STRIK BALDINELLI MONIZ

PLANNING • CIVIL • STRUCTURAL • MECHANICAL • ELECTRICAL

TRANSPORTATION IMPACT ASSESSMENT

801 SARNIA ROAD

LONDON, ONTARIO

PROPOSED RESIDENTIAL DEVELOPMENT

2425290 ONTARIO LTD.

NOVEMBER 2024

SBM-24-1998

LONDON LOCATION

1599 Adelaide Street N Unit 301
London, ON, N5X 4E8
P: 519.471.6667

KITCHENER LOCATION

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City of London

Transportation Impact Assessment

CERTIFICATE OF OWNERSHIP

Development Name/Reference: 801 Sarnia Road

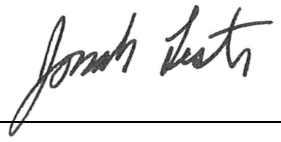
Company or Firm: Strik, Baldinelli, Moniz Ltd.

Original Submission or Addendum: Original

Original Report Name: Transportation Impact Assessment - 801 Sarnia Road

I hereby certify that the attached document has been prepared accurately and to the best of my knowledge. The assumptions and analysis contained herein have been formulated using sound transportation planning and traffic operations methodologies.

Individual accepting corporate responsibility:

Name: Jonah Lester, P.Eng. Signature: 

Project Manager (if different than above):

Name: _____

Other Individuals involved in the preparation of the assessment and can be contact regarding study content:

Name: _____

Name: _____

Engineer's Stamp

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2425290 Ontario Inc
425 - 509 Commissioners Rd W
London, ON N6K 1J5

November 5, 2024
SBM-24-1998

Re: Transportation Impact Assessment
801 Sarnia Road
London, Ontario

Strik, Baldinelli, Moniz Ltd. is pleased to provide you with the enclosed Transportation Impact Assessment report for the proposed residential development at 801 Sarnia Road in London, Ontario. The report concludes that the development proposal can generally be accommodated by the existing transportation network with no significant impact to traffic operations.

We trust this submission meets your satisfaction and will assist with the approval of the development. Should you have any questions or require additional information, please do not hesitate to contact the undersigned.

Respectfully submitted,

Strik, Baldinelli, Moniz Ltd.
Planning • Civil • Structural • Mechanical • Electrical

Jonah Lester, P.Eng.
Transportation Engineer

Michelle Alegria, EIT
Civil Engineering Trainee I

EXECUTIVE SUMMARY

This Transportation Impact Assessment (TIA) has been prepared by Strik, Baldinelli, Moniz Ltd. (SBM) for 2425290 Ontario Inc. to identify transportation impacts, or a lack thereof, associated with the proposed residential development located at 801 Sarnia Road in London, Ontario. The development is proposed to include a ten-storey apartment building with 182 dwelling units. Vehicular access is proposed from the existing driveway serving 811 Sarnia Road (proposed shared access).

This study has forecasted traffic volumes for a 2031 horizon year and assessed traffic operations at the site access of the subject site for existing, future background and future total traffic conditions. Site access and active transportation considerations have also been assessed. Based on the analysis completed, the following key conclusions and recommendations are made in this TIA:

- It is forecast that the proposed development will generate 68 new trips in the AM peak hour (16 in and 52 out) and 71 trips during the PM peak hour (43 in and 28 out).
- Under existing conditions, the 811 Sarnia Road access intersection is operating well during the peak hours with all movements at v/c ratios of 0.38 or lower and LOS C or better.
- Under 2031 background and total traffic conditions, all movements at the 811 Sarnia Road access intersection will continue to function acceptably, with the southbound movement at a v/c ratio of 0.32 or lower and LOS D.
- The need for a designated left turn lane on Sarnia Road at the 811 Sarnia Road access was reviewed, and a left turn lane is warranted with a storage length of 25 meters under the 2031 total traffic condition. It is recommended that the pavement markings be adjusted to provide a designated left turn lane for the site access when the 801 Sarnia Road development is constructed.
- Traffic signal warrant analysis was undertaken for the 811 Sarnia Road access intersection to determine if traffic signals may be warranted under future traffic conditions. Based on the analysis, traffic signals will not be warranted for the access intersection (warrants only 27% met).
- The proposed site plan provides good internal and external pedestrian connections, and the site has direct access to existing and planned cycling facilities (i.e. bike lanes on Sarnia Road), which should help promote active transportation trips.
- Overall, the forecasted site traffic should not introduce any operational problems on the surrounding road network. Other than the pavement marking revisions on Sarnia Road to add an eastbound left turn lane at the site access, no road improvements are required to accommodate the proposed development.

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1 INTRODUCTION

This Transportation Impact Assessment (TIA) has been prepared by Strik, Baldinelli, Moniz Ltd. (SBM) for 2425290 Ontario Inc. to identify transportation impacts, or a lack thereof, associated with the proposed residential development located at 801 Sarnia Road in London, Ontario. The development is proposed to include a ten-storey apartment building with 182 dwelling units. Vehicular access is proposed from the existing driveway serving 811 Sarnia Road (proposed shared access). The location of the proposed development is illustrated in Figure 1.

Figure 1: Site Location

Aerial Image Source: Google Earth

1.1 SCOPE AND METHODOLOGY

The general scope of the analysis in this study is summarized in Table 1. In accordance with the City of London Transportation Impact Assessment Guidelines (2013), the TIA scope was confirmed with City staff prior to commencing the assessment.

Table 1: Study Scope and Parameters

Study Scope and Parameters	
Analysis Intersections (Study Area)	• Sarnia Road / 811 Sarnia Road Existing Access
Analysis Time Periods	• Weekday AM peak hour • Weekday PM peak hour
Analysis Scenarios (Years)	• Existing Traffic • 2031 Background Traffic • 2031 Total Traffic

The intersection operational analysis has been performed using Synchro 11 software based on the Highway Capacity Manual 2000 (HCM 2000) methodology published by the Transportation Research Board National Research Council.

As per the City's TIA Guidelines, the operational analysis has identified all intersections where:

- the volume to capacity ratio (v/c ratio) for overall operations, through movements, shared through/turning movements increased to 0.9 or above and Level of Service (LOS) E or worse.
- v/c ratios for dedicated turning movements increased to 0.9 or above and LOS E or worse.
- Queues for an individual movement and turning movement projected to exceed available lane storage (95th percentile queue).

Level of Service (LOS) is a function of the average control delay for an entire intersection or an individual movement. The relationships between the LOS letters and average delay ranges are defined in Table 2 for signalized and unsignalized intersections.

Table 2: Vehicular Level of Service Designations

LEVEL OF SERVICE (LOS)	CONTROL DELAY PER VEHICLE (s)	
	SIGNALIZED INTERSECTION	UNSIGNALIZED INTERSECTION
A	≤ 10	≤ 10
B	10 to 20	10 to 15
C	20 to 35	15 to 25
D	35 to 55	25 to 35
E	55 to 80	35 to 50
F	> 80	> 50

2 EXISTING CONDITIONS

2.1 SITE CONTEXT

The subject site is located on the north side of Sarnia Road between 811 Sarnia Road and the Oakcrossing Gate intersection, as shown in Figure 2.

The subject property has an approximate area of 0.68 hectare (6,875m^2) and is bounded by Sarnia Road to the south and east, the CN rail corridor to the north, and a residential development to the west. The existing site is mostly vacant, with a single home near the west limit and a gravel/paved driveway from Sarnia Road.

Figure 2: Site Area

Aerial Image Source: Google Earth

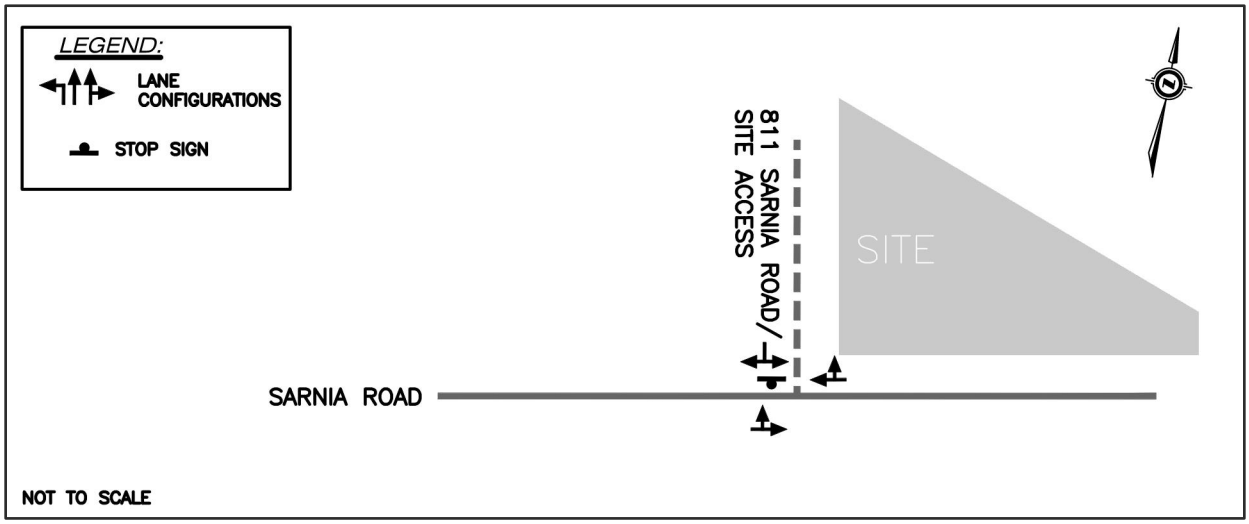
2.2 EXISTING ROAD NETWORK

A site visit was conducted on October 30th, 2024, to review current road and intersection conditions. The existing road network is described below and the existing lane configurations and traffic control are illustrated in Figure 3.

Sarnia Road is an arterial road (Civic Boulevard) running east-west with an urban cross-section (curb and gutter), sidewalks, and bike lanes on both sides. Along the frontage and to the west of the subject site, Sarnia Road is two lanes (single lane per direction), with left turn lanes at intersections. To the east of the site, Sarnia Road transitions to four lanes (two lanes per direction) with a concrete median and left turn lanes at intersections. The posted speed limit is 60 km/h and on-street parking is prohibited.

At the existing access for 811 Sarnia Road, there is a painted median area on Sarnia Road that is approximately 4 m in width. Since this area is not painted as a designated left turn lane, we have considered the existing eastbound condition to be a shared left-through lane, however, it is worth noting that most traffic turning left into 811 Sarnia Road use the median area as a left turn lane.

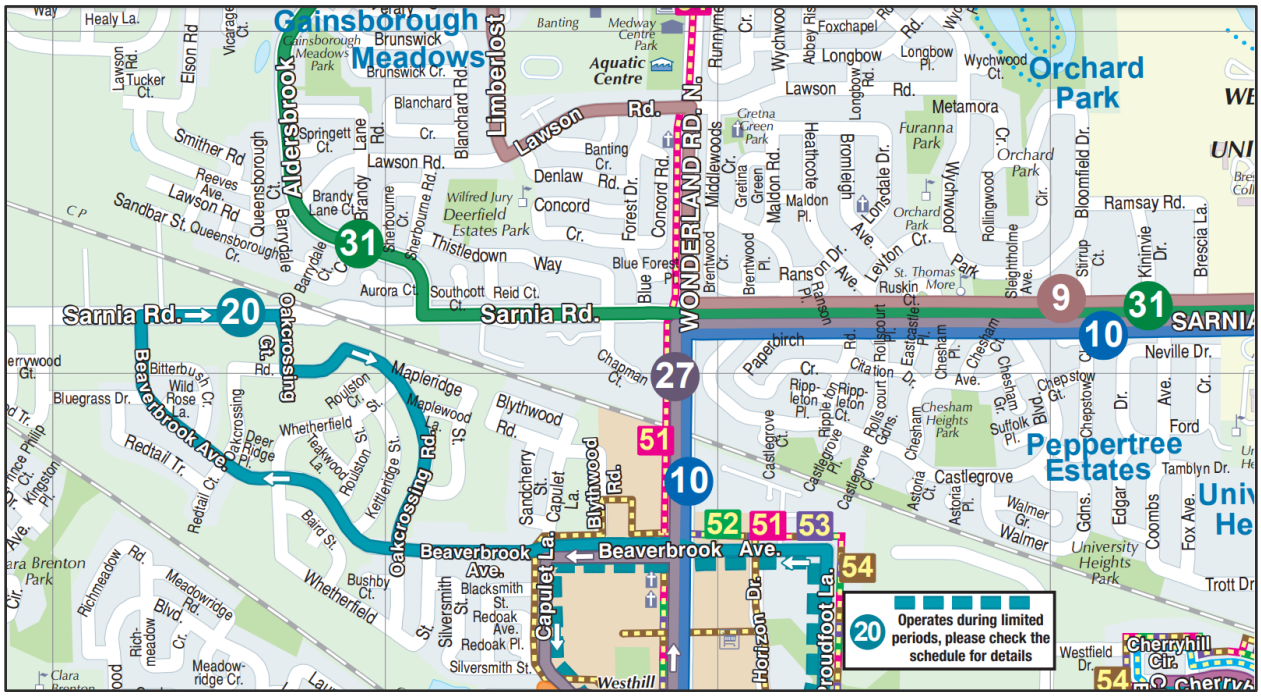
Figure 3: Existing Study Area Traffic Control and Lane Configuration



2.3 EXISTING TRANSIT SERVICES

The study area is currently served by bus routes 20 and 31, however, route 31 is somewhat distanced from the site, as shown in the excerpt from the London Transit Commission (LTC) Ride Guide (service map) in Figure 4.

Figure 4: Transit Service Map



Source: London Transit Commission Ride Guide (June 2024)

The general routes, operating times and headways are summarized as follows:

- **Route 20 Fanshawe College - Beaverbrook** runs east-west along several major road such as Oxford Street, Dundas Street, Beaverbook Ave, and loops around the end of Sarnia Road. Service runs Monday to Friday approximately 6:00 AM to 1:15 AM with 10-15minute headways, Saturdays 6:00 AM to 1:15AM with 10 minute headways, and Sundays 6:30 AM to 11:30 PM with approximately 10 minute headways.
- **Route 31 Alumni Hall – Hyde Park Power Centre** runs east-west along Sania until Aldersbrook and then runs and north-south until Fanshawe Park Road W and loops around. Service runs Monday to Friday approximately 6:00 AM to 10:00 PM with 10-minute headways, Saturdays 8:00 AM to 11:30 PM with 10-15 minute headways, and Sundays 8:30 AM to 8:30 PM with approximately 10-15 minute headways.

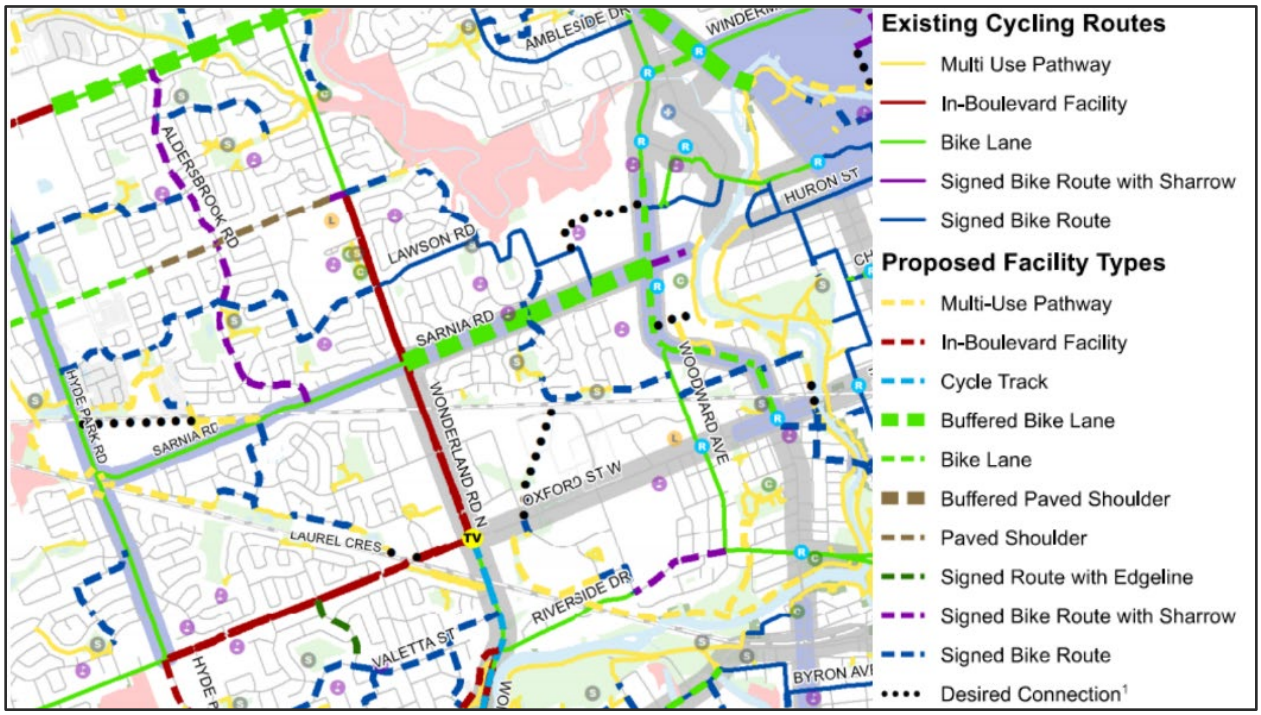
The nearest bus stop on Route 20 is located on the south side of Sarnia Road approximately 180 m west of the site. The nearest bus stop on Route 31 is located on Aldersbrook Road, approximately 480 m from the site.

2.4 ACTIVE TRANSPORTATION FACILITIES

As previously noted, there are existing sidewalks and bike lanes on both sides of Sarnia Road through the study area.

The City of London Cycling Master Plan (MMM Group, September 2016) proposes a multi-use trail along the north side of the subject site (south side of rail corridor) to connect Sarnia Road with the pedestrian bridge that crosses the rail corridor at Harry Geris Park.

Figure 5: Proposed Cycling Facilities from City of London Cycling Master Plan (2016)



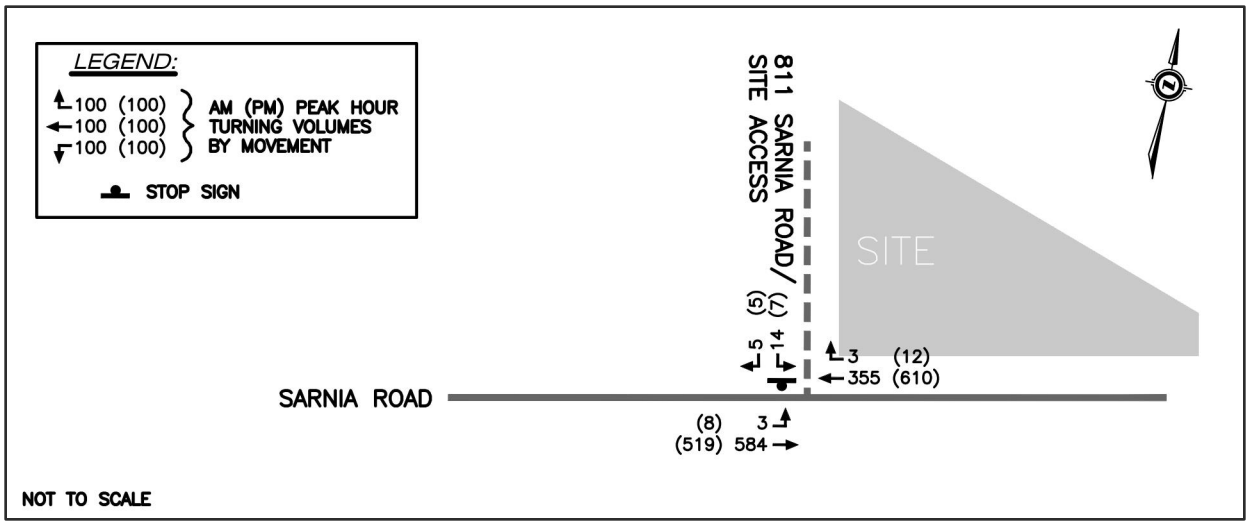
Source: City of London Cycling Master Plan (MMM Group, September 2016)

2.5 EXISTING TRAFFIC VOLUMES

Turning movement counts were undertaken at the 811 Sarnia Road access intersection on Thursday, October 17th, 2024, by Pyramid Traffic Inc. during the AM and PM peak periods. The traffic count data is provided in Appendix A.

The existing peak hour traffic volumes for the study area intersections are illustrated in Figure 6.

Figure 6: Existing Peak Hour Traffic Volumes



2.6 EXISTING TRAFFIC OPERATIONS AND QUEUING

Existing traffic operations were assessed at the 811 Sarnia Road access intersection based on the existing lane configuration and traffic volumes presented in Sections 2.2 and 2.5.

Peak hour factors (PHFs) were calculated from the traffic count data, which are 0.90 for the AM peak hour and 0.96 for the PM peak hour.

Table 3 provides a summary of the existing intersection operations and complete Synchro output reports are provided in Appendix B.

Table 3: Existing Intersection Operations Summary

INTERSECTIONS / MOVEMENTS		EXISTING TRAFFIC			
		AM PEAK HOUR		PM PEAK HOUR	
		V/C	LOS (DELAY)	V/C	LOS (DELAY)
Sarnia Road and 811 Sarnia Road Access	EB LT	0.00	A	0.01	A
	WB TR	0.23	A	0.38	A
	SB LR	0.07	C	0.04	C

Notes: V/C - Volume to Capacity Ratio, LOS – Level of Service, Delay = Average Delay in Seconds
EB – Eastbound, WB – Westbound, NB – Northbound, SB - Southbound
L – Left, T – Through, R – Right

From the results shown, it can be seen that the 811 Sarnia Road access intersection is operating well during the peak hours with all movements at v/c ratios of 0.38 or lower and LOS C or better.

Queuing results were also reviewed by looking at the 95th percentile queue length from the Synchro analysis. The results are summarized in Table 4.

Table 4: Existing Intersection Queuing

INTERSECTIONS / MOVEMENTS		AVAILABLE STORAGE (m)	95th PERCENTILE QUEUE (m) EXISTING TRAFFIC	
			AM	PM
Sarnia Road and 811 Sarnia Road Access	EB L	-	0	0
	WB RT	-	0	0
	SB LR	-	5	5

Notes: EB – Eastbound, WB – Westbound, NB – Northbound, SB - Southbound
L – Left, T – Through, R – Right
Queue lengths that were less than 5 m have been rounded up to 5 m to represent a minimum of one car length.

As shown in Table 4, there are no queuing concerns at the 811 Sarnia Road access intersection.

3 FUTURE BACKGROUND TRAFFIC

Future background traffic includes existing traffic with a general growth rate applied, plus traffic anticipated to be generated from other developments within or surrounding the study area. For the purposes of this assessment, it is assumed that the proposed development will be constructed in 2026, therefore a 2031 horizon year was selected for future traffic projections and analysis.

3.1 BACKGROUND GROWTH RATE

A background growth rate of 2% per annum has been used. The background growth rate was applied to the through movements on Sarnia Road.

3.2 BACKGROUND DEVELOPMENT TRAFFIC

There are no planned developments in the area to be taken into consideration for the future background traffic forecast.

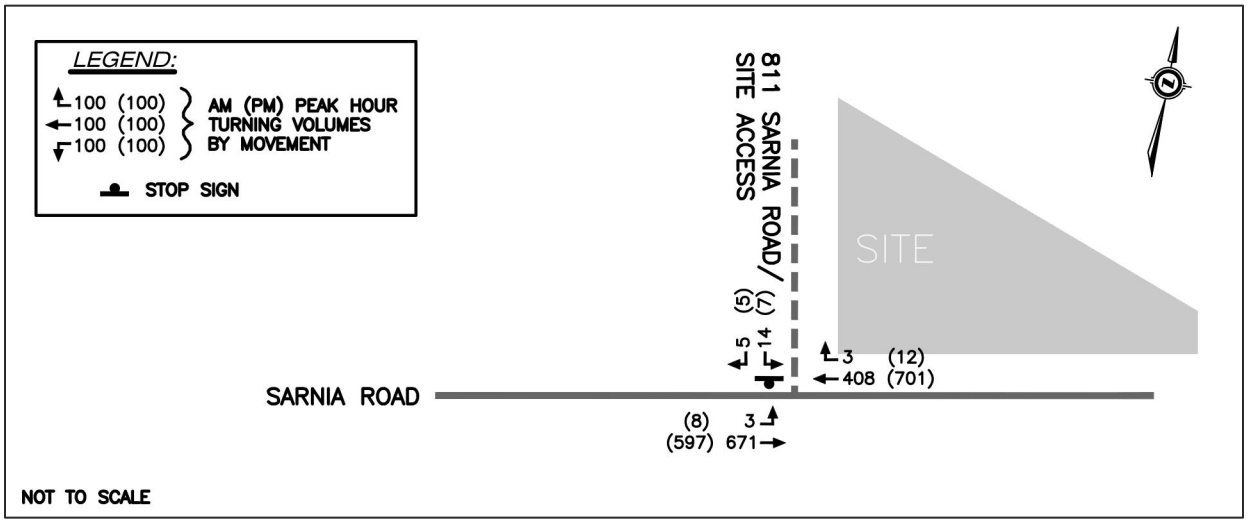
3.3 FUTURE ROAD NETWORK

No future road work is planned within the study area that would alter the lane configuration, therefore the existing lane configuration has been used for analysis of future conditions.

3.4 2031 BACKGROUND TRAFFIC VOLUMES

Combining the background growth rate applied to the existing traffic and the traffic from the background development discussed in 3.2, the resulting 2031 background traffic volumes for the AM and PM peak hours are presented in Figure 7.

Figure 7: 2031 Background Traffic Volumes

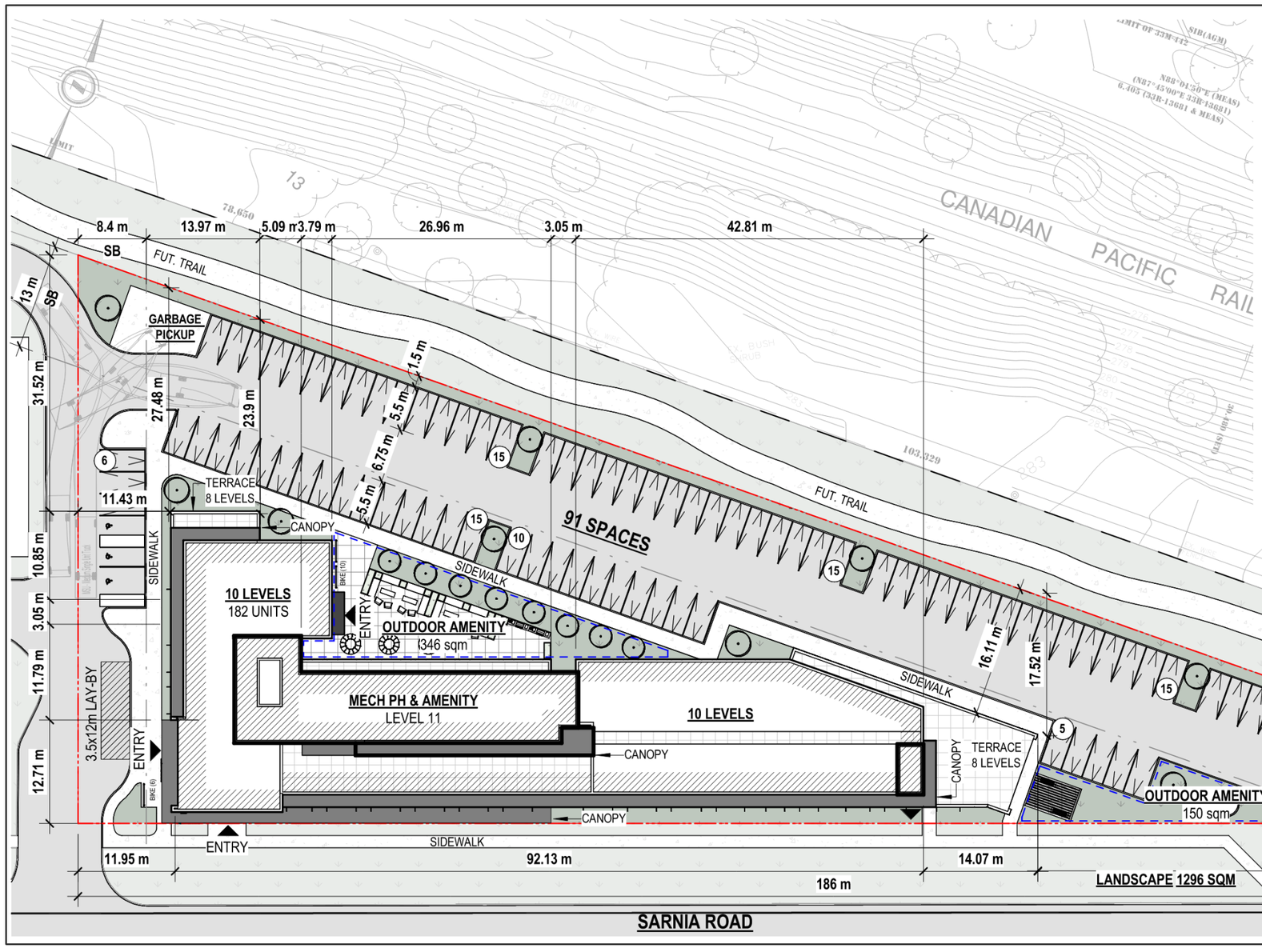


4 PROPOSED DEVELOPMENT

4.1 DEVELOPMENT PLAN

The development is proposed to include a ten-storey building with 182 apartment units. A cropped version of the Site Plan by Zedd Architecture (September 10, 2024) is provided in Figure 8 and the full version of the drawing is included in Appendix C. As shown, vehicular access to the development will be provided by the existing driveway serving 811 Sarnia Road. There is a second access proposed to connect to Sarnia Road at the east end of the site, however, it will only be for emergency access and will not be open for regular use.

Figure 8: Site Plan



Site Development Stats

801 SARNIA RD

	ITEM	REQUIRED	PROPOSED
1	ZONE - PROPOSED BUILDING PERMITTED USES		
2	LOT AREA		6,875 sqm (0.68 ha)
3	LOT FRONTAGE		186 m
4	FRONT YARD SETBACK		1.4m - 2.0 m
5	EXTERIOR SIDEYARD SETBACK (MINIMUM)		8.4 m
6	REAR YARD DEPTH (MINIMUM)		13 m
7	INTERIOR SIDEYARD DEPTH (MINIMUM)		36 m
8	LANDSCAPE OPEN SPACE (% MINIMUM)		1,125 sqm (17%)
9	COVERAGE (% MAXIMUM)		2,125 sqm (31%)
10	HEIGHT (M MAXIMUM)		35.8 m
11	DENSITY (UPH MAXIMUM)		245 uph (182 units)
12	OUTDOOR AMENITY		650 sqm
13	RESIDENTIAL PARKING		91 spaces (1:0.5)
14	RESIDENTIAL BIKE PARKING		166 Long Term 17 Short Term
15	RESIDENTIAL BIKE PARKING		16 Short Term
16	TOTAL PARKING		91

4.2 SITE TRAFFIC GENERATION AND DISTRIBUTION

Site generated traffic volumes from the proposed development have been estimated based on trip rate information contained in the ITE *Trip Generation Manual 11th Edition* (ITE September 2021). The "Multifamily Housing (Mid-Rise)" (Land Use Code 221) land use was used for the trip generation estimates. The resulting trip generation estimates for the development are summarized in Table 5.

No adjustments for non-auto mode trips have been applied, so the vehicular site traffic is considered to be a conservative estimate.

Table 5: Trip Generation Summary

ITE LAND USE DESCRIPTION	Units	AM PEAK HOUR TRIPS			PM PEAK HOUR TRIPS		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Multifamily Housing (Mid-Rise) (Land Use Code 221)	182	16	52	68	43	28	71

As shown in Table 5, the new trip generation for the proposed development is forecast to be 68 and 71 trips in the AM and PM peak hours, respectively.

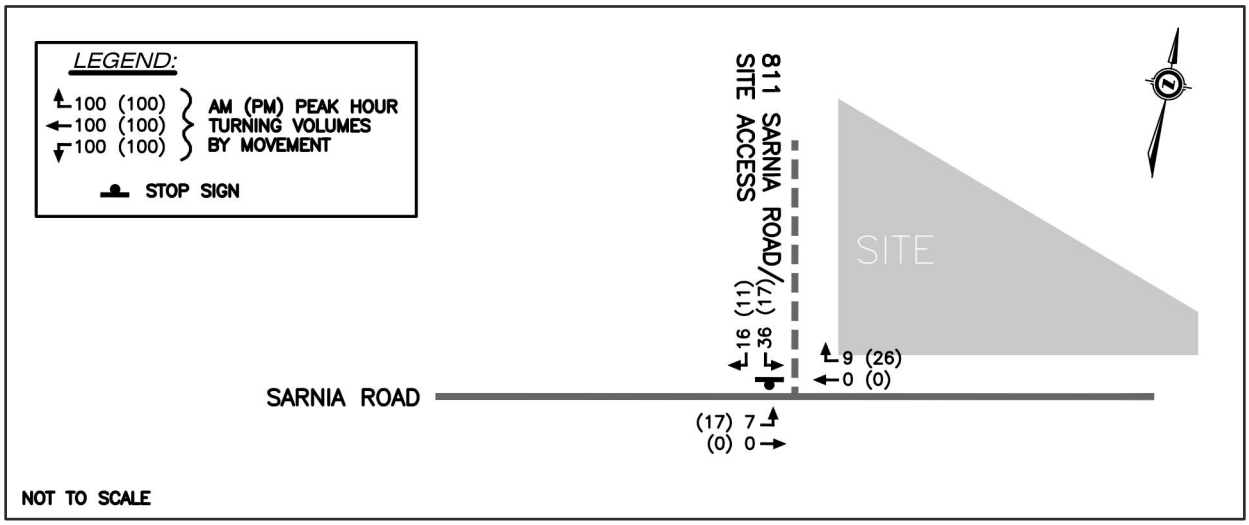
The assumed distribution of site traffic has been determined based on a combination of the existing turning movements in the study area and expected origins/destinations. Table 6 summarizes the trip distribution applied to the site traffic.

Table 6: Trip Distribution Summary

		AM PEAK HOUR		PM PEAK HOUR	
DIRECTION TO / FROM	VIA	IN	OUT	IN	OUT
East	Sarnia Road	55%	30%	60%	60%
West	Sarnia Road	45%	70%	40%	40%
	Total	100%	100%	100%	100%

Applying the above distribution, the resulting site traffic within the study area from the proposed development is illustrated in Figure 9.

Figure 9: Site Traffic



4.3 SITE PLAN REVIEW AND ACCESS CONSIDERATIONS

4.3.1 SITE ACCESS

The existing site access for 811 Sarnia Road will be shared as the primary entrance for the proposed development located at 801 Sarnia Road. There are no conflicts with existing driveways and the sight distance along Sarnia Road is over 220 m in both directions, which is exceeds the minimum intersection sight distance recommended by the Transportation Association of Canada (i.e. 150 m for a 70 km/h design speed).

The 811 Sarnia Road access driveway, once shared by the subject site, will accommodate a lay-by along the east side of the driveway for the proposed apartment building and have the connection to the main parking area at the north end of the driveway, approximately 65 m north of Sarnia Road.

As mentioned previously, an emergency access will be provided at the east end of the site, but this will be strictly for emergency use and will be closed to regular traffic.

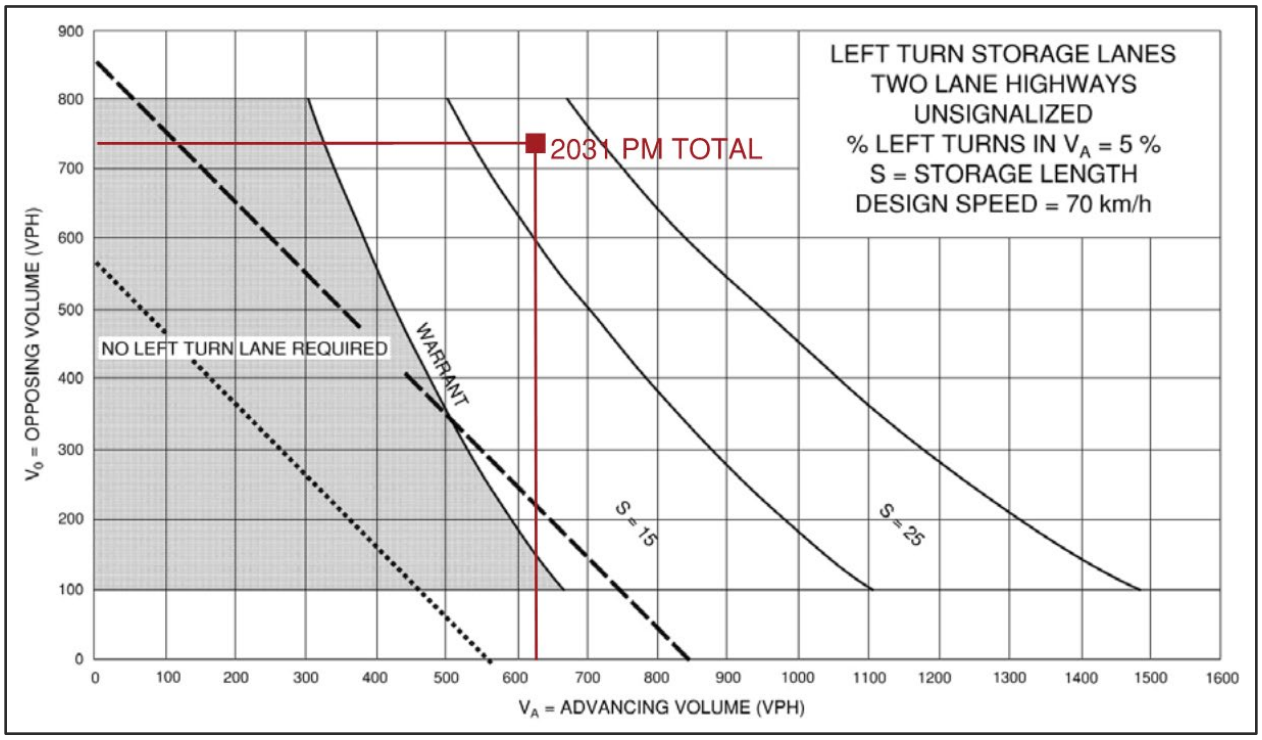
4.3.2 LEFT TURN LANE WARRANTS

Left turn lane requirements for the existing/proposed site access were reviewed based on the left turn lane warrant graphs from the *Ministry of Transportation Design Supplement for the TAC Geometric Design Guide for Canadian Roads, June 2017* (MTO Design Supplement). For an undivided two lane road, the warrant is based on the hourly percentage of left turning vehicles, the advancing traffic volume and the volume of opposing traffic.

The existing left turn volumes represent less than 2% of the eastbound advancing volumes (and are not expected to increase with future background traffic growth), therefore a left turn lane is not warranted under existing or 2031 background traffic conditions.

Looking at the combination of site traffic and 2031 background traffic (i.e. the 2031 total traffic, as presented in Section 5), the advancing and opposing volumes can be plotted on the warrant graph for a 5% left turns condition at a design speed of 70 km/h. The warrant graph is shown in Figure 10 for the PM peak hour (heaviest left turn and through volumes).

Figure 10: Left Turn Lane Warrant Analysis for Existing Site Access



Based on the warrant graph, a left turn lane will be warranted with a storage length of 25 meters, therefore, it is recommended that the pavement markings on Sarnia Road at the 811 Sarnia Road access be adjusted to provide a designated eastbound left turn lane once the 801 Sarnia Road development is constructed.

4.3.3 TRAFFIC SIGNAL WARRANT

Traffic signal warrant analysis was also undertaken for the 811 Sarnia Road access intersection to determine if traffic signals may be warranted under future traffic conditions at this location. The analysis was based on the Ontario Traffic Manual Book 12 Justification 7 for Projected Volumes. Justification 7 uses the peak hour traffic volumes, and in the case of forecast volumes at an existing intersection, it requires that 120% of the warrant threshold be met to satisfy the warrant. It was concluded that traffic signals are not warranted under the future conditions. For the 2031 total traffic, the warrant is only 27% met. The signal warrant analysis sheet is contained in Appendix D.

4.3.4 PEDESTRIAN CONNECTIONS

The proposed site plan should provide good pedestrian access with multiple connections between the building, parking areas, and the municipal sidewalk on Sarnia Road. Direct access to the future multi-use trail immediately north of the site will also be provided.

4.4 TRANSPORTATION DEMAND MANAGEMENT (TDM)

Transportation Demand Management (TDM) refers to strategies for increasing the efficiency of the transportation network, most often by reducing the number of single-occupancy vehicle trips. The primary objectives are usually to encourage people to change modes of transportation (e.g. walking,

cycling, or transit), travel less (e.g. work from home, combine trips when possible, etc.) or change trip times (i.e. avoid peak hours).

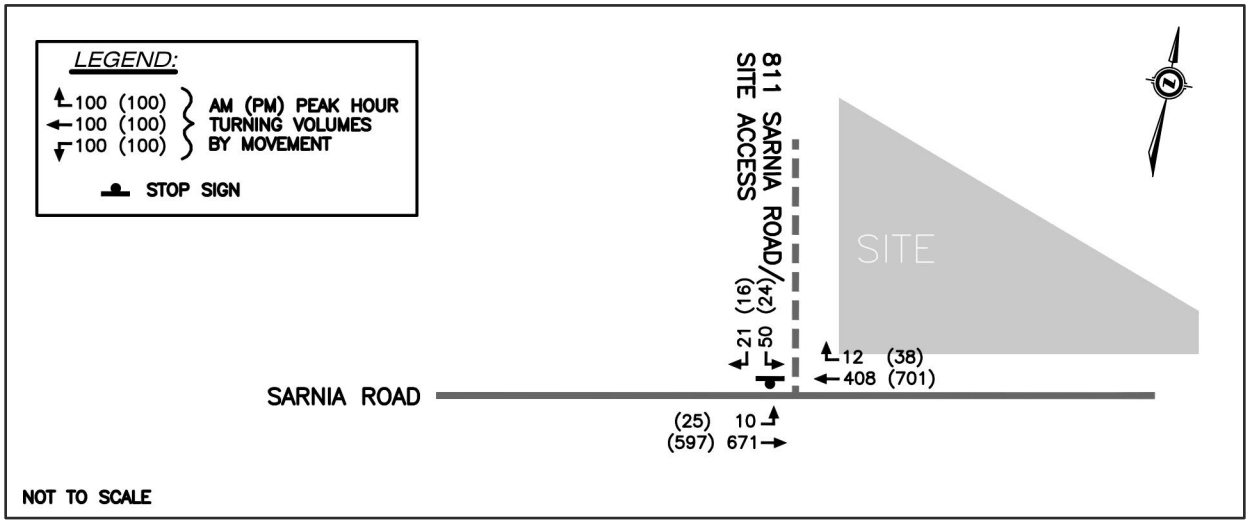
The proposed development supports TDM strategies in the following ways:

- Appropriate parking provisions (i.e. not over-supplied) for the proposed use will promote the use of alternative modes.
- Connections to the public sidewalk network encouraging active transportation and nearby transit access.
- The site is located on existing and planned cycling routes which should promote cycling trips.

5 FUTURE TOTAL TRAFFIC

The future total traffic is determined by combining the development traffic (site traffic) from Section 4.2 with the future background traffic from Section 3.4. The resulting 2031 total traffic volumes for the weekday AM and PM peak hours are shown in Figure 11.

Figure 11: 2031 Total Traffic Volumes



6 FUTURE TRAFFIC OPERATIONAL ANALYSIS

Intersection operations were re-assessed for future background and total traffic conditions. The results of the future conditions analysis are summarized in Table 7. Detailed Synchro reports for the future background traffic and future total traffic are available in Appendix D and Appendix E, respectively.

Table 7: 2031 Intersection Operations Summary

INTERSECTIONS / MOVEMENTS		2031 BACKGROUND				2031 TOTAL			
		AM PEAK HOUR		PM PEAK HOUR		AM PEAK HOUR		PM PEAK HOUR	
		V/C	LOS (DELAY)	V/C	LOS (DELAY)	V/C	LOS (DELAY)	V/C	LOS (DELAY)
Sarnia Road and 811 Sarnia Road / Site Access	EB LT	0.00	A	0.01	A	0.01	A	0.03	A
	WB RT	0.27	A	0.44	A	0.27	A	0.45	A
	SB LR	0.09	C	0.06	C	0.32	D	0.21	D

Notes: V/C - Volume to Capacity Ratio, LOS – Level of Service
EB – Eastbound, WB – Westbound, NB – Northbound, SB - Southbound
L – Left, T – Through, R – Right, U – U-Turn

As shown in the results above, the 811 Sarnia Road access intersection will continue to function acceptably under future background and total traffic conditions. The Sarnia Road movements will operate at LOS A and the southbound (exiting) movement at the site access will operate at a v/c of 0.32 (or lower) and LOS D during the 2031 Total AM peak hour.

Queuing results for the 2031 background and total traffic conditions were also reviewed from the Synchro analysis and the results are presented in Table 8.

Table 8: 2031 Intersection Queuing Summary

INTERSECTIONS / MOVEMENTS		AVAILABLE STORAGE (m)	95th PERCENTILE QUEUE (m)			
			2031 BACKGROUND		2031 TOTAL	
			AM	PM	AM	PM
Sarnia Road and 811 Sarnia Road /Site Access	EB LT	-	0	0	0	5
	WB RT	-	0	0	0	0
	SB LR	-	5	5	10	6

Notes: EB – Eastbound, WB – Westbound, NB – Northbound, SB - Southbound
L – Left, T – Through, R – Right
Queue lengths that were less than 5 m have been rounded up to 5 m to represent a minimum of one car length.

From the results in Table 8, there are no queuing concerns, with the southbound left/right turn queue equating to approximately two vehicles.

7 CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis completed, the following key conclusions and recommendations are made in this TIA:

- It is forecast that the proposed development will generate 68 new trips in the AM peak hour (16 in and 52 out) and 71 trips during the PM peak hour (43 in and 28 out).
- Under existing conditions, the 811 Sarnia Road access intersection is operating well during the peak hours with all movements at v/c ratios of 0.38 or lower and LOS C or better.

- Under 2031 background and total traffic conditions, all movements at the 811 Sarnia Road access intersection will continue to function acceptably, with the southbound movement at a v/c ratio of 0.32 or lower and LOS D.
- The need for a designated left turn lane on Sarnia Road at the 811 Sarnia Road access was reviewed, and a left turn lane is warranted with a storage length of 25 meters under the 2031 total traffic condition. It is recommended that the pavement markings be adjusted to provide a designated left turn lane for the site access when the 801 Sarnia Road development is constructed.
- Traffic signal warrant analysis was also undertaken for the 811 Sarnia Road access intersection to determine if traffic signals may be warranted under future traffic conditions. Based on the analysis, traffic signals will not be warranted for the access intersection (warrants only 27% met).
- The proposed site plan provides good internal and external pedestrian connections, and the site has direct access to existing and planned cycling facilities (i.e. bike lanes on Sarnia Road), which should help promote active transportation trips.
- Overall, the forecasted site traffic should not introduce any operational problems on the surrounding road network. Other than the pavement marking revisions on Sarnia Road to add an eastbound left turn lane at the site access, no road improvements are required to accommodate the proposed development.

8 LIMITATIONS

This Report was prepared by Strik, Baldinelli, Moniz Ltd. (the Consultant) for 2425290 Ontario Inc. and the City of London. Use of this Report by any third party, or any reliance upon its findings, is solely the responsibility of that party. Strik, Baldinelli, Moniz Ltd. accepts no responsibility for damages, if any, suffered by a third party as a result of decisions made or actions undertaken as a result of this Report. Third party use of this Report, without the express written consent of the Consultant, denies any claims, whether in contract, tort, and/or any other cause of action in law, against the Consultant.

All findings and conclusions presented in this Report are based on information as it appeared during the period of the investigation. This Report is not intended to be exhaustive in scope, or to imply a risk-free development. It should be recognized that the passage of time may alter the opinions, conclusions, and/or recommendations provided herein.

The analysis was limited to the documents referenced herein. Strik, Baldinelli, Moniz Ltd. accepts no responsibility for the accuracy of the information provided by others. All opinions, conclusions, and/or recommendations presented in this Report are based on the information available at the time of the review.

Appendix A – Traffic Data

811 Sarnia Rd

Morning Peak Diagram

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

One Hour Peak
From: 7:45:00
To: 8:45:00

Municipality: London
Site #: 0000000001
Intersection: Sarnia Rd & Driveway
TFR File #: 1
Count date: 17-Oct-2024

Weather conditions:
Clear/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

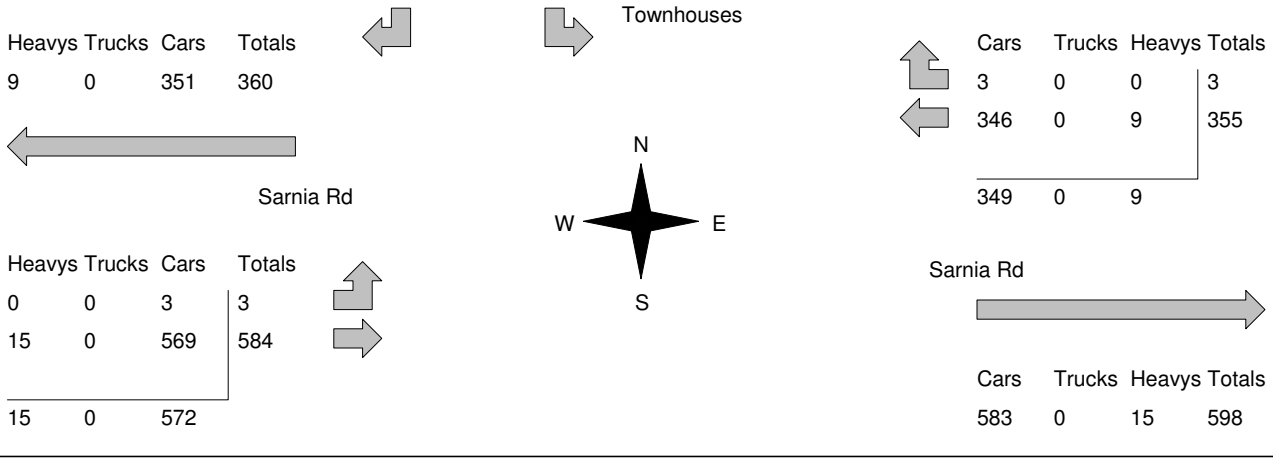
Major Road: Sarnia Rd runs W/E

North Leg Total:	25		
North Entering:	19		
North Peds:	7		
Peds Cross:	⋈		

Heavys	0	0	0
Trucks	0	0	0
Cars	5	14	19
Totals	5	14	

Heavys	0
Trucks	0
Cars	6
Totals	6

East Leg Total:	956
East Entering:	358
East Peds:	0
Peds Cross:	⧖



Peds Cross:	⧖
West Peds:	0
West Entering:	587
West Leg Total:	947

Comments

811 Sarnia Rd

Afternoon Peak Diagram

Specified Period
From: 16:00:00
To: 18:00:00

One Hour Peak
From: 16:15:00
To: 17:15:00

Municipality: London
Site #: 0000000001
Intersection: Sarnia Rd & Driveway
TFR File #: 1
Count date: 17-Oct-2024

Weather conditions:
Clear/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: Sarnia Rd runs W/E

North Leg Total: 32
North Entering: 12
North Peds: 20
Peds Cross: ⋈

Heavys	0	0	0
Trucks	0	0	0
Cars	5	7	12
Totals	5	7	

Heavys	0
Trucks	0
Cars	20
Totals	20

East Leg Total: 1148
East Entering: 622
East Peds: 3
Peds Cross: ⧖

Townhouses

Heavys	Trucks	Cars	Totals
5	0	610	615

Cars	Trucks	Heavys	Totals
12	0	0	12
605	0	5	610
617	0	5	

Sarnia Rd

N
W E
S

Heavys	Trucks	Cars	Totals
0	0	8	8
10	0	509	519
10	0	517	

Sarnia Rd

Cars	Trucks	Heavys	Totals
516	0	10	526

Peds Cross: ⧖
West Peds: 1
West Entering: 527
West Leg Total: 1142

Comments

811 Sarnia Rd

Total Count Diagram

Municipality: London
Site #: 0000000001
Intersection: Sarnia Rd & Driveway
TFR File #: 1
Count date: 17-Oct-2024

Weather conditions:
Clear/Dry

Person(s) who counted:
Pyramid Traffic Inc

**** Non-Signalized Intersection ****

Major Road: Sarnia Rd runs W/E

North Leg Total: 105
North Entering: 53
North Peds: 41
Peds Cross: ⋈

Heavys	0	0	0
Trucks	0	0	0
Cars	17	36	53
Totals	17	36	

Heavys	0
Trucks	0
Cars	52
Totals	52

East Leg Total: 3955
East Entering: 1861
East Peds: 3
Peds Cross: ⧖

Townhouses

Heavys	Trucks	Cars	Totals
25	0	1820	1845

Cars	Trucks	Heavys	Totals
33	0	0	33
1803	0	25	1828
1836	0	25	

Sarnia Rd

N
W E
S

Heavys	Trucks	Cars	Totals
0	0	19	19
48	0	2010	2058
48	0	2029	

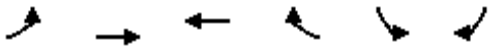
Sarnia Rd

Cars	Trucks	Heavys	Totals
2046	0	48	2094

Peds Cross: ⧖
West Peds: 1
West Entering: 2077
West Leg Total: 3922

Comments

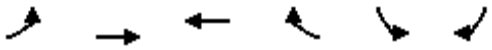
Appendix B – Synchro Output Reports - Existing Traffic



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	584	355	3	14	5
Future Volume (Veh/h)	3	584	355	3	14	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	3	649	394	3	16	6
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	397				1050	396
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	397				1050	396
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				94	99
cM capacity (veh/h)	1173				253	658

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	652	397	22
Volume Left	3	0	16
Volume Right	0	3	6
cSH	1173	1700	304
Volume to Capacity	0.00	0.23	0.07
Queue Length 95th (m)	0.1	0.0	1.8
Control Delay (s)	0.1	0.0	17.8
Lane LOS	A		C
Approach Delay (s)	0.1	0.0	17.8
Approach LOS			C

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	43.1%	ICU Level of Service	A
Analysis Period (min)	15		

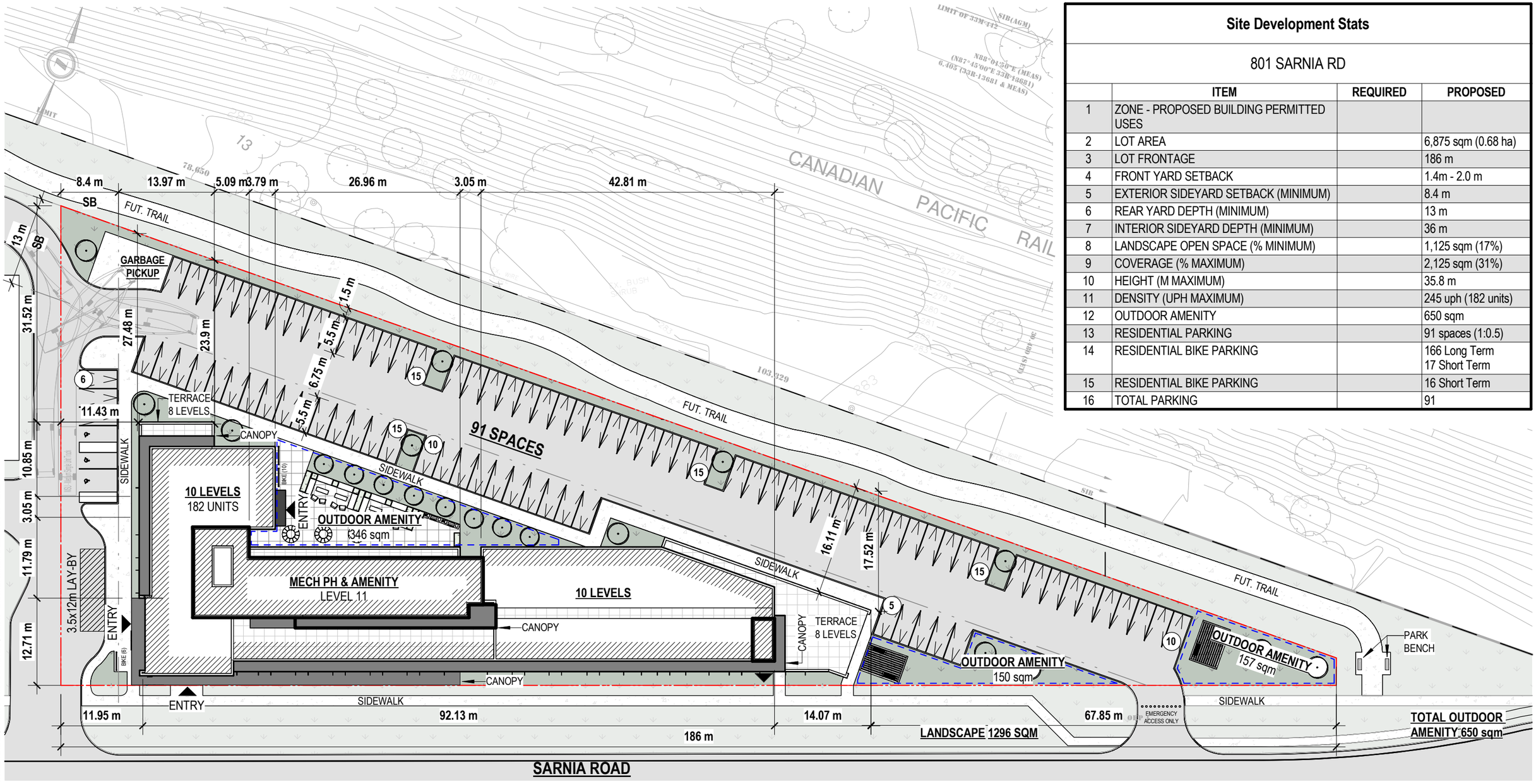


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	519	610	12	7	5
Future Volume (Veh/h)	8	519	610	12	7	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	8	541	635	12	7	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	647				1198	641
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	647				1198	641
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	99
cM capacity (veh/h)	948				205	478

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	549	647	12
Volume Left	8	0	7
Volume Right	0	12	5
cSH	948	1700	269
Volume to Capacity	0.01	0.38	0.04
Queue Length 95th (m)	0.2	0.0	1.1
Control Delay (s)	0.2	0.0	19.0
Lane LOS	A		C
Approach Delay (s)	0.2	0.0	19.0
Approach LOS			C

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	43.7%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix C – Site Plan



Site Development Stats

801 SARNIA RD

	ITEM	REQUIRED	PROPOSED
1	ZONE - PROPOSED BUILDING PERMITTED USES		
2	LOT AREA		6,875 sqm (0.68 ha)
3	LOT FRONTAGE		186 m
4	FRONT YARD SETBACK		1.4m - 2.0 m
5	EXTERIOR SIDEYARD SETBACK (MINIMUM)		8.4 m
6	REAR YARD DEPTH (MINIMUM)		13 m
7	INTERIOR SIDEYARD DEPTH (MINIMUM)		36 m
8	LANDSCAPE OPEN SPACE (% MINIMUM)		1,125 sqm (17%)
9	COVERAGE (% MAXIMUM)		2,125 sqm (31%)
10	HEIGHT (M MAXIMUM)		35.8 m
11	DENSITY (UPH MAXIMUM)		245 uph (182 units)
12	OUTDOOR AMENITY		650 sqm
13	RESIDENTIAL PARKING		91 spaces (1:0.5)
14	RESIDENTIAL BIKE PARKING		166 Long Term 17 Short Term
15	RESIDENTIAL BIKE PARKING		16 Short Term
16	TOTAL PARKING		91

Scale : 1 : 550

zedd ARCHITECTURE
Z-627 maitland street london ontario N5Y 2V7 519 518 9333
www.zeddarchitecture.com info@zeddarchitecture.com

2024-09-10 2:04:16 PM File: C:\Users\mmendez\Documents\Revit Local Files\22-017 - 801 SARNIA RPH_ 08-2024 Option B_mmendez7H3AN.rvt

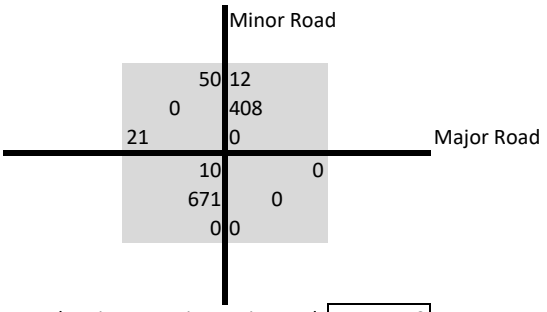
Appendix D – Signal Warrant Analysis

TRAFFIC SIGNAL WARRANT ANALYSIS - PROJECTED VOLUMES

Analysis Year/Condition: 2031 Total AM/PM Location: Sarnia Road/ 811 Sarnia Road Access

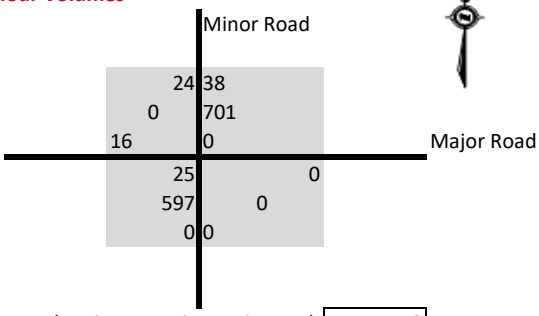
Scenario: Existing Intersection with Future Traffic
Main Road Direction: East / West Number of Lanes on Main Road: 1
Tee Intersection?: Yes Flow Condition: Restricted Flow (Urban)

AM Peak Hour Volumes



Pedestrians crossing Main Road: 0

PM Peak Hour Volumes



Pedestrians crossing Main Road: 0

Ontario Traffic Manual Book 12 - Justification 7 - Projected Volumes:

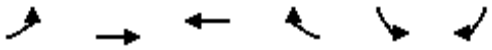
		Lane Condition	1 Lanes		2 or More Lanes		Percent Fullfilled	Minimum Requirement	Signals Warranted?
		Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW			
Justification 1: Minimum Vehicular Volume	1A (All Approaches)	Volume Requirement	480	720	600	900	89%	120%	NO
				x					
		Average Hourly Volume		643					
	1B (Minor Street Approaches)	Volume Requirement	180	255	180	255	11%	120%	
				x					
		Average Hourly Volume		28					

		Lane Condition	1 Lanes		2 or More Lanes		Percent Fullfilled	Minimum Requirement	Signals Warranted?
		Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW			
Justification 2: Delay to Cross Traffic	2A (Main Road Approaches)	Volume Requirement	480	720	600	900	86%	120%	NO
				x					
		Average Hourly Volume		616					
	2B (Traffic Crossing Main Road)	Volume Requirement	50	75	50	75	27%	120%	
				x					
		Average Hourly Volume		20					

Results
Traffic signals are not warranted.

Project: SBM-24-1998

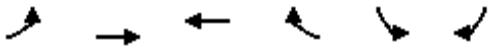
Appendix E – Synchro Output Reports - 2031 Background Traffic



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	671	408	3	14	5
Future Volume (Veh/h)	3	671	408	3	14	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	3	746	453	3	16	6
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	456				1206	454
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	456				1206	454
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				92	99
cM capacity (veh/h)	1115				204	610

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	749	456	22
Volume Left	3	0	16
Volume Right	0	3	6
cSH	1115	1700	249
Volume to Capacity	0.00	0.27	0.09
Queue Length 95th (m)	0.1	0.0	2.2
Control Delay (s)	0.1	0.0	20.8
Lane LOS	A		C
Approach Delay (s)	0.1	0.0	20.8
Approach LOS			C

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	47.7%	ICU Level of Service	A
Analysis Period (min)	15		

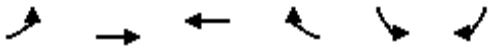


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	597	701	12	7	5
Future Volume (Veh/h)	8	597	701	12	7	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	8	622	730	12	7	5
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	742				1374	736
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	742				1374	736
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				96	99
cM capacity (veh/h)	874				161	422

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	630	742	12
Volume Left	8	0	7
Volume Right	0	12	5
cSH	874	1700	216
Volume to Capacity	0.01	0.44	0.06
Queue Length 95th (m)	0.2	0.0	1.3
Control Delay (s)	0.2	0.0	22.6
Lane LOS	A		C
Approach Delay (s)	0.2	0.0	22.6
Approach LOS			C

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	47.8%	ICU Level of Service	A
Analysis Period (min)	15		

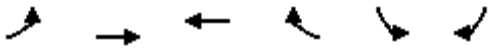
Appendix F – Synchro Output Reports - 2031 Total Traffic



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	671	408	12	50	21
Future Volume (Veh/h)	10	671	408	12	50	21
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	746	453	13	56	23
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	466				1228	460
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	466				1228	460
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				72	96
cM capacity (veh/h)	1106				197	606

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	757	466	79
Volume Left	11	0	56
Volume Right	0	13	23
cSH	1106	1700	245
Volume to Capacity	0.01	0.27	0.32
Queue Length 95th (m)	0.2	0.0	10.2
Control Delay (s)	0.3	0.0	26.6
Lane LOS	A		D
Approach Delay (s)	0.3	0.0	26.6
Approach LOS			D

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	597	701	38	24	16
Future Volume (Veh/h)	25	597	701	38	24	16
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)	26	622	730	40	25	17
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	770				1424	750
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	770				1424	750
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				83	96
cM capacity (veh/h)	854				147	415

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	648	770	42
Volume Left	26	0	25
Volume Right	0	40	17
cSH	854	1700	198
Volume to Capacity	0.03	0.45	0.21
Queue Length 95th (m)	0.7	0.0	5.9
Control Delay (s)	0.8	0.0	27.9
Lane LOS	A		D
Approach Delay (s)	0.8	0.0	27.9
Approach LOS			D

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		