8	90.0	22.7	55.7		30.1	21.6	
Queue Length 95th (m)	#135.5	75.7	6.7	41.4	153.9	145.8	37.6	74.2		41.5	36.6	
Internal Link Dist (m)		392.2			518.7			505.5			262.9	
Turn Bay Length (m)	45.0			85.0		40.0	45.0			90.0		
Base Capacity (vph)	337	2421	784	308	1957	790	348	913		615	1101	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.95	0.40	0.11	0.68	0.75	0.79	0.34	0.53		0.49	0.36	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 13 (9%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 34.2

Intersection LOS: C

Intersection Capacity Utilization 94.2%

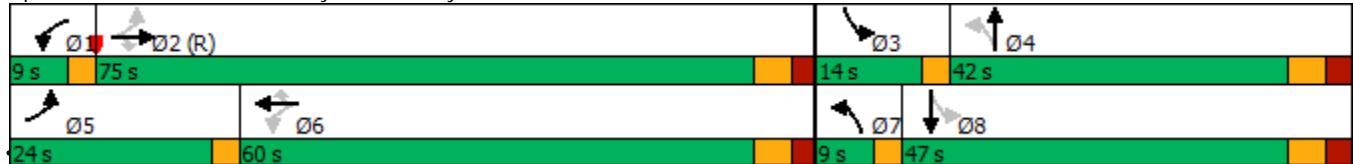
ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 5: Kennedy Road & Mayfield Road



2028 Future Total PM Peak 02-24-2021 Improvements

Synchro 10 Light Report

Page 2

Lanes, Volumes, Timings

18: Kennedy Road & Snellview Boulevard/Access #1

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓		↑	↓		↑	↑↓		↑	↑↓	
Traffic Volume (vph)	2	0	44	51	0	8	75	1097	88	14	602	4
Future Volume (vph)	2	0	44	51	0	8	75	1097	88	14	602	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)			0%			0%			0%			0%
Storage Length (m)	15.0		0.0	15.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1785	1597	0	1785	1597	0	1785	3531	0	1785	3552	0
Flt Permitted	0.752			0.728			0.423			0.214		
Satd. Flow (perm)	1413	1597	0	1368	1597	0	795	3531	0	402	3552	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	174			49			13			1		
Link Speed (k/h)	40			40			50			50		
Link Distance (m)	110.9			230.0			286.9			482.7		
Travel Time (s)	10.0			20.7			20.7			34.8		
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	2	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	2	0	44	51	0	8	75	1097	88	14	602	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	44	0	51	8	0	75	1185	0	14	606	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)	3.5			3.5			7.0			7.0		
Link Offset(m)	0.0			0.0			0.0			0.0		
Crosswalk Width(m)	4.8			4.8			4.8			4.8		
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA										
Protected Phases		4			4			2			6	
Permitted Phases	4			4			2			6		
Detector Phase	4	4		4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Minimum Split (s)	39.6	39.6		39.6	39.6		39.6	39.6		39.6	39.6	
Total Split (s)	40.0	40.0		40.0	40.0		40.0	40.0		40.0	40.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	33.4	33.4		33.4	33.4		33.4	33.4		33.4	33.4	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.6	2.6		2.6	2.6		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

18: Kennedy Road & Snellview Boulevard/Access #1

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.6	5.6		5.6	5.6		5.6	5.6		5.6	5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	13.0	13.0		13.0	13.0		60.6	60.6		60.6	60.6	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.76	0.76		0.76	0.76	
v/c Ratio	0.01	0.11		0.23	0.03		0.12	0.44		0.05	0.23	
Control Delay	28.5	0.5		32.2	0.1		4.7	5.4		4.3	4.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	28.5	0.5		32.2	0.1		4.7	5.4		4.3	4.1	
LOS	C	A		C	A		A	A		A	A	
Approach Delay		1.8			27.9			5.3			4.1	
Approach LOS		A			C			A			A	
Queue Length 50th (m)	0.3	0.0		7.2	0.0		3.4	37.4		0.6	15.5	
Queue Length 95th (m)	2.2	0.0		17.3	0.0		7.8	49.3		2.3	21.6	
Internal Link Dist (m)		86.9			206.0			262.9			458.7	
Turn Bay Length (m)	15.0			15.0			30.0			30.0		
Base Capacity (vph)	607	785		588	714		602	2679		304	2692	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.00	0.06		0.09	0.01		0.12	0.44		0.05	0.23	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

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

Natural Cycle: 80

Control Type: Actuated-Coordinated

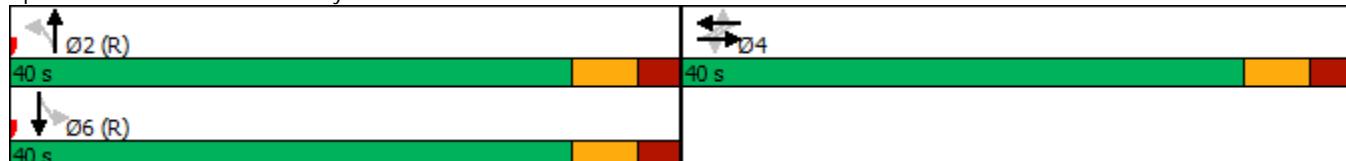
Maximum v/c Ratio: 0.44

Intersection Signal Delay: 5.5 Intersection LOS: A

Intersection Capacity Utilization 67.1% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 18: Kennedy Road & Snellview Boulevard/Access #1



Lanes, Volumes, Timings

20: Stonegate Drive/Access #3 & Mayfield Road

03-01-2021

	↑	→	↓	↗	↖	↙	↖	↗	↑	↗	↖	↓	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↑	↑↑↓		↑	↑↑↓			↔		↑	↑		
Traffic Volume (vph)	67	1609	13	92	2484	55	2	0	36	48	0	58	
Future Volume (vph)	67	1609	13	92	2484	55	2	0	36	48	0	58	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
Grade (%)		0%			0%			0%			0%		
Storage Length (m)	30.0		0.0	190.0		0.0	0.0		0.0	15.0		0.0	
Storage Lanes	1		0	1		0	0		0	1		0	
Taper Length (m)	7.5			7.5			7.5			7.5			
Satd. Flow (prot)	1785	4882	0	1767	5016	0	0	1633	0	1785	1597	0	
Flt Permitted	0.044			0.142				0.983		0.732			
Satd. Flow (perm)	83	4882	0	264	5016	0	0	1610	0	1375	1597	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		2			4			60			94		
Link Speed (k/h)		60			60			40			20		
Link Distance (m)		542.7			294.3			223.4			133.0		
Travel Time (s)		32.6			17.7			20.1			23.9		
Confl. Peds. (#/hr)							1						
Confl. Bikes (#/hr)													
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	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	0%	5%	0%	1%	2%	0%	0%	0%	0%	0%	0%	0%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Parking (#/hr)													
Mid-Block Traffic (%)		0%			0%			0%			0%		
Adj. Flow (vph)	67	1609	13	92	2484	55	2	0	36	48	0	58	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	67	1622	0	92	2539	0	0	38	0	48	58	0	
Enter Blocked Intersection	No												
Lane Alignment	Left	Left	Right										
Median Width(m)		3.5			3.5			3.5			3.5		
Link Offset(m)		0.0			0.0			0.0			0.0		
Crosswalk Width(m)		4.8			4.8			4.8			4.8		
Two way Left Turn Lane													
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	
Turning Speed (k/h)	25		15	25		15	25		15	25		15	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases	5	2			6			4			4		
Permitted Phases	2			6			4			4			
Detector Phase	5	2		6	6		4	4		4	4		
Switch Phase													
Minimum Initial (s)	5.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0		
Minimum Split (s)	9.0	35.6		35.6	35.6		39.6	39.6		39.6	39.6		
Total Split (s)	9.0	80.4		71.4	71.4		39.6	39.6		39.6	39.6		
Total Split (%)	7.5%	67.0%		59.5%	59.5%		33.0%	33.0%		33.0%	33.0%		
Maximum Green (s)	6.0	73.8		64.8	64.8		33.0	33.0		33.0	33.0		
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
All-Red Time (s)	0.0	2.6		2.6	2.6		2.6	2.6		2.6	2.6		
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0		-1.0	-1.0		

Lanes, Volumes, Timings

20: Stonegate Drive/Access #3 & Mayfield Road

03-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	2.0	5.6		5.6	5.6			5.6		5.6	5.6	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	None	C-Max		Max	Max		None	None		None	None	
Walk Time (s)		8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		21.0		21.0	21.0		25.0	25.0		25.0	25.0	
Pedestrian Calls (#/hr)	0		0	0		0	0		0	0	0	
Act Effect Green (s)	102.8	100.3		92.5	92.5			13.4		13.4	13.4	
Actuated g/C Ratio	0.86	0.84		0.77	0.77		0.11		0.11	0.11		
v/c Ratio	0.38	0.40		0.45	0.66		0.16		0.32	0.22		
Control Delay	15.6	3.6		16.6	9.6		6.6		55.0	4.7		
Queue Delay	0.0	0.0		0.0	0.0		0.0		0.0	0.0		
Total Delay	15.6	3.6		16.6	9.6		6.6		55.0	4.7		
LOS	B	A		B	A			A		D	A	
Approach Delay		4.0			9.9			6.6			27.5	
Approach LOS		A			A			A			C	
Queue Length 50th (m)	2.3	36.0		8.6	114.9		0.0		11.2	0.0		
Queue Length 95th (m)	14.4	45.8		27.9	145.8		5.6		23.5	4.5		
Internal Link Dist (m)		518.7			270.3		199.4			109.0		
Turn Bay Length (m)	30.0			190.0						15.0		
Base Capacity (vph)	178	4079		203	3869		499		389	519		
Starvation Cap Reductn	0	0		0	0		0		0	0		
Spillback Cap Reductn	0	0		0	0		0		0	0		
Storage Cap Reductn	0	0		0	0		0		0	0		
Reduced v/c Ratio	0.38	0.40		0.45	0.66		0.08		0.12	0.11		

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 8.0

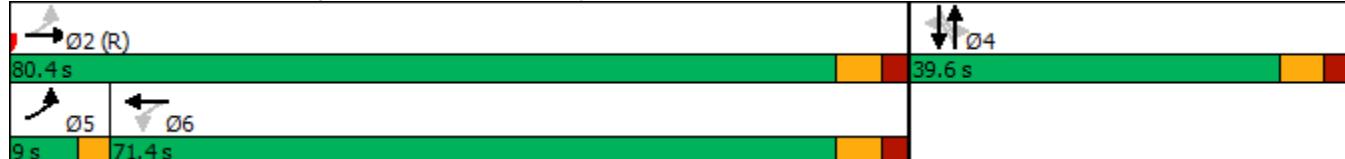
Intersection LOS: A

Intersection Capacity Utilization 76.1%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 20: Stonegate Drive/Access #3 & Mayfield Road



Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	189	2024	133	110	1000	301	62	114	139	741	413	368
Future Volume (vph)	189	2024	133	110	1000	301	62	114	139	741	413	368
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%				0%			0%			0%	
Storage Length (m)	45.0		0.0	85.0		40.0	45.0		55.0	90.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1580	5029	1452	1750	4458	0	1716	3114	0	1640	3192	0
Flt Permitted	0.091			0.081			0.356			0.500		
Satd. Flow (perm)	151	5029	1432	149	4458	0	641	3114	0	863	3192	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		78		60			121			158		
Link Speed (k/h)		60		60			50			50		
Link Distance (m)		416.2		542.7			529.5			286.9		
Travel Time (s)		25.0		32.6			38.1			20.7		
Confl. Peds. (#/hr)	1		1	1		1	6					6
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	13%	2%	10%	2%	10%	13%	4%	8%	3%	8%	1%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	2	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%		0%			0%			0%		
Adj. Flow (vph)	189	2024	133	110	1000	301	62	114	139	741	413	368
Shared Lane Traffic (%)												
Lane Group Flow (vph)	189	2024	133	110	1301	0	62	253	0	741	781	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0		0.0			0.0			0.0		
Crosswalk Width(m)		4.8		4.8			4.8			4.8		
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.03	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	5	2		1	6			4		3	8	
Permitted Phases	2		2	6			4			8		
Detector Phase	5	2	2	1	6		4	4		3	8	
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	6.0	8.0		12.0	12.0		6.0	12.0	
Minimum Split (s)	9.0	34.6	34.6	9.0	34.6		34.9	34.9		9.0	34.9	
Total Split (s)	10.0	55.0	55.0	10.0	55.0		35.0	35.0		40.0	75.0	
Total Split (%)	7.1%	39.3%	39.3%	7.1%	39.3%		25.0%	25.0%		28.6%	53.6%	
Maximum Green (s)	7.0	48.4	48.4	7.0	48.4		28.1	28.1		37.0	68.1	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.6	2.6	0.0	2.6		2.9	2.9		0.0	2.9	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	2.0	5.6	5.6	2.0	5.6		5.9	5.9		2.0	5.9	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	None	C-Max	C-Max	None	Max		Max	Max		Max	None	
Walk Time (s)		8.0	8.0		8.0		8.0	8.0			8.0	
Flash Dont Walk (s)		20.0	20.0		20.0		20.0	20.0			20.0	
Pedestrian Calls (#/hr)	0	0		0			0	0			0	
Act Effect Green (s)	61.0	49.4	49.4	61.0	49.4		29.1	29.1		73.0	69.1	
Actuated g/C Ratio	0.44	0.35	0.35	0.44	0.35		0.21	0.21		0.52	0.49	
v/c Ratio	1.29	1.14	0.24	0.71	0.81		0.47	0.34		1.12	0.47	
Control Delay	200.3	100.8	13.5	43.7	34.9		61.7	25.5		102.1	19.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	200.3	100.8	13.5	43.7	34.9		61.7	25.5		102.1	19.2	
LOS	F	F	B	D	C		E	C		F	B	
Approach Delay		103.9			35.6			32.7			59.6	
Approach LOS		F			D			C			E	
Queue Length 50th (m)	~53.7	~245.7	6.9	12.8	123.6		16.0	16.9		~224.7	61.2	
Queue Length 95th (m)	m#89.6	#277.7	m15.7	#40.2	143.4		32.7	30.2		#326.9	78.6	
Internal Link Dist (m)		392.2			518.7			505.5			262.9	
Turn Bay Length (m)	45.0			85.0			45.0			90.0		
Base Capacity (vph)	147	1774	555	156	1611		133	743		660	1655	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	1.29	1.14	0.24	0.71	0.81		0.47	0.34		1.12	0.47	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 17 (12%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.29

Intersection Signal Delay: 70.6 Intersection LOS: E

Intersection Capacity Utilization 112.5% ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

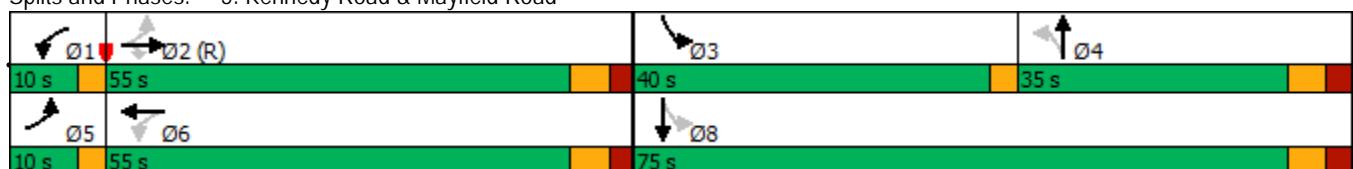
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 5: Kennedy Road & Mayfield Road



Lanes, Volumes, Timings

8: Heart Lake Road & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↑	↑	↑	↑↑↑	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	45	2184	714	260	1425	49	150	25	32	145	137	107
Future Volume (vph)	45	2184	714	260	1425	49	150	25	32	145	137	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%			0%			0%		
Storage Length (m)	125.0		200.0	160.0		160.0	125.0		60.0	85.0		55.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1700	4839	1566	1733	4580	1238	1700	1879	1597	1785	1860	1597
Flt Permitted	0.176			0.060			0.580			0.741		
Satd. Flow (perm)	315	4839	1566	109	4580	1238	1038	1879	1597	1392	1860	1597
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		466				54			52			76
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		261.4			340.3			475.3			238.8	
Travel Time (s)		15.7			20.4			34.2			17.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	6%	2%	3%	12%	29%	5%	0%	0%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	45	2184	714	260	1425	49	150	25	32	145	137	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	45	2184	714	260	1425	49	150	25	32	145	137	107
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		2		1	6		7	4			8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	2	2	2	1	6	6	7	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	12.0	12.0	12.0	5.0	12.0	12.0	5.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	35.7	35.7	35.7	9.0	35.7	35.7	9.0	39.9	39.9	39.9	39.9	39.9
Total Split (s)	70.0	70.0	70.0	21.0	91.0	91.0	9.0	49.0	49.0	40.0	40.0	40.0
Total Split (%)	50.0%	50.0%	50.0%	15.0%	65.0%	65.0%	6.4%	35.0%	35.0%	28.6%	28.6%	28.6%
Maximum Green (s)	63.3	63.3	63.3	18.0	84.3	84.3	6.0	42.1	42.1	33.1	33.1	33.1
Yellow Time (s)	4.6	4.6	4.6	3.0	4.6	4.6	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.1	2.1	2.1	0.0	2.1	2.1	0.0	2.9	2.9	2.9	2.9	2.9
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0

Lanes, Volumes, Timings

8: Heart Lake Road & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.7	5.7	5.7	2.0	5.7	5.7	2.0	5.9	5.9	5.9	5.9	5.9
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes	Yes	Yes
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
Minimum Gap (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
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Max	C-Max	C-Max	None	Max	Max	None	Max	Max	Max	Max	Max
Walk Time (s)	8.0	8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0
Flash Dont Walk (s)	21.0	21.0	21.0		21.0	21.0		25.0	25.0	25.0	25.0	25.0
Pedestrian Calls (#/hr)	0	0	0		0	0		0	0	0	0	0
Act Effect Green (s)	64.8	64.8	64.8	89.0	85.3	85.3	47.0	43.1	43.1	34.1	34.1	34.1
Actuated g/C Ratio	0.46	0.46	0.46	0.64	0.61	0.61	0.34	0.31	0.31	0.24	0.24	0.24
v/c Ratio	0.31	0.97	0.73	0.92	0.51	0.06	0.39	0.04	0.06	0.43	0.30	0.24
Control Delay	35.3	47.8	19.4	75.8	16.3	2.6	37.8	34.4	3.7	49.4	45.5	16.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.3	47.8	19.4	75.8	16.3	2.6	37.8	34.4	3.7	49.4	45.5	16.3
LOS	D	D	B	E	B	A	D	C	A	D	D	B
Approach Delay												
Approach LOS		D			C			C			D	
Queue Length 50th (m)	8.6	173.7	63.6	58.3	82.0	0.0	31.8	5.1	0.0	36.0	32.8	7.0
Queue Length 95th (m)	m9.2	m160.1	m54.6	#111.3	94.3	4.7	50.7	12.5	3.9	58.3	53.1	23.3
Internal Link Dist (m)		237.4			316.3			451.3			214.8	
Turn Bay Length (m)	125.0		200.0	160.0		160.0	125.0		60.0	85.0		55.0
Base Capacity (vph)	145	2240	975	289	2790	775	381	578	527	339	453	446
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	0.31	0.97	0.73	0.90	0.51	0.06	0.39	0.04	0.06	0.43	0.30	0.24

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 66 (47%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 35.0

Intersection LOS: D

Intersection Capacity Utilization 89.2%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 8: Heart Lake Road & Mayfield Road



Lanes, Volumes, Timings

11: Inder Heights Drive/Snellview Boulevard & Mayfield Road

02-28-2021

	↑	→	↓	↶	←	↷	↶	↑	↷	↓	↶	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↓		↑	↑↑↓		↑	↑			↔	
Traffic Volume (vph)	14	2263	16	17	1851	5	23	0	30	24	1	54
Future Volume (vph)	14	2263	16	17	1851	5	23	0	30	24	1	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	45.0		0.0	45.0		45.0	45.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1384	4870	0	1668	4621	1331	1463	1500	0	0	1593	0
Flt Permitted	0.074			0.047			0.717				0.921	
Satd. Flow (perm)	108	4870	0	83	4621	1299	1095	1500	0	0	1489	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				28		23			17	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		115.1			416.2			144.8			122.1	
Travel Time (s)		6.9			25.0			13.0			11.0	
Confl. Peds. (#/hr)	1					1	6		1	1		6
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	29%	5%	36%	7%	11%	20%	22%	0%	5%	13%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	14	2263	16	17	1851	5	23	0	30	24	1	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	2279	0	17	1851	5	23	30	0	0	79	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			4	
Permitted Phases	2			6		6	4			4		
Detector Phase	2	2		6	6	4	4		4	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0	12.0	8.0	8.0		8.0	8.0	
Minimum Split (s)	25.0	25.0		25.0	25.0	25.0	32.6	32.6		32.6	32.6	
Total Split (s)	90.0	90.0		90.0	90.0	90.0	50.0	50.0		50.0	50.0	
Total Split (%)	64.3%	64.3%		64.3%	64.3%	64.3%	35.7%	35.7%		35.7%	35.7%	
Maximum Green (s)	84.0	84.0		84.0	84.0	84.0	43.4	43.4		43.4	43.4	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

11: Inder Heights Drive/Snellview Boulevard & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.6	5.6			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max		Max	Max	Max	Max	Max		Max	Max	
Walk Time (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effect Green (s)	85.0	85.0		85.0	85.0	44.4	44.4				44.4	
Actuated g/C Ratio	0.61	0.61		0.61	0.61	0.32	0.32				0.32	
v/c Ratio	0.22	0.77		0.34	0.66	0.01	0.07	0.06			0.16	
Control Delay	22.3	22.6		27.0	12.4	0.0	34.2	15.6			21.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	22.3	22.6		27.0	12.4	0.0	34.2	15.6			21.4	
LOS	C	C		C	B	A	C	B			C	
Approach Delay		22.6			12.5			23.7			21.4	
Approach LOS		C			B			C			C	
Queue Length 50th (m)	1.8	170.7		1.5	71.7	0.0	4.7	1.4			11.1	
Queue Length 95th (m)	7.2	190.2		m3.4	83.8	m0.0	12.0	9.3			m19.8	
Internal Link Dist (m)		91.1			392.2			120.8			98.1	
Turn Bay Length (m)	45.0			45.0		45.0	45.0					
Base Capacity (vph)	65	2957		50	2805	799	347	491			483	
Starvation Cap Reductn	0	0		0	0	0	0	0			0	
Spillback Cap Reductn	0	0		0	0	0	0	0			0	
Storage Cap Reductn	0	0		0	0	0	0	0			0	
Reduced v/c Ratio	0.22	0.77		0.34	0.66	0.01	0.07	0.06			0.16	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

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

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

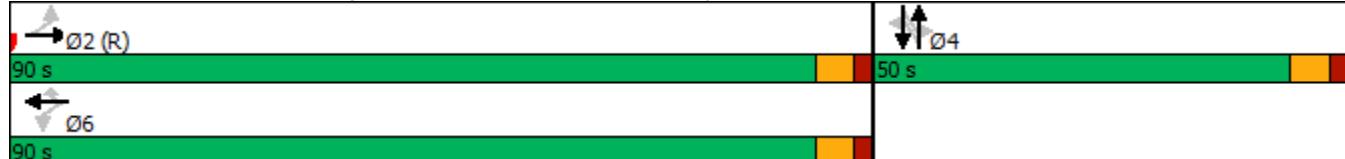
Intersection Signal Delay: 18.2 Intersection LOS: B

Intersection Capacity Utilization 74.6% ICU Level of Service D

Analysis Period (min) 15

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

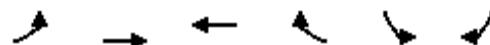
Splits and Phases: 11: Inder Heights Drive/Snellview Boulevard & Mayfield Road



Lanes, Volumes, Timings

14: Mayfield Road & Hwy 410 SB Off-Ramp

02-28-2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1522	1624	0	680	110
Future Volume (vph)	0	1522	1624	0	680	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	110.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Satd. Flow (prot)	0	4749	4706	0	3400	1453
Flt Permitted					0.953	
Satd. Flow (perm)	0	4749	4706	0	3400	1453
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					2	10
Link Speed (k/h)	60	60			80	
Link Distance (m)	340.3	442.1			199.5	
Travel Time (s)	20.4	26.5			9.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	8%	9%	0%	2%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	1522	1624	0	680	110
Shared Lane Traffic (%)					10%	
Lane Group Flow (vph)	0	1522	1624	0	691	99
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)	3.5	3.5			7.0	
Link Offset(m)	0.0	0.0			0.0	
Crosswalk Width(m)	4.8	4.8			4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Turn Type		NA	NA		Prot	Perm
Protected Phases		2	2		4	
Permitted Phases					4	
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)	16.0	16.0		8.0	8.0	
Minimum Split (s)	27.0	27.0		37.0	37.0	
Total Split (s)	46.0	46.0		41.0	41.0	
Total Split (%)	52.9%	52.9%		47.1%	47.1%	
Maximum Green (s)	40.0	40.0		35.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

14: Mayfield Road & Hwy 410 SB Off-Ramp

02-28-2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Total Lost Time (s)		5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Minimum Gap (s)		3.0	3.0		3.0	3.0
Time Before Reduce (s)		0.0	0.0		0.0	0.0
Time To Reduce (s)		0.0	0.0		0.0	0.0
Recall Mode		Max	Max		Min	Min
Walk Time (s)		10.0	10.0		20.0	20.0
Flash Dont Walk (s)		6.0	6.0		6.0	6.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effect Green (s)		52.5	52.5		24.5	24.5
Actuated g/C Ratio		0.60	0.60		0.28	0.28
v/c Ratio		0.53	0.57		0.72	0.24
Control Delay		11.6	12.1		32.2	21.6
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		11.6	12.1		32.2	21.6
LOS		B	B		C	C
Approach Delay		11.6	12.1		30.9	
Approach LOS		B	B		C	
Queue Length 50th (m)		51.6	57.1		56.1	13.1
Queue Length 95th (m)		77.0	85.0		67.7	24.5
Internal Link Dist (m)		316.3	418.1		175.5	
Turn Bay Length (m)					110.0	
Base Capacity (vph)		2864	2838		1408	607
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.53	0.57		0.49	0.16

Intersection Summary

Area Type: Other

Cycle Length: 87

Actuated Cycle Length: 87

Offset: 9.5 (11%), Referenced to phase 6:, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 15.7

Intersection LOS: B

Intersection Capacity Utilization 99.3%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 14: Mayfield Road & Hwy 410 SB Off-Ramp



Lanes, Volumes, Timings

16: Hwy 410 NB Off-Ramp & Mayfield Road

02-28-2021



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑	↑↑	↑
Traffic Volume (vph)	2515	0	0	1823	365	997
Future Volume (vph)	2515	0	0	1823	365	997
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)		50.0	0.0		0.0	90.0
Storage Lanes		0	0		2	1
Taper Length (m)			7.5		7.5	
Satd. Flow (prot)	4885	0	0	4839	2985	1452
Flt Permitted					0.979	
Satd. Flow (perm)	4885	0	0	4839	2985	1452
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					1	1
Link Speed (k/h)	60			60	80	
Link Distance (m)	442.1			202.7	480.1	
Travel Time (s)	26.5			12.2	21.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	0%	0%	13%	8%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	2515	0	0	1823	365	997
Shared Lane Traffic (%)					50%	
Lane Group Flow (vph)	2515	0	0	1823	864	498
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases					4	
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	12.0			12.0	10.0	10.0
Minimum Split (s)	33.6			33.6	24.9	24.9
Total Split (s)	70.0			70.0	50.0	50.0
Total Split (%)	58.3%			58.3%	41.7%	41.7%
Maximum Green (s)	63.4			63.4	43.1	43.1
Yellow Time (s)	4.6			4.6	4.6	4.6
All-Red Time (s)	2.0			2.0	2.3	2.3
Lost Time Adjust (s)	-1.0			-1.0	-1.0	-1.0

Lanes, Volumes, Timings

16: Hwy 410 NB Off-Ramp & Mayfield Road

02-28-2021



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Total Lost Time (s)	5.6			5.6	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Minimum Gap (s)	3.0			3.0	3.0	3.0
Time Before Reduce (s)	0.0			0.0	0.0	0.0
Time To Reduce (s)	0.0			0.0	0.0	0.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	8.0			8.0		
Flash Dont Walk (s)	19.0			19.0		
Pedestrian Calls (#/hr)	0			0		
Act Effect Green (s)	65.3			65.3	43.2	43.2
Actuated g/C Ratio	0.54			0.54	0.36	0.36
v/c Ratio	0.95			0.69	0.95dr	0.95
Control Delay	35.1			22.0	41.2	66.8
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	35.1			22.0	41.2	66.8
LOS	D			C	D	E
Approach Delay	35.1			22.0	50.6	
Approach LOS	D			C	D	
Queue Length 50th (m)	209.5			110.8	97.2	117.5
Queue Length 95th (m)	#256.8			127.8	123.3	#187.3
Internal Link Dist (m)	418.1			178.7	456.1	
Turn Bay Length (m)					90.0	
Base Capacity (vph)	2657			2632	1097	534
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.95			0.69	0.79	0.93

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 32 (27%), Referenced to phase 2:EBWB and 6:, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 34.6 Intersection LOS: C

Intersection Capacity Utilization 99.3% ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 16: Hwy 410 NB Off-Ramp & Mayfield Road



HCM Unsignalized Intersection Capacity Analysis
18: Kennedy Road & Snellview Boulevard/Site Access #1

02-28-2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑↑		↑	↑↑	
Traffic Volume (veh/h)	2	0	55	93	0	14	25	551	28	4	1375	2
Future Volume (Veh/h)	2	0	55	93	0	14	25	551	28	4	1375	2
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	0	55	93	0	14	25	551	28	4	1375	2
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage veh)												
Upstream signal (m)							287					
pX, platoon unblocked												
vC, conflicting volume	1724	2013	688	1366	2000	290	1377			579		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1724	2013	688	1366	2000	290	1377			579		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	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 %	96	100	86	0	100	98	95			100		
cM capacity (veh/h)	55	56	393	89	57	713	504			1005		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3		
Volume Total	2	55	93	14	25	367	212	4	917	460		
Volume Left	2	0	93	0	25	0	0	4	0	0		
Volume Right	0	55	0	14	0	0	28	0	0	2		
cSH	55	393	89	713	504	1700	1700	1005	1700	1700		
Volume to Capacity	0.04	0.14	1.04	0.02	0.05	0.22	0.12	0.00	0.54	0.27		
Queue Length 95th (m)	0.9	3.9	49.2	0.5	1.2	0.0	0.0	0.1	0.0	0.0		
Control Delay (s)	72.9	15.6	193.2	10.1	12.5	0.0	0.0	8.6	0.0	0.0		
Lane LOS	F	C	F	B	B			A				
Approach Delay (s)	17.7		169.2		0.5			0.0				
Approach LOS	C		F									
Intersection Summary												
Average Delay			9.1									
Intersection Capacity Utilization		56.6%								B		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
20: Stonegate Drive/Site Access 3 & Mayfield Road

02-28-2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	3114	3	26	1750	22	2	0	80	28	0	35
Future Volume (Veh/h)	27	3114	3	26	1750	22	2	0	80	28	0	35
Sign Control	Free			Free			Stop			Stop		
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)	27	3114	3	26	1750	22	2	0	80	28	0	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	1772			3117			3840	4994	1040	2985	4984	594
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1772			3117			3840	4994	1040	2985	4984	594
tC, single (s)	4.1			4.3			7.5	6.5	7.0	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			71			0	100	65	0	100	92
cM capacity (veh/h)	356			91			1	0	226	3	0	453
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1	SB 2	
Volume Total	27	1246	1246	626	26	700	700	372	82	28	35	
Volume Left	27	0	0	0	26	0	0	0	2	28	0	
Volume Right	0	0	0	3	0	0	0	22	80	0	35	
cSH	356	1700	1700	1700	91	1700	1700	1700	32	3	453	
Volume to Capacity	0.08	0.73	0.73	0.37	0.29	0.41	0.41	0.22	2.59	9.38	0.08	
Queue Length 95th (m)	2.0	0.0	0.0	0.0	8.5	0.0	0.0	0.0	76.2	Err	2.0	
Control Delay (s)	15.9	0.0	0.0	0.0	60.1	0.0	0.0	0.0	985.9	Err	13.6	
Lane LOS	C				F				F	F	B	
Approach Delay (s)	0.1				0.9				985.9	4451.6		
Approach LOS									F	F		
Intersection Summary												
Average Delay			71.4									
Intersection Capacity Utilization		75.1%			ICU Level of Service				D			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

27: Heart Lake Road & Access #2

02-28-2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑		↑	↑	
Traffic Volume (veh/h)	1	2	83	92	5	1	25	64	29	1	213	1
Future Volume (Veh/h)	1	2	83	92	5	1	25	64	29	1	213	1
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)	1	2	83	92	5	1	25	64	29	1	213	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage veh)												
Upstream signal (m)							239					
pX, platoon unblocked												
vC, conflicting volume	333	358	214	428	344	78	214			93		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	333	358	214	428	344	78	214			93		
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 %	100	100	90	81	99	100	98			100		
cM capacity (veh/h)	611	560	832	479	571	988	1368			1514		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2				
Volume Total	1	85	92	6	25	93	1	214				
Volume Left	1	0	92	0	25	0	1	0				
Volume Right	0	83	0	1	0	29	0	1				
cSH	611	822	479	614	1368	1700	1514	1700				
Volume to Capacity	0.00	0.10	0.19	0.01	0.02	0.05	0.00	0.13				
Queue Length 95th (m)	0.0	2.8	5.6	0.2	0.4	0.0	0.0	0.0				
Control Delay (s)	10.9	9.9	14.3	10.9	7.7	0.0	7.4	0.0				
Lane LOS	B	A	B	B	A		A					
Approach Delay (s)	9.9		14.1		1.6		0.0					
Approach LOS	A		B									
Intersection Summary												
Average Delay			4.7									
Intersection Capacity Utilization		36.4%				ICU Level of Service				A		
Analysis Period (min)			15									

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	189	2024	133	110	1000	301	62	114	139	741	413	368
Future Volume (vph)	189	2024	133	110	1000	301	62	114	139	741	413	368
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%				0%			0%			0%	
Storage Length (m)	45.0		0.0	85.0		40.0	45.0		55.0	90.0		0.0
Storage Lanes	1		1	1		1	1		0	2		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1580	5029	1452	1750	4663	1413	1716	3114	0	3193	3192	0
Flt Permitted	0.216			0.062			0.315			0.535		
Satd. Flow (perm)	359	5029	1432	114	4663	1394	567	3114	0	1798	3192	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		94			235			98			162	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		416.2			542.7			529.5			286.9	
Travel Time (s)		25.0			32.6			38.1			20.7	
Confl. Peds. (#/hr)	1		1	1		1	6					6
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	13%	2%	10%	2%	10%	13%	4%	8%	3%	8%	1%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	2	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	189	2024	133	110	1000	301	62	114	139	741	413	368
Shared Lane Traffic (%)												
Lane Group Flow (vph)	189	2024	133	110	1000	301	62	253	0	741	781	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases	5	2		1	6			4		3	8	
Permitted Phases	2		2	6		6	4			8		
Detector Phase	5	2	2	1	6	6	4	4		3	8	
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	6.0	8.0	8.0	12.0	12.0		6.0	12.0	
Minimum Split (s)	9.0	34.6	34.6	9.0	34.6	34.6	34.9	34.9		9.0	34.9	
Total Split (s)	10.0	70.0	70.0	10.0	70.0	70.0	45.0	45.0		15.0	60.0	
Total Split (%)	7.1%	50.0%	50.0%	7.1%	50.0%	50.0%	32.1%	32.1%		10.7%	42.9%	
Maximum Green (s)	7.0	63.4	63.4	7.0	63.4	63.4	38.1	38.1		12.0	53.1	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.6	2.6	0.0	2.6	2.6	2.9	2.9		0.0	2.9	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	2.0	5.6	5.6	2.0	5.6	5.6	5.9	5.9		2.0	5.9	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recall Mode	None	C-Max	C-Max	None	Max	Max	Max	Max	Max	Max	None	
Walk Time (s)				8.0	8.0	8.0	8.0	8.0	8.0		8.0	
Flash Dont Walk (s)				20.0	20.0	20.0	20.0	20.0	20.0		20.0	
Pedestrian Calls (#/hr)				0	0	0	0	0	0		0	
Act Effect Green (s)	76.0	64.4	64.4	76.0	64.4	64.4	39.1	39.1		58.0	54.1	
Actuated g/C Ratio	0.54	0.46	0.46	0.54	0.46	0.46	0.28	0.28		0.41	0.39	
v/c Ratio	0.72	0.88	0.19	0.71	0.47	0.39	0.39	0.27		0.85	0.59	
Control Delay	30.0	19.8	3.2	71.4	10.8	2.3	49.8	24.5		44.3	28.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	30.0	19.8	3.2	71.4	10.8	2.3	49.8	24.5		44.3	28.5	
LOS	C	B	A	E	B	A	D	C		D	C	
Approach Delay				19.7			13.7		29.4		36.2	
Approach LOS				B			B		C		D	
Queue Length 50th (m)	11.3	51.4	1.9	20.8	15.9	0.2	14.7	18.1		83.9	75.1	
Queue Length 95th (m)	m28.6	92.0	m6.2	#43.9	30.8	3.7	30.4	30.3		104.3	96.7	
Internal Link Dist (m)				392.2			518.7		505.5		262.9	
Turn Bay Length (m)	45.0			85.0			40.0	45.0			90.0	
Base Capacity (vph)	264	2313	709	155	2144	768	158	940		874	1332	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.72	0.88	0.19	0.71	0.47	0.39	0.39	0.27		0.85	0.59	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 17 (12%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 23.2 Intersection LOS: C

Intersection Capacity Utilization 96.6% ICU Level of Service F

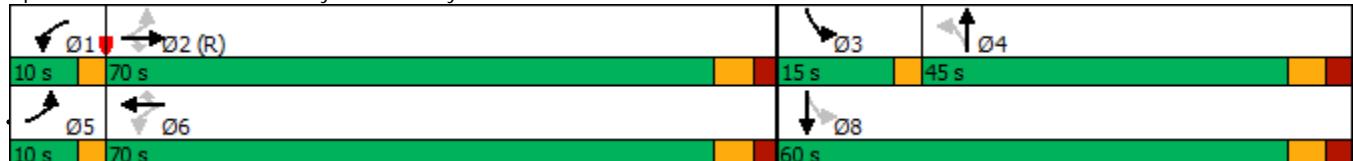
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 5: Kennedy Road & Mayfield Road



Lanes, Volumes, Timings

20: Stonegate Drive/Site Access 3 & Mayfield Road

02-28-2021

	↑	→	↓	↶	←	↷	↶	↑	↷	↓	↶	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↓		↑	↑↑↓			↔		↑	↑	
Traffic Volume (vph)	27	3114	3	26	1750	22	2	0	80	28	0	35
Future Volume (vph)	27	3114	3	26	1750	22	2	0	80	28	0	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	35.0		0.0	190.0		0.0	0.0		0.0	15.0		0.0
Storage Lanes	1		0	1		0	0		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1785	4884	0	1653	4537	0	0	1583	0	1785	1597	0
Flt Permitted	0.095			0.042				0.996		0.695		
Satd. Flow (perm)	178	4884	0	73	4537	0	0	1578	0	1306	1597	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					3			28			33	
Link Speed (k/h)		60			60			40			20	
Link Distance (m)		542.7			294.3			223.4			133.0	
Travel Time (s)		32.6			17.7			20.1			23.9	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	5%	33%	8%	13%	0%	0%	0%	3%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	27	3114	3	26	1750	22	2	0	80	28	0	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	3117	0	26	1772	0	0	82	0	28	35	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA										
Protected Phases		2			6			4			4	
Permitted Phases	2			6			4			4		
Detector Phase	2	2		6	6		4	4		4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Minimum Split (s)	35.6	35.6		35.6	35.6		39.6	39.6		39.6	39.6	
Total Split (s)	100.0	100.0		100.0	100.0		40.0	40.0		40.0	40.0	
Total Split (%)	71.4%	71.4%		71.4%	71.4%		28.6%	28.6%		28.6%	28.6%	
Maximum Green (s)	93.4	93.4		93.4	93.4		33.4	33.4		33.4	33.4	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.6	2.6		2.6	2.6		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

20: Stonegate Drive/Site Access 3 & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.6	5.6		5.6	5.6			5.6		5.6	5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max		Max	Max		Max	Max		Max	Max	
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		25.0	25.0		25.0	25.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	94.4	94.4		94.4	94.4			34.4		34.4	34.4	
Actuated g/C Ratio	0.67	0.67		0.67	0.67			0.25		0.25	0.25	
v/c Ratio	0.23	0.95		0.53	0.58			0.20		0.09	0.08	
Control Delay	13.8	23.5		67.8	26.1			29.3		41.8	14.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay	13.8	23.5		67.8	26.1			29.3		41.8	14.1	
LOS	B	C		E	C			C		D	B	
Approach Delay		23.4			26.7			29.3			26.4	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	2.7	174.1		6.3	161.0			12.4		6.4	0.5	
Queue Length 95th (m)	m4.2	189.5		m#17.0	177.5			27.3		15.2	9.8	
Internal Link Dist (m)		518.7			270.3			199.4			109.0	
Turn Bay Length (m)	35.0			190.0						15.0		
Base Capacity (vph)	120	3293		49	3060			408		320	417	
Starvation Cap Reductn	0	0		0	0			0		0	0	
Spillback Cap Reductn	0	0		0	0			0		0	0	
Storage Cap Reductn	0	0		0	0			0		0	0	
Reduced v/c Ratio	0.23	0.95		0.53	0.58			0.20		0.09	0.08	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

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

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 24.7 Intersection LOS: C

Intersection Capacity Utilization 79.6% ICU Level of Service D

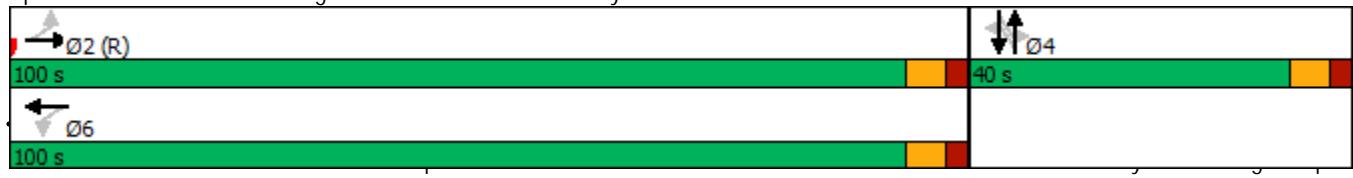
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 20: Stonegate Drive/Site Access 3 & Mayfield Road



Lanes, Volumes, Timings

18: Kennedy Road & Snellview Boulevard/Site Access #1

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑↑		↑	↑↑	
Traffic Volume (vph)	2	0	55	93	0	14	25	551	28	4	1375	2
Future Volume (vph)	2	0	55	93	0	14	25	551	28	4	1375	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)			0%			0%			0%			0%
Storage Length (m)	15.0		0.0	15.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1785	1597	0	1785	1597	0	1785	3294	0	1785	3520	0
Flt Permitted	0.748			0.721			0.163			0.434		
Satd. Flow (perm)	1405	1597	0	1355	1597	0	306	3294	0	815	3520	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	49			244			9					
Link Speed (k/h)	40			40			50			50		
Link Distance (m)	110.9			230.8			286.9			482.7		
Travel Time (s)	10.0			20.8			20.7			34.8		
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	8%	0%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	2	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	2	0	55	93	0	14	25	551	28	4	1375	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	55	0	93	14	0	25	579	0	4	1377	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)	3.5			3.5			7.0			7.0		
Link Offset(m)	0.0			0.0			0.0			0.0		
Crosswalk Width(m)	4.8			4.8			4.8			4.8		
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA										
Protected Phases		4			4			2			6	
Permitted Phases	4			4			2			6		
Detector Phase	4	4		4	4		2	2		6	6	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Minimum Split (s)	35.6	35.6		35.6	35.6		35.6	35.6		35.6	35.6	
Total Split (s)	36.0	36.0		36.0	36.0		44.0	44.0		44.0	44.0	
Total Split (%)	45.0%	45.0%		45.0%	45.0%		55.0%	55.0%		55.0%	55.0%	
Maximum Green (s)	29.4	29.4		29.4	29.4		37.4	37.4		37.4	37.4	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.6	2.6		2.6	2.6		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

18: Kennedy Road & Snellview Boulevard/Site Access #1

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.6	5.6		5.6	5.6		5.6	5.6		5.6	5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	13.9	13.9		13.9	13.9		59.7	59.7		59.7	59.7	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.75	0.75		0.75	0.75	
v/c Ratio	0.01	0.17		0.40	0.03		0.11	0.24		0.01	0.52	
Control Delay	26.0	11.4		34.4	0.1		6.2	4.6		4.5	6.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.0	11.4		34.4	0.1		6.2	4.6		4.5	6.8	
LOS	C	B		C	A		A	A		A	A	
Approach Delay		11.9			29.9			4.7			6.8	
Approach LOS		B			C			A			A	
Queue Length 50th (m)	0.3	0.8		13.5	0.0		1.1	14.6		0.2	48.2	
Queue Length 95th (m)	2.1	9.9		26.2	0.0		4.6	25.1		1.2	76.2	
Internal Link Dist (m)		86.9			206.8			262.9			458.7	
Turn Bay Length (m)	15.0			15.0			30.0			30.0		
Base Capacity (vph)	533	637		514	758		228	2462		608	2628	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.00	0.09		0.18	0.02		0.11	0.24		0.01	0.52	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

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

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.52

Intersection Signal Delay: 7.5 Intersection LOS: A

Intersection Capacity Utilization 59.2% ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 18: Kennedy Road & Snellview Boulevard/Site Access #1



Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	347	1229	94	227	1867	685	132	348	174	329	201	234
Future Volume (vph)	347	1229	94	227	1867	685	132	348	174	329	201	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%				0%			0%			0%	
Storage Length (m)	45.0		0.0	85.0		40.0	45.0		55.0	90.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1785	4885	1507	1785	4834	0	1785	3368	0	1719	3241	0
Flt Permitted	0.070			0.216			0.382			0.309		
Satd. Flow (perm)	132	4885	1480	405	4834	0	714	3368	0	557	3241	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		94			77			61			207	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		416.2			542.7			529.5			286.9	
Travel Time (s)		25.0			32.6			38.1			20.7	
Confl. Peds. (#/hr)	2		4	4		2	7		6	6		7
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	5%	6%	0%	2%	0%	0%	0%	0%	3%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	2	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	347	1229	94	227	1867	685	132	348	174	329	201	234
Shared Lane Traffic (%)												
Lane Group Flow (vph)	347	1229	94	227	2552	0	132	522	0	329	435	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.03	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6			4			8		
Detector Phase	5	2	2	1	6		7	4		3	8	
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	6.0	8.0		5.0	12.0		6.0	12.0	
Minimum Split (s)	9.0	34.6	34.6	9.0	34.6		9.0	34.9		9.0	34.9	
Total Split (s)	27.0	78.0	78.0	9.0	60.0		9.0	44.0		9.0	44.0	
Total Split (%)	19.3%	55.7%	55.7%	6.4%	42.9%		6.4%	31.4%		6.4%	31.4%	
Maximum Green (s)	24.0	71.4	71.4	6.0	53.4		6.0	37.1		6.0	37.1	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.6	2.6	0.0	2.6		0.0	2.9		0.0	2.9	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	2.0	5.6	5.6	2.0	5.6		2.0	5.9		2.0	5.9	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	None	C-Max	C-Max	None	Max		None	Max		Max	None	
Walk Time (s)		8.0	8.0		8.0			8.0			8.0	
Flash Dont Walk (s)		20.0	20.0		20.0			20.0			20.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effect Green (s)	85.0	72.4	72.4	65.5	54.9		49.0	38.1		49.0	38.1	
Actuated g/C Ratio	0.61	0.52	0.52	0.47	0.39		0.35	0.27		0.35	0.27	
v/c Ratio	0.94	0.49	0.12	0.88	1.31		0.44	0.54		1.30	0.42	
Control Delay	73.2	20.4	2.7	53.8	179.3		36.2	40.6		195.3	22.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	73.2	20.4	2.7	53.8	179.3		36.2	40.6		195.3	22.6	
LOS	E	C	A	D	F		D	D		F	C	
Approach Delay		30.4			169.0			39.7			97.0	
Approach LOS		C			F			D			F	
Queue Length 50th (m)	64.4	79.6	0.0	28.3	~348.6		26.3	60.7		~102.4	27.8	
Queue Length 95th (m)	#138.5	76.3	6.5	#62.8	#376.5		42.7	80.0		#175.8	44.3	
Internal Link Dist (m)		392.2			518.7			505.5			262.9	
Turn Bay Length (m)	45.0			85.0			45.0				90.0	
Base Capacity (vph)	375	2526	810	258	1943		303	960		253	1032	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.93	0.49	0.12	0.88	1.31		0.44	0.54		1.30	0.42	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 13 (9%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.31

Intersection Signal Delay: 105.8

Intersection LOS: F

Intersection Capacity Utilization 128.5%

ICU Level of Service H

Analysis Period (min) 15

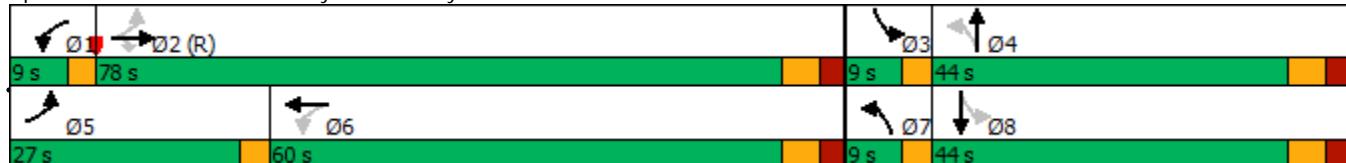
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 5: Kennedy Road & Mayfield Road



Lanes, Volumes, Timings

8: Heart Lake Road & Mayfield Road

03-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↑	↑	↑	↑↑↑	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	92	1578	171	64	2278	154	431	85	42	95	53	59
Future Volume (vph)	92	1578	171	64	2278	154	431	85	42	95	53	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%				0%			0%			0%	
Storage Length (m)	125.0		200.0	160.0		160.0	125.0		60.0	85.0		55.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1733	4706	1507	1700	4980	1566	1767	1879	1465	1668	1807	1521
Flt Permitted	0.056			0.100			0.683			0.702		
Satd. Flow (perm)	102	4706	1507	179	4980	1566	1271	1879	1465	1233	1807	1521
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			171			154			54			78
Link Speed (k/h)	60			60			50			50		
Link Distance (m)	261.4			340.3			475.3			238.8		
Travel Time (s)	15.7			20.4			34.2			17.2		
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	9%	6%	5%	3%	2%	1%	0%	9%	7%	4%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	92	1578	171	64	2278	154	431	85	42	95	53	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	92	1578	171	64	2278	154	431	85	42	95	53	59
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)	3.5			3.5			3.5			3.5		
Link Offset(m)	0.0			0.0			0.0			0.0		
Crosswalk Width(m)	4.8			4.8			4.8			4.8		
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		7	4			8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	8	8	8
Switch Phase												
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	12.0	5.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	9.0	35.7	35.7	9.0	35.7	35.7	9.0	39.9	39.9	39.9	39.9	39.9
Total Split (s)	9.0	76.0	76.0	9.0	76.0	76.0	9.0	50.0	50.0	41.0	41.0	41.0
Total Split (%)	6.7%	56.3%	56.3%	6.7%	56.3%	56.3%	6.7%	37.0%	37.0%	30.4%	30.4%	30.4%
Maximum Green (s)	6.0	69.3	69.3	6.0	69.3	69.3	6.0	43.1	43.1	34.1	34.1	34.1
Yellow Time (s)	3.0	4.6	4.6	3.0	4.6	4.6	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	0.0	2.1	2.1	0.0	2.1	2.1	0.0	2.9	2.9	2.9	2.9	2.9
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0

Lanes, Volumes, Timings

8: Heart Lake Road & Mayfield Road

03-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	2.0	5.7	5.7	2.0	5.7	5.7	2.0	5.9	5.9	5.9	5.9	5.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
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
Minimum Gap (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
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	C-Max	C-Max	None	Max	Max	None	Max	Max	Max	Max	Max
Walk Time (s)		8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0
Flash Dont Walk (s)		21.0	21.0		21.0	21.0		25.0	25.0	25.0	25.0	25.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effect Green (s)	81.4	72.1	72.1	81.0	70.3	70.3	48.0	44.1	44.1	35.1	35.1	35.1
Actuated g/C Ratio	0.60	0.53	0.53	0.60	0.52	0.52	0.36	0.33	0.33	0.26	0.26	0.26
v/c Ratio	0.63	0.63	0.19	0.35	0.88	0.17	0.90	0.14	0.08	0.30	0.11	0.13
Control Delay	38.7	23.8	2.8	15.6	33.6	2.9	63.9	32.9	5.8	43.2	39.0	4.9
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	38.7	23.8	2.8	15.6	33.6	2.9	63.9	32.9	5.8	43.2	39.0	4.9
LOS	D	C	A	B	C	A	E	C	A	D	D	A
Approach Delay		22.6			31.2			54.8			31.2	
Approach LOS		C			C			D			C	
Queue Length 50th (m)	10.0	113.4	0.0	6.8	200.7	0.0	102.6	16.8	0.0	21.5	11.4	0.0
Queue Length 95th (m)	#31.7	130.1	11.5	13.1	224.2	10.9	#169.9	30.1	6.4	38.4	23.0	7.3
Internal Link Dist (m)		237.4			316.3			451.3			214.8	
Turn Bay Length (m)	125.0		200.0	160.0		160.0	125.0		60.0	85.0		55.0
Base Capacity (vph)	145	2513	884	186	2593	889	477	613	514	320	469	453
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	0.63	0.63	0.19	0.34	0.88	0.17	0.90	0.14	0.08	0.30	0.11	0.13

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 26 (19%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 30.7

Intersection LOS: C

Intersection Capacity Utilization 92.7%

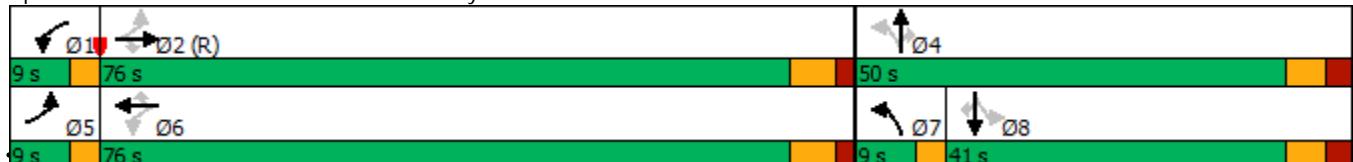
ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 8: Heart Lake Road & Mayfield Road



2033 Future Total PM Peak 02-24-2021

Synchro 10 Light Report

Page 4

Lanes, Volumes, Timings

11: Inder Heights Drive/Snellview Boulevard & Mayfield Road

03-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑↓		↑	↑↑↓	↑	↑	↑			↔	
Traffic Volume (vph)	56	1907	29	26	2166	19	7	0	13	10	1	34
Future Volume (vph)	56	1907	29	26	2166	19	7	0	13	10	1	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	45.0		0.0	45.0		45.0	45.0		0.0	0.0		0.0
Storage Lanes	1		0	1		1	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1668	4654	0	1684	4885	1521	1785	1597	0	0	1545	0
Flt Permitted	0.067			0.102			0.833				0.919	
Satd. Flow (perm)	118	4654	0	181	4885	1521	1561	1597	0	0	1436	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				51		47			34	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		115.1			416.2			144.8			122.1	
Travel Time (s)		6.9			25.0			13.0			11.0	
Confl. Peds. (#/hr)			1	1			2				2	
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	10%	7%	6%	5%	5%	0%	0%	0%	0%	0%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	56	1907	29	26	2166	19	7	0	13	10	1	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	56	1936	0	26	2166	19	7	13	0	0	45	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6		6	4			8		
Detector Phase	5	2		6	6	4	4		8	8		
Switch Phase												
Minimum Initial (s)	5.0	12.0		12.0	12.0	12.0	8.0	8.0		8.0	8.0	
Minimum Split (s)	9.0	35.0		35.0	35.0	35.0	39.6	39.6		39.6	39.6	
Total Split (s)	9.0	100.0		91.0	91.0	91.0	40.0	40.0		40.0	40.0	
Total Split (%)	6.4%	71.4%		65.0%	65.0%	65.0%	28.6%	28.6%		28.6%	28.6%	
Maximum Green (s)	6.0	94.0		85.0	85.0	85.0	33.4	33.4		33.4	33.4	
Yellow Time (s)	3.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	2.0		2.0	2.0	2.0	2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

11: Inder Heights Drive/Snellview Boulevard & Mayfield Road

03-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	2.0	5.0		5.0	5.0	5.0	5.6	5.6			5.6	
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?	Yes			Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recall Mode	None	C-Max		Max	Max	Max	None	None		None	None	
Walk Time (s)		8.0		8.0	8.0	8.0	8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		21.0		21.0	21.0	21.0	25.0	25.0		25.0	25.0	
Pedestrian Calls (#/hr)	0		0	0	0	0	0	0		0	0	
Act Effect Green (s)	125.7	123.7		116.0	116.0	116.0	9.6	9.6			9.6	
Actuated g/C Ratio	0.90	0.88		0.83	0.83	0.83	0.07	0.07			0.07	
v/c Ratio	0.30	0.47		0.17	0.54	0.01	0.07	0.09			0.35	
Control Delay	5.2	2.6		2.3	3.0	0.0	61.9	1.1			25.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	5.2	2.6		2.3	3.0	0.0	61.9	1.1			25.3	
LOS	A	A		A	A	A	E	A			C	
Approach Delay		2.7			3.0				22.4		25.3	
Approach LOS		A			A				C		C	
Queue Length 50th (m)	1.4	36.7		0.9	28.7	0.0	2.0	0.0			1.8	
Queue Length 95th (m)	3.4	49.4		m1.1	m26.0	m0.0	7.2	0.0			m2.5	
Internal Link Dist (m)		91.1			392.2				120.8		98.1	
Turn Bay Length (m)	45.0		45.0		45.0	45.0						
Base Capacity (vph)	189	4113		150	4047	1269	383	427			378	
Starvation Cap Reductn	0	0		0	0	0	0	0			0	
Spillback Cap Reductn	0	0		0	0	0	0	0			0	
Storage Cap Reductn	0	0		0	0	0	0	0			0	
Reduced v/c Ratio	0.30	0.47		0.17	0.54	0.01	0.02	0.03			0.12	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 15 (11%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.54

Intersection Signal Delay: 3.1 Intersection LOS: A

Intersection Capacity Utilization 66.1% ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 11: Inder Heights Drive/Snellview Boulevard & Mayfield Road



Lanes, Volumes, Timings

14: Mayfield Road & Hwy 410 SB Off-Ramp

03-01-2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1134	2627	0	151	15
Future Volume (vph)	0	1134	2627	0	151	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	110.0
Storage Lanes	0			0	2	1
Taper Length (m)	7.5				7.5	
Satd. Flow (prot)	0	4663	5029	0	3335	1453
Flt Permitted						0.953
Satd. Flow (perm)	0	4663	5029	0	3335	1453
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)						
Link Speed (k/h)		60	60		80	
Link Distance (m)		340.3	442.1		199.5	
Travel Time (s)		20.4	26.5		9.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	10%	2%	0%	4%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	0	1134	2627	0	151	15
Shared Lane Traffic (%)					10%	
Lane Group Flow (vph)	0	1134	2627	0	153	13
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		7.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Turn Type		NA	NA		Prot	Perm
Protected Phases		2	2		4	
Permitted Phases					4	
Detector Phase		2	2		4	4
Switch Phase						
Minimum Initial (s)	16.0	16.0		8.0	8.0	
Minimum Split (s)	27.0	27.0		37.0	37.0	
Total Split (s)	46.0	46.0		41.0	41.0	
Total Split (%)	52.9%	52.9%		47.1%	47.1%	
Maximum Green (s)	40.0	40.0		35.0	35.0	
Yellow Time (s)		4.0	4.0		4.0	4.0
All-Red Time (s)		2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

14: Mayfield Road & Hwy 410 SB Off-Ramp

03-01-2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Total Lost Time (s)		5.0	5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Minimum Gap (s)		3.0	3.0		3.0	3.0
Time Before Reduce (s)		0.0	0.0		0.0	0.0
Time To Reduce (s)		0.0	0.0		0.0	0.0
Recall Mode		Max	Max		Min	Min
Walk Time (s)		10.0	10.0			
Flash Dont Walk (s)		6.0	6.0			
Pedestrian Calls (#/hr)		0	0			
Act Effect Green (s)		66.4	66.4		10.6	10.6
Actuated g/C Ratio		0.76	0.76		0.12	0.12
v/c Ratio		0.32	0.69		0.38	0.07
Control Delay		3.6	6.5		37.5	33.8
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		3.6	6.5		37.5	33.8
LOS		A	A		D	C
Approach Delay		3.6	6.5		37.2	
Approach LOS		A	A		D	
Queue Length 50th (m)		17.5	64.6		12.9	2.3
Queue Length 95th (m)		26.0	91.3		21.5	7.9
Internal Link Dist (m)		316.3	418.1		175.5	
Turn Bay Length (m)					110.0	
Base Capacity (vph)		3556	3835		1380	601
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.32	0.69		0.11	0.02

Intersection Summary

Area Type: Other

Cycle Length: 87

Actuated Cycle Length: 87

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

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 7.0 Intersection LOS: A

Intersection Capacity Utilization 96.0% ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 14: Mayfield Road & Hwy 410 SB Off-Ramp



Lanes, Volumes, Timings

16: Hwy 410 NB Off-Ramp & Mayfield Road

03-01-2021



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑	↑↑	↑
Traffic Volume (vph)	1333	0	0	2719	819	1001
Future Volume (vph)	1333	0	0	2719	819	1001
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%			0%	0%	
Storage Length (m)		50.0	0.0		0.0	90.0
Storage Lanes		0	0		2	1
Taper Length (m)			7.5		7.5	
Satd. Flow (prot)	4706	0	0	5207	3219	1479
Flt Permitted					0.968	
Satd. Flow (perm)	4706	0	0	5207	3219	1479
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					37	37
Link Speed (k/h)	60			60	80	
Link Distance (m)	442.1			202.7	480.1	
Travel Time (s)	26.5			12.2	21.6	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	9%	0%	0%	5%	2%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	1333	0	0	2719	819	1001
Shared Lane Traffic (%)					42%	
Lane Group Flow (vph)	1333	0	0	2719	1239	581
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	7.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases					4	
Detector Phase	2			2	4	4
Switch Phase						
Minimum Initial (s)	12.0			12.0	10.0	10.0
Minimum Split (s)	33.6			33.6	22.5	22.5
Total Split (s)	80.0			80.0	60.0	60.0
Total Split (%)	57.1%			57.1%	42.9%	42.9%
Maximum Green (s)	73.4			73.4	53.1	53.1
Yellow Time (s)	4.6			4.6	4.6	4.6
All-Red Time (s)	2.0			2.0	2.3	2.3
Lost Time Adjust (s)	-1.0			-1.0	-1.0	-1.0

Lanes, Volumes, Timings

16: Hwy 410 NB Off-Ramp & Mayfield Road

03-01-2021



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Total Lost Time (s)	5.6			5.6	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0			3.0	3.0	3.0
Minimum Gap (s)	3.0			3.0	3.0	3.0
Time Before Reduce (s)	0.0			0.0	0.0	0.0
Time To Reduce (s)	0.0			0.0	0.0	0.0
Recall Mode	C-Max			C-Max	None	None
Walk Time (s)	8.0			8.0		
Flash Dont Walk (s)	19.0			19.0		
Pedestrian Calls (#/hr)	0			0		
Act Effect Green (s)	74.4			74.4	54.1	54.1
Actuated g/C Ratio	0.53			0.53	0.39	0.39
v/c Ratio	0.53			0.98	0.98	0.98
Control Delay	22.4			45.7	61.7	71.7
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	22.4			45.7	61.7	71.7
LOS	C			D	E	E
Approach Delay	22.4			45.7	64.9	
Approach LOS	C			D	E	
Queue Length 50th (m)	90.3			259.2	178.5	158.3
Queue Length 95th (m)	104.2			#302.4	#229.5	#239.9
Internal Link Dist (m)	418.1			178.7	456.1	
Turn Bay Length (m)						90.0
Base Capacity (vph)	2500			2767	1266	594
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.53			0.98	0.98	0.98

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 19 (14%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 46.4 Intersection LOS: D

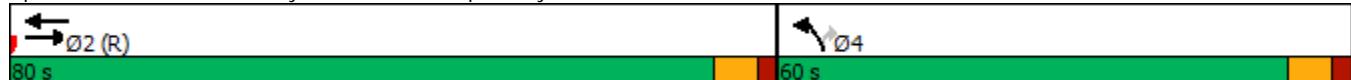
Intersection Capacity Utilization 96.0% ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 16: Hwy 410 NB Off-Ramp & Mayfield Road



HCM Unsignalized Intersection Capacity Analysis
18: Kennedy Road & Snellview Boulevard/Access #1

02-28-2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑		↑	↑		↑	↑↑		↑	↑↑	
Traffic Volume (veh/h)	2	0	44	51	0	8	75	1217	88	14	668	4
Future Volume (Veh/h)	2	0	44	51	0	8	75	1217	88	14	668	4
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	0	44	51	0	8	75	1217	88	14	668	4
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage veh)												
Upstream signal (m)							287					
pX, platoon unblocked												
vC, conflicting volume	1464	2153	336	1817	2111	652	672			1305		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1464	2153	336	1817	2111	652	672			1305		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	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 %	98	100	93	0	100	98	92			97		
cM capacity (veh/h)	82	43	666	43	46	415	928			537		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3		
Volume Total	2	44	51	8	75	811	494	14	445	227		
Volume Left	2	0	51	0	75	0	0	14	0	0		
Volume Right	0	44	0	8	0	0	88	0	0	4		
cSH	82	666	43	415	928	1700	1700	537	1700	1700		
Volume to Capacity	0.02	0.07	1.19	0.02	0.08	0.48	0.29	0.03	0.26	0.13		
Queue Length 95th (m)	0.6	1.7	39.4	0.5	2.1	0.0	0.0	0.6	0.0	0.0		
Control Delay (s)	49.8	10.8	349.9	13.8	9.2	0.0	0.0	11.9	0.0	0.0		
Lane LOS	E	B	F	B	A			B				
Approach Delay (s)	12.5		304.3		0.5			0.2				
Approach LOS	B		F									
Intersection Summary												
Average Delay			8.9									
Intersection Capacity Utilization		59.3%					ICU Level of Service			B		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
20: Stonegate Drive/Access #3 & Mayfield Road

02-28-2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	2041	13	92	3162	55	2	0	36	48	0	58
Future Volume (Veh/h)	67	2041	13	92	3162	55	2	0	36	48	0	58
Sign Control	Free			Free			Stop			Stop		
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)	67	2041	13	92	3162	55	2	0	36	48	0	58
Pedestrians		1										
Lane Width (m)		3.5										
Walking Speed (m/s)		1.2										
Percent Blockage		0										
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	3217			2054			3478	5582	687	4224	5562	1082
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	3217			2054			3478	5582	687	4224	5562	1082
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	30			66			0	100	91	0	100	73
cM capacity (veh/h)	96			273			1	0	394	0	0	216
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1	SB 2	
Volume Total	67	816	816	421	92	1265	1265	687	38	48	58	
Volume Left	67	0	0	0	92	0	0	0	2	48	0	
Volume Right	0	0	0	13	0	0	0	55	36	0	58	
cSH	96	1700	1700	1700	273	1700	1700	1700	12	0	216	
Volume to Capacity	0.70	0.48	0.48	0.25	0.34	0.74	0.74	0.40	3.27	243.03	0.27	
Queue Length 95th (m)	28.2	0.0	0.0	0.0	11.5	0.0	0.0	0.0	Err	Err	8.4	
Control Delay (s)	102.8	0.0	0.0	0.0	24.7	0.0	0.0	0.0	Err	Err	27.7	
Lane LOS	F				C				F	F	D	
Approach Delay (s)	3.2				0.7				Err	4543.0		
Approach LOS									F	F		
Intersection Summary												
Average Delay				156.2								
Intersection Capacity Utilization				85.4%			ICU Level of Service		E			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

27: Heart Lake Road & Access #2

02-28-2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑ ↗	↑ ↘		↑ ↗	↑ ↘		↑ ↗	↑ ↘		↑ ↗	↑ ↘	
Traffic Volume (veh/h)	1	5	46	57	3	1	79	159	93	1	104	1
Future Volume (Veh/h)	1	5	46	57	3	1	79	159	93	1	104	1
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)	1	5	46	57	3	1	79	159	93	1	104	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage veh)												
Upstream signal (m)							239					
pX, platoon unblocked												
vC, conflicting volume	426	516	104	518	470	206	105			252		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	426	516	104	518	470	206	105			252		
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 %	100	99	95	87	99	100	95			100		
cM capacity (veh/h)	517	441	956	427	468	840	1499			1325		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2				
Volume Total	1	51	57	4	79	252	1	105				
Volume Left	1	0	57	0	79	0	1	0				
Volume Right	0	46	0	1	0	93	0	1				
cSH	517	857	427	526	1499	1700	1325	1700				
Volume to Capacity	0.00	0.06	0.13	0.01	0.05	0.15	0.00	0.06				
Queue Length 95th (m)	0.0	1.5	3.7	0.2	1.3	0.0	0.0	0.0				
Control Delay (s)	12.0	9.5	14.7	11.9	7.5	0.0	7.7	0.0				
Lane LOS	B	A	B	B	A		A					
Approach Delay (s)	9.5		14.5		1.8		0.1					
Approach LOS	A		B									
Intersection Summary												
Average Delay			3.6									
Intersection Capacity Utilization		30.5%			ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	347	1229	94	227	1867	685	132	348	174	329	201	234
Future Volume (vph)	347	1229	94	227	1867	685	132	348	174	329	201	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%				0%			0%			0%	
Storage Length (m)	45.0		0.0	85.0		40.0	45.0		55.0	90.0		0.0
Storage Lanes	1		1	1		1	1		0	2		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1785	4885	1507	1785	5029	1597	1785	3368	0	3348	3241	0
Flt Permitted	0.070			0.216			0.382			0.309		
Satd. Flow (perm)	132	4885	1480	405	5029	1573	714	3368	0	1085	3241	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		94			253			61			207	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		416.2			542.7			529.5			286.9	
Travel Time (s)		25.0			32.6			38.1			20.7	
Confl. Peds. (#/hr)	2		4	4		2	7		6	6		7
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	5%	6%	0%	2%	0%	0%	0%	0%	3%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	2	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	347	1229	94	227	1867	685	132	348	174	329	201	234
Shared Lane Traffic (%)												
Lane Group Flow (vph)	347	1229	94	227	1867	685	132	522	0	329	435	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4			8		
Detector Phase	5	2	2	1	6	6	7	4		3	8	
Switch Phase												
Minimum Initial (s)	6.0	8.0	8.0	6.0	8.0	8.0	5.0	12.0		6.0	12.0	
Minimum Split (s)	9.0	34.6	34.6	9.0	34.6	34.6	9.0	34.9		9.0	34.9	
Total Split (s)	27.0	78.0	78.0	9.0	60.0	60.0	9.0	44.0		9.0	44.0	
Total Split (%)	19.3%	55.7%	55.7%	6.4%	42.9%	42.9%	6.4%	31.4%		6.4%	31.4%	
Maximum Green (s)	24.0	71.4	71.4	6.0	53.4	53.4	6.0	37.1		6.0	37.1	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.6	2.6	0.0	2.6	2.6	0.0	2.9		0.0	2.9	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings
5: Kennedy Road & Mayfield Road

03-01-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	2.0	5.6	5.6	2.0	5.6	5.6	2.0	5.9		2.0	5.9	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Recall Mode	None	C-Max	C-Max	None	Max	Max	None	Max		Max	None	
Walk Time (s)		8.0	8.0		8.0	8.0		8.0			8.0	
Flash Dont Walk (s)		20.0	20.0		20.0	20.0		20.0			20.0	
Pedestrian Calls (#/hr)	0	0		0	0		0				0	
Act Effect Green (s)	85.0	72.4	72.4	65.5	54.9	54.9	49.0	38.1		49.0	38.1	
Actuated g/C Ratio	0.61	0.52	0.52	0.47	0.39	0.39	0.35	0.27		0.35	0.27	
v/c Ratio	0.94	0.49	0.12	0.88	0.95	0.89	0.44	0.54		0.67	0.42	
Control Delay	73.2	20.4	2.7	40.9	41.9	27.9	36.2	40.6		40.8	22.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	73.2	20.4	2.7	40.9	41.9	27.9	36.2	40.6		40.8	22.6	
LOS	E	C	A	D	D	C	D	D		D	C	
Approach Delay		30.4			38.3			39.7			30.4	
Approach LOS		C			D			D			C	
Queue Length 50th (m)	64.4	79.6	0.0	19.6	178.2	84.9	26.3	60.7		34.6	27.8	
Queue Length 95th (m)	#138.5	76.3	6.5	m#41.9	#225.2	#209.4	42.7	80.0		47.1	44.3	
Internal Link Dist (m)		392.2			518.7			505.5			262.9	
Turn Bay Length (m)	45.0			85.0			40.0	45.0			90.0	
Base Capacity (vph)	375	2526	810	258	1973	770	303	960		492	1032	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.93	0.49	0.12	0.88	0.95	0.89	0.44	0.54		0.67	0.42	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 13 (9%), Referenced to phase 2:EBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 35.2 Intersection LOS: D

Intersection Capacity Utilization 104.3% ICU Level of Service G

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 5: Kennedy Road & Mayfield Road



Lanes, Volumes, Timings

18: Kennedy Road & Snellview Boulevard/Access #1

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↓		↑	↓		↑	↑↓		↑	↑↓	
Traffic Volume (vph)	2	0	44	51	0	8	75	1217	88	14	668	4
Future Volume (vph)	2	0	44	51	0	8	75	1217	88	14	668	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)			0%			0%			0%			0%
Storage Length (m)	15.0		0.0	15.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Satd. Flow (prot)	1785	1597	0	1785	1597	0	1785	3534	0	1785	3552	0
Flt Permitted	0.752			0.728			0.396			0.184		
Satd. Flow (perm)	1413	1597	0	1368	1597	0	744	3534	0	346	3552	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	184			48			13			1		
Link Speed (k/h)	40			40			50			50		
Link Distance (m)	110.9			230.0			286.9			482.7		
Travel Time (s)	10.0			20.7			20.7			34.8		
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	2	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	2	0	44	51	0	8	75	1217	88	14	668	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	44	0	51	8	0	75	1305	0	14	672	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(m)	3.5			3.5			7.0			7.0		
Link Offset(m)	0.0			0.0			0.0			0.0		
Crosswalk Width(m)	4.8			4.8			4.8			4.8		
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA										
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Detector Phase	4	4		4	4		2	2		2	2	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Minimum Split (s)	35.6	35.6		35.6	35.6		35.6	35.6		35.6	35.6	
Total Split (s)	36.0	36.0		36.0	36.0		46.0	46.0		46.0	46.0	
Total Split (%)	43.9%	43.9%		43.9%	43.9%		56.1%	56.1%		56.1%	56.1%	
Maximum Green (s)	29.4	29.4		29.4	29.4		39.4	39.4		39.4	39.4	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.6	2.6		2.6	2.6		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	

Lanes, Volumes, Timings

18: Kennedy Road & Snellview Boulevard/Access #1

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.6	5.6		5.6	5.6		5.6	5.6		5.6	5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	13.0	13.0		13.0	13.0		62.6	62.6		62.6	62.6	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.76	0.76		0.76	0.76	
v/c Ratio	0.01	0.11		0.24	0.03		0.13	0.48		0.05	0.25	
Control Delay	29.5	0.5		33.4	0.1		4.7	5.6		4.4	4.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	29.5	0.5		33.4	0.1		4.7	5.6		4.4	4.1	
LOS	C	A		C	A		A	A		A	A	
Approach Delay		1.8			28.9			5.5			4.1	
Approach LOS		A			C			A			A	
Queue Length 50th (m)	0.3	0.0		7.4	0.0		3.4	43.5		0.6	17.6	
Queue Length 95th (m)	2.1	0.0		17.8	0.0		7.8	56.7		2.4	24.1	
Internal Link Dist (m)		86.9			206.0			262.9			458.7	
Turn Bay Length (m)	15.0			15.0			30.0			30.0		
Base Capacity (vph)	523	707		507	622		568	2702		264	2714	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.00	0.06		0.10	0.01		0.13	0.48		0.05	0.25	

Intersection Summary

Area Type: Other

Cycle Length: 82

Actuated Cycle Length: 82

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

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.48

Intersection Signal Delay: 5.6 Intersection LOS: A

Intersection Capacity Utilization 70.4% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 18: Kennedy Road & Snellview Boulevard/Access #1



Lanes, Volumes, Timings

20: Stonegate Drive/Access #3 & Mayfield Road

02-28-2021

	↑	→	↓	↗	↖	↙	↖	↗	↑	↗	↖	↓	↗
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↑	↑↑↓		↑	↑↑↓			↔		↑	↑		
Traffic Volume (vph)	67	2041	13	92	3162	55	2	0	36	48	0	58	
Future Volume (vph)	67	2041	13	92	3162	55	2	0	36	48	0	58	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
Grade (%)		0%			0%			0%			0%		
Storage Length (m)	30.0		0.0	190.0		0.0	0.0		0.0	15.0		0.0	
Storage Lanes	1		0	1		0	0		0	1		0	
Taper Length (m)	7.5			7.5			7.5			7.5			
Satd. Flow (prot)	1785	4882	0	1767	5015	0	0	1633	0	1785	1597	0	
Flt Permitted	0.036			0.088				0.983		0.875			
Satd. Flow (perm)	68	4882	0	164	5015	0	0	1610	0	1644	1597	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		1			3			47			73		
Link Speed (k/h)		60			60			40			20		
Link Distance (m)		542.7			294.3			223.4			133.0		
Travel Time (s)		32.6			17.7			20.1			23.9		
Confl. Peds. (#/hr)							1						
Confl. Bikes (#/hr)													
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	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	0%	5%	0%	1%	2%	0%	0%	0%	0%	0%	0%	0%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Parking (#/hr)													
Mid-Block Traffic (%)		0%			0%			0%			0%		
Adj. Flow (vph)	67	2041	13	92	3162	55	2	0	36	48	0	58	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	67	2054	0	92	3217	0	0	38	0	48	58	0	
Enter Blocked Intersection	No												
Lane Alignment	Left	Left	Right										
Median Width(m)		3.5			3.5			3.5			3.5		
Link Offset(m)		0.0			0.0			0.0			0.0		
Crosswalk Width(m)		4.8			4.8			4.8			4.8		
Two way Left Turn Lane													
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	
Turning Speed (k/h)	25		15	25		15	25		15	25		15	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases	5	2			6			4			4		
Permitted Phases	2			6			4			4			
Detector Phase	5	2		6	6		4	4		4	4		
Switch Phase													
Minimum Initial (s)	5.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0		
Minimum Split (s)	9.0	39.6		39.6	39.6		39.6	39.6		39.6	39.6		
Total Split (s)	9.0	100.0		91.0	91.0		40.0	40.0		40.0	40.0		
Total Split (%)	6.4%	71.4%		65.0%	65.0%		28.6%	28.6%		28.6%	28.6%		
Maximum Green (s)	6.0	94.0		85.0	85.0		33.4	33.4		33.4	33.4		
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
All-Red Time (s)	0.0	2.0		2.0	2.0		2.6	2.6		2.6	2.6		
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0		-1.0	-1.0		

Lanes, Volumes, Timings

20: Stonegate Drive/Access #3 & Mayfield Road

02-28-2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	2.0	5.0		5.0	5.0			5.6		5.6	5.6	5.6
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	None	C-Max		Max	Max		None	None		None	None	
Walk Time (s)		8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)		21.0		21.0	21.0		25.0	25.0		25.0	25.0	
Pedestrian Calls (#/hr)	0		0	0		0	0		0	0	0	
Act Effect Green (s)	122.6	120.6		112.5	112.5			13.6		13.6	13.6	
Actuated g/C Ratio	0.88	0.86		0.80	0.80		0.10		0.10	0.10	0.10	
v/c Ratio	0.43	0.49		0.70	0.80		0.19		0.30	0.26		
Control Delay	27.3	2.9		42.8	12.5		13.3		63.9	10.7		
Queue Delay	0.0	0.0		0.0	0.0		0.0		0.0	0.0	0.0	
Total Delay	27.3	2.9		42.8	12.5		13.3		63.9	10.7		
LOS	C	A		D	B			B		E	B	
Approach Delay		3.7			13.3			13.3			34.8	
Approach LOS		A			B			B			C	
Queue Length 50th (m)	5.4	32.7		12.6	196.7		0.0		13.3	0.0		
Queue Length 95th (m)	m18.1	39.6		#57.9	262.5		8.9		26.5	9.9		
Internal Link Dist (m)		518.7			270.3		199.4			109.0		
Turn Bay Length (m)	30.0			190.0						15.0		
Base Capacity (vph)	156	4204		131	4029		431		403	447		
Starvation Cap Reductn	0	0		0	0		0		0	0		
Spillback Cap Reductn	0	0		0	0		0		0	0		
Storage Cap Reductn	0	0		0	0		0		0	0		
Reduced v/c Ratio	0.43	0.49		0.70	0.80		0.09		0.12	0.13		

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

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

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 10.1 Intersection LOS: B

Intersection Capacity Utilization 88.7% ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 20: Stonegate Drive/Access #3 & Mayfield Road



Appendix I

Traffic Signal Warrant Analysis

Signal Warrant Calculation (OTM Book 12 - Justification 7)

Major Street:	Mayfield Road	
Minor Street:	Stonegate Drive/Access #3	
Comment	Future Total (2023) Traffic Condition	
Number of Approaches:	1 <input type="checkbox"/>	2 <input checked="" type="checkbox"/>
Tee Intersection Configuration:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Flow Condition:	Free Fv (Rural) <input type="checkbox"/> Restricted Flow (Urban) <input checked="" type="checkbox"/>	

VOLUME	AM	PM	FACTOR *
1A - All	3,234	3,596	n/a 1,707
1B - Minor	145	144	25% 72
2A - Major	3,089	3,452	25% 1,635
2B - Cross	44	96	25% 35

* This factor relates average of the "peak eight hours" to the average of the "am and pm peak hours"

OVERALL WARRANT	150% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for new intersection with forecast traffic
	120% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for existing intersection with forecast traffic
	100% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for existing intersection with existing traffic *
	COMBO 80% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for existing intersection with existing traffic
	80% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for existing intersection with existing traffic

* Consider full underground provisions if 100% for forecast traffic

WARRANT 1 - MINIMUM VEHICULAR VOLUME

APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW	
FLOW CONDITION				X	
ALL APPROACHES	480	720	600	900	1707
	% FULFILLED				190%
APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW	
MINOR STREET APPROACHES	120	170	120	170	72
	% FULFILLED				42%

150% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
120% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
100% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
80% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

WARRANT 2 - DELAY TO CROSS TRAFFIC

APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW	
FLOW CONDITION				X	
MAJOR STREET APPROACHES	480	720	600	900	1635
	% FULFILLED				182%
APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW	
TRAFFIC CROSSING MAJOR STREET	50	75	120	170	35
	% FULFILLED				21%

150% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
120% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
100% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
80% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

1A - MINIMUM VEHICULAR VOLUME: Total vehicle volume on all approaches for average day

1B - MINIMUM VEHICULAR VOLUME: Total vehicle volume on minor streets

2A - DELAY TO CROSS TRAFFIC: Total vehicle volume on major street for average day

2B - DELAY TO CROSS TRAFFIC: Total vehicle and pedestrian volume crossing major street; comprising: (1) lefts from both minor streets, (2) heaviest through minor street, (3) 50% of heavier left turn from major street when following criteria met: (a) left turn volume >120 and (b) left turn volume plus opposing volume > 720, (4) pedestrians crossing the major street.

Signal Warrant Calculation (OTM Book 12 - Justification 7)

Major Street:

Kennedy Road

Minor Street:

Snellview Blvd/Access #1

Comment

Future Total (2023) Traffic Condition

Number of Approaches:

1 2

VOLUME	AM	PM	FACTOR *
1A - All	1,790	1,815	n/a
1B - Minor	164	105	25%
2A - Major	1,626	1,710	25%
2B - Cross	108	91	25%

* This factor relates average of the "peak eight hours" to the average of the "am and pm peak hours"

Tee Intersection Configuration:

Yes No

Flow Condition:

Free Fv (Rural)
Restricted Flow (Urban)

OVERALL WARRANT

150% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for new intersection with forecast traffic
120% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for existing intersection with forecast traffic
100% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for existing intersection with existing traffic *
COMBO 80% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for existing intersection with existing traffic
80% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for existing intersection with existing traffic

* Consider full underground provisions if 100% for forecast traffic

WARRANT 1 - MINIMUM VEHICULAR VOLUME

APPROACH LANES	1	2 OR MORE	AVERAGE HOUR PERIOD				
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW	X		
ALL APPROACHES	480	720	600	900		901	
			% FULFILLED			100%	
APPROACH LANES	1	2 OR MORE	AVERAGE HOUR PERIOD				
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW	X		
MINOR STREET APPROACHES	120	170	120	170		67	
			% FULFILLED			39%	

150% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
120% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
100% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
80% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

WARRANT 2 - DELAY TO CROSS TRAFFIC

APPROACH LANES	1	2 OR MORE	AVERAGE HOUR PERIOD				
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW	X		
MAJOR STREET APPROACHES	480	720	600	900		834	
			% FULFILLED			93%	
APPROACH LANES	1	2 OR MORE	AVERAGE HOUR PERIOD				
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW	X		
TRAFFIC CROSSING MAJOR STREET	50	75	120	170		50	
			% FULFILLED			29%	

150% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
120% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
100% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
80% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

1A - MINIMUM VEHICULAR VOLUME: Total vehicle volume on all approaches for average day

1B - MINIMUM VEHICULAR VOLUME: Total vehicle volume on minor streets

2A - DELAY TO CROSS TRAFFIC: Total vehicle volume on major street for average day

2B - DELAY TO CROSS TRAFFIC: Total vehicle and pedestrian volume crossing major street; comprising: (1) lefts from both minor streets, (2) heaviest through from minor street, (3) 50% of heavier left turn from major street when following criteria met: (a) left turn volume >120 and (b) left turn volume plus opposing volume > 720, (4) pedestrians crossing the major street.

Signal Warrant Calculation (OTM Book 12 - Justification 7)

Major Street: Mayfield Road

Minor Street: Stonegate Drive/Access #3

Comment Future Total (2028) Traffic Condition

Number of Approaches:

1 2

VOLUME	AM	PM	FACTOR *
1A - All	4,048	4,464	n/a 2,128
1B - Minor	145	144	25% 72
2A - Major	3,903	4,320	25% 2,056
2B - Cross	44	96	25% 35

* This factor relates average of the "peak eight hours" to the average of the "am and pm peak hours"

Tee Intersection Configuration:

Yes No

Flow Condition:

Free Fv (Rural)
Restricted Flow (Urban)

OVERALL WARRANT

150% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for new intersection with forecast traffic
120% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for existing intersection with forecast traffic
100% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for existing intersection with existing traffic *
COMBO 80% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for existing intersection with existing traffic
80% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for existing intersection with existing traffic

* Consider full underground provisions if 100% for forecast traffic

WARRANT 1 - MINIMUM VEHICULAR VOLUME

APPROACH LANES	1	2 OR MORE	AVERAGE HOUR PERIOD				
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW	X		
ALL APPROACHES	480	720	600	900		2128	
			% FULFILLED			236%	
APPROACH LANES	1	2 OR MORE					
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW	X	AVERAGE HOUR PERIOD	
MINOR STREET APPROACHES	120	170	120	170		72	
			% FULFILLED			42%	

150% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
120% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
100% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
80% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

WARRANT 2 - DELAY TO CROSS TRAFFIC

APPROACH LANES	1	2 OR MORE	AVERAGE HOUR PERIOD				
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW	X		
MAJOR STREET APPROACHES	480	720	600	900		2056	
			% FULFILLED			228%	
APPROACH LANES	1	2 OR MORE					
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW	X	AVERAGE HOUR PERIOD	
TRAFFIC CROSSING MAJOR STREET	50	75	120	170		35	
			% FULFILLED			21%	

150% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
120% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
100% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
80% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

1A - MINIMUM VEHICULAR VOLUME: Total vehicle volume on all approaches for average day

1B - MINIMUM VEHICULAR VOLUME: Total vehicle volume on minor streets

2A - DELAY TO CROSS TRAFFIC: Total vehicle volume on major street for average day

2B - DELAY TO CROSS TRAFFIC: Total vehicle and pedestrian volume crossing major street; comprising: (1) lefts from both minor streets, (2) heaviest through from minor street, (3) 50% of heavier left turn from major street when following criteria met: (a) left turn volume >120 and (b) left turn volume plus opposing volume > 720, (4) pedestrians crossing the major street.

Signal Warrant Calculation (OTM Book 12 - Justification 7)

Major Street:

Kennedy Road

Minor Street:

Snellview Blvd/Access #1

Comment

Future Total (2028) Traffic Condition

Number of Approaches:

1 2

VOLUME	AM	PM	FACTOR *
1A - All	1,962	1,985	n/a
1B - Minor	164	105	25%
2A - Major	1,798	1,880	25%
2B - Cross	108	91	25%

* This factor relates average of the "peak eight hours" to the average of the "am and pm peak hours"

Tee Intersection Configuration:

Yes No

Flow Condition:

Free Fv (Rural)
Restricted Flow (Urban)

OVERALL WARRANT

150% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for new intersection with forecast traffic
120% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for existing intersection with forecast traffic
100% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for existing intersection with existing traffic *
COMBO 80% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for existing intersection with existing traffic
80% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for existing intersection with existing traffic

* Consider full underground provisions if 100% for forecast traffic

WARRANT 1 - MINIMUM VEHICULAR VOLUME

APPROACH LANES	1	2 OR MORE	AVERAGE HOUR PERIOD				
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW	X		
ALL APPROACHES	480	720	600	900		987	
			% FULFILLED			110%	
APPROACH LANES	1	2 OR MORE					
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW	X	AVERAGE HOUR PERIOD	
MINOR STREET APPROACHES	120	170	120	170		67	
			% FULFILLED			39%	

150% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
120% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
100% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
80% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

WARRANT 2 - DELAY TO CROSS TRAFFIC

APPROACH LANES	1	2 OR MORE	AVERAGE HOUR PERIOD				
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW	X		
MAJOR STREET APPROACHES	480	720	600	900		920	
			% FULFILLED			102%	
APPROACH LANES	1	2 OR MORE					
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW	X	AVERAGE HOUR PERIOD	
TRAFFIC CROSSING MAJOR STREET	50	75	120	170		50	
			% FULFILLED			29%	

150% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
120% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
100% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
80% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

1A - MINIMUM VEHICULAR VOLUME: Total vehicle volume on all approaches for average day

1B - MINIMUM VEHICULAR VOLUME: Total vehicle volume on minor streets

2A - DELAY TO CROSS TRAFFIC: Total vehicle volume on major street for average day

2B - DELAY TO CROSS TRAFFIC: Total vehicle and pedestrian volume crossing major street; comprising: (1) lefts from both minor streets, (2) heaviest through from minor street, (3) 50% of heavier left turn from major street when following criteria met: (a) left turn volume >120 and (b) left turn volume plus opposing volume > 720, (4) pedestrians crossing the major street.

Signal Warrant Calculation (OTM Book 12 - Justification 7)

Major Street:	Mayfield Road	
Minor Street:	Stonegate Drive/Access #3	
Comment	Future Total (2033) Traffic Condition	
Number of Approaches:	1 <input type="checkbox"/>	2 <input checked="" type="checkbox"/>
Tee Intersection Configuration:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Flow Condition:	Free Fv (Rural) <input type="checkbox"/> Restricted Flow (Urban) <input checked="" type="checkbox"/>	

VOLUME	AM	PM	FACTOR *
1A - All	5,087	5,574	n/a 2,665
1B - Minor	145	144	25% 72
2A - Major	4,942	5,430	25% 2,593
2B - Cross	44	96	25% 35

* This factor relates average of the "peak eight hours" to the average of the "am and pm peak hours"

OVERALL WARRANT	150% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for new intersection with forecast traffic
	120% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for existing intersection with forecast traffic
	100% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for existing intersection with existing traffic *
	COMBO 80% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for existing intersection with existing traffic
	80% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for existing intersection with existing traffic

* Consider full underground provisions if 100% for forecast traffic

WARRANT 1 - MINIMUM VEHICULAR VOLUME

APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW	
FLOW CONDITION				X	
ALL APPROACHES	480	720	600	900	2665
	% FULFILLED				296%
APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW	
MINOR STREET APPROACHES	120	170	120	170	72
	% FULFILLED				42%

150% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
120% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
100% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
80% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

WARRANT 2 - DELAY TO CROSS TRAFFIC

APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW	
FLOW CONDITION				X	
MAJOR STREET APPROACHES	480	720	600	900	2593
	% FULFILLED				288%
APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW	
TRAFFIC CROSSING MAJOR STREET	50	75	120	170	35
	% FULFILLED				21%

150% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
120% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
100% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
80% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

1A - MINIMUM VEHICULAR VOLUME: Total vehicle volume on all approaches for average day

1B - MINIMUM VEHICULAR VOLUME: Total vehicle volume on minor streets

2A - DELAY TO CROSS TRAFFIC: Total vehicle volume on major street for average day

2B - DELAY TO CROSS TRAFFIC: Total vehicle and pedestrian volume crossing major street; comprising: (1) lefts from both minor streets, (2) heaviest through from minor street, (3) 50% of heavier left turn from major street when following criteria met: (a) left turn volume >120 and (b) left turn volume plus opposing volume > 720, (4) pedestrians crossing the major street.

Signal Warrant Calculation (OTM Book 12 - Justification 7)

Major Street:

Kennedy Road

Minor Street:

Snellview Blvd/Access #1

Comment

Future Total (2033) Traffic Condition

Number of Approaches:

1 2

VOLUME **AM** **PM** **FACTOR ***

1A - All	2,149	2,171	n/a	1,080
1B - Minor	164	105	25%	67
2A - Major	1,985	2,066	25%	1,013
2B - Cross	108	91	25%	50

* This factor relates average of the "peak eight hours" to the average of the "am and pm peak hours"

Tee Intersection Configuration:

Yes No

Flow Condition:

Free Fv (Rural)
Restricted Flow (Urban)

OVERALL WARRANT

150% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for new intersection with forecast traffic
120% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for existing intersection with forecast traffic
100% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for existing intersection with existing traffic *
COMBO 80% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for existing intersection with existing traffic
80% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Warrant for existing intersection with existing traffic

* Consider full underground provisions if 100% for forecast traffic

WARRANT 1 - MINIMUM VEHICULAR VOLUME

APPROACH LANES	1	2 OR MORE	AVERAGE HOUR PERIOD				
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW	X		
ALL APPROACHES	480	720	600	900		1080	
			% FULFILLED			120%	
APPROACH LANES	1	2 OR MORE					
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW	X	AVERAGE HOUR PERIOD	
MINOR STREET APPROACHES	120	170	120	170		67	
			% FULFILLED			39%	

150% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
120% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
100% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
80% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

WARRANT 2 - DELAY TO CROSS TRAFFIC

APPROACH LANES	1	2 OR MORE	AVERAGE HOUR PERIOD				
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW	X		
MAJOR STREET APPROACHES	480	720	600	900		1013	
			% FULFILLED			113%	
APPROACH LANES	1	2 OR MORE					
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW	X	AVERAGE HOUR PERIOD	
TRAFFIC CROSSING MAJOR STREET	50	75	120	170		50	
			% FULFILLED			29%	

150% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
120% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
100% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
80% Satisfied:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

1A - MINIMUM VEHICULAR VOLUME: Total vehicle volume on all approaches for average day

1B - MINIMUM VEHICULAR VOLUME: Total vehicle volume on minor streets

2A - DELAY TO CROSS TRAFFIC: Total vehicle volume on major street for average day

2B - DELAY TO CROSS TRAFFIC: Total vehicle and pedestrian volume crossing major street; comprising: (1) lefts from both minor streets, (2) heaviest through from minor street, (3) 50% of heavier left turn from major street when following criteria met: (a) left turn volume >120 and (b) left turn volume plus opposing volume > 720, (4) pedestrians crossing the major street.