



Traffic Impact Study for a New Single-Family
Attached Housing Complex on Atkinson Lane in
New Maryland, NB

Bowers Construction NB Inc.

Type of Document:

Draft Report

Project Number:

FRE-24005971-A0

Prepared By:

Barry Riordon, EIT

Approved By:

Don Good, P. Eng.

EXP

1133 Regent Street

Fredericton, NB

t: +1.506.452.9000

f: +1.506.459.3954

Date Submitted:

2024-05-28

Table of Contents

1	Introduction	3
1.1	Background	3
1.2	Approach	3
1.3	Study Area and Horizon Year	4
2	Existing 2024 Conditions.....	5
2.1	Traffic Volumes	5
2.2	Existing Level of Service	5
3	Horizon Year (2030) Traffic Conditions without Development.....	8
3.1	2030 Traffic Volumes without Development	8
3.2	2030 Level of Service without Development	8
4	Trip Generation and Assignment	10
4.1	Trip Generation	10
4.2	Trip Assignment	10
5	Horizon Year (2030) Traffic Conditions with Development	12
5.1	2030 Level of Service with Development.....	12
5.2	Discussion with NBDTI	13
5.3	Discussion with the Village.....	13
5.4	Recommended Improvements	13
6	Summary of Findings	14
6.1	Existing 2023 Conditions	14
6.2	Future 2030 Conditions without Development	14
6.3	Trip Generation and Assignment	14
6.4	Horizon Year 2030 Conditions with Development.....	14
6.5	Discussion with NBDTI and the Village of New Maryland.....	15
6.6	Discussion with the Village of New Maryland.....	15
6.7	Recommended Improvements	15

Appendix 1 – Site Plan

Appendix 2 – Existing Synchro Output

Appendix 3 – Horizon Year 2030 without Development Synchro Output

Appendix 4 – Horizon Year 2030 with Development Synchro Output

List of Tables

Table 1: Work Plan	4
Table 2: Level of Service Criteria for Intersections ¹	6
Table 3: Operational Analysis Results under Existing 2024 Conditions.....	6
Table 4: Operational Analysis Results under Future 2024 Conditions without Development	9
Table 5: Trip Generation for the New Development.....	10
Table 6: Operational Analysis Results under Future 2030 Conditions with Development	12

List of Figures

Figure 1: Location and Initial Site Plan of the Proposed Development	3
Figure 2: Summary of Existing 2024 Traffic Volumes	5
Figure 3: Summary of Future 2030 Traffic Volumes without Development	8
Figure 4: Trip Assignment.....	11
Figure 5: Summary of Future 2030 Traffic Volumes with Development	11

1 Introduction

1.1 Background

Bowers Construction NB Inc. is in the planning process for the development of a new 2-storey town house development on Atkinson Lane, in New Maryland, NB. The facility comprises ten (10) units and an eight (8) stall parking lot. Access to the parking lot is to be provided via New Maryland Highway (Route 101), while five (5) individual driveways provide direct access to Atkinson Lane. The proposed development is scheduled to be in operation in 2025. Therefore, a 6-year horizon period (2030) is utilized to identify any impacts related to the development.

Figure 1 shows the location and initial site plan layout of the development in relation to the surrounding street network. A larger scale site plan is included in **Appendix 1**.

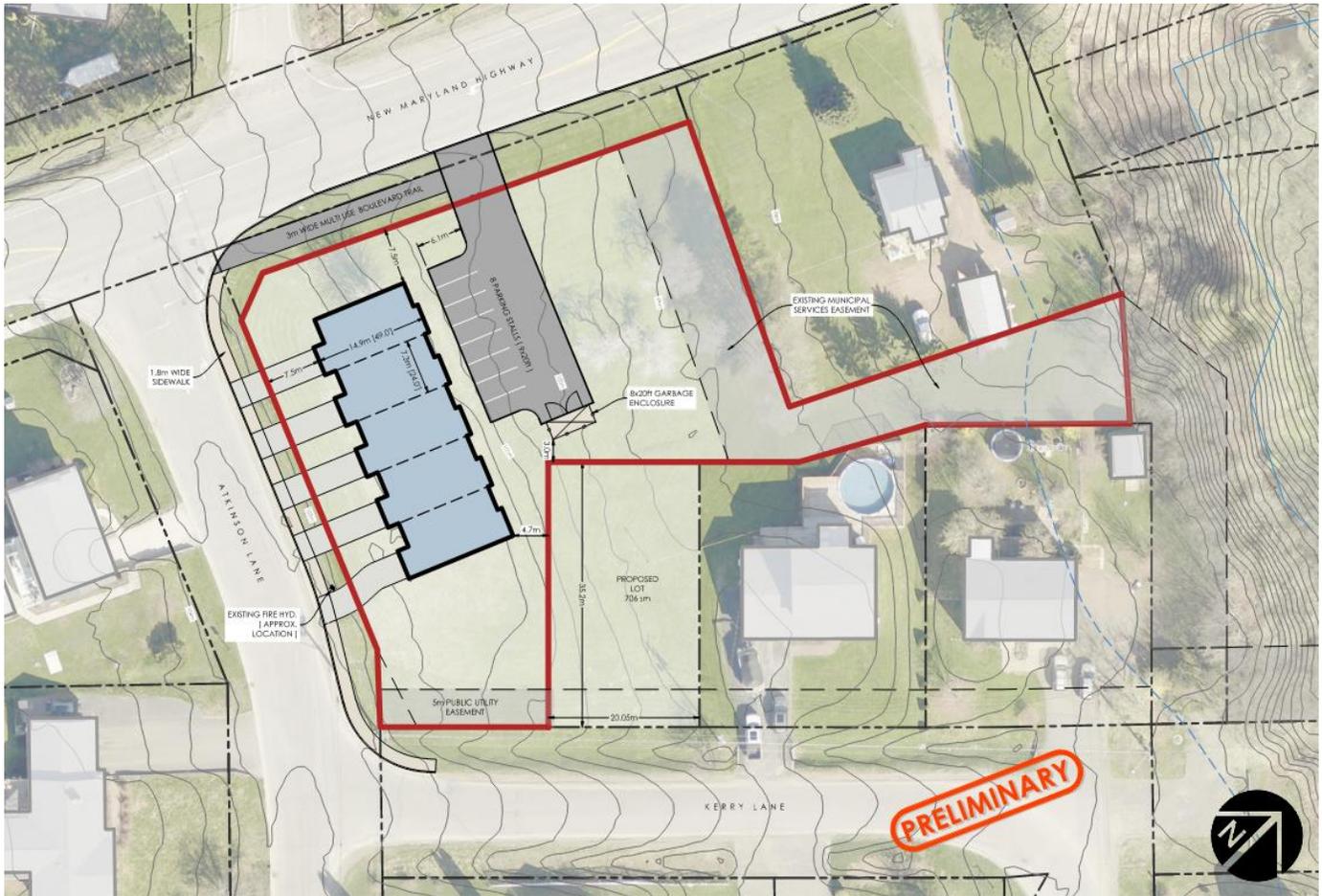


Figure 1: Location and Initial Site Plan of the Proposed Development

1.2 Approach

The objective of this project is to complete a traffic impact study for the proposed development, including the identification of any traffic safety concerns and recommendations to the proposed access points to New Maryland Highway and Atkinson Lane. The work activities summarized in **Table 1** were undertaken to complete the study.

1.3 Study Area and Horizon Year

The Study Area encompasses the proposed access points to the facility and the New Maryland Highway/ Atkinson Lane and New Maryland Highway/ Baker Brook Court intersections. The development is projected to be in operation by 2025, therefore a 2030 horizon year was chosen for the analysis.

Table 1: Work Plan

Task Name	Description
Data Collection	<ul style="list-style-type: none"> Traffic counts were collected at the New Maryland Highway/ Atkinson Lane and New Maryland Highway/ Baker Brook Court stop-controlled intersections using Miovision camera technology. The counts were collected on a typical weekday (Tuesday, May 7, 2024) for the hours of 0700 to 0900, 1100 to 1300 and 1600 to 1800 hours.
Evaluate Existing and Horizon Year Traffic Conditions without Development	<ul style="list-style-type: none"> Based on the counts, existing AM and PM peak traffic operational conditions were determined for the two (2) Study Area intersections using Synchro 11 software. The existing traffic conditions for each of the intersection turning movements were expressed in terms of level of service (LOS), average delay per vehicles, volume to capacity ratio (v/c) and queuing on the intersection approaches. Any existing deficiencies were identified. The existing traffic counts were expanded to represent 2030 traffic volumes (5 years after construction) without the proposed development in place. Traffic operations for 2030 AM and PM peak travel volumes without the development in place, as well as any deficiencies, were determined. This provided the basis for determining any traffic impacts associated with the proposed development. Any roadway improvements that are required to meet existing and future demand without site development were determined and recommendations made.
Evaluate Traffic Conditions with the Proposed Development	<ul style="list-style-type: none"> Based on the proposed concept prepared by Bowers Construction NB Inc., an estimate of trips entering and exiting the proposed development were completed for the AM and PM peak hour travel periods using the Institute of Transportation Engineers trip rates documented in their 11th edition entitled "Trip Generation". The generated trips were assigned to the Study Area intersections based on existing and anticipated future travel patterns to/from the New Maryland Highway. The assignment of trips was based on the proposed facility's access points. A level of service analysis was completed with the proposed development in place and the results were summarized. Any deficiencies attributable to the development were identified and improvement options were selected and evaluated as to their effectiveness. A review was undertaken of the location of the proposed driveways on New Maryland Highway and Atkinson Lane with respect to TAC guidelines relating to driveway access, geometrics and spacing. A discussion was held with NBDTI personnel with respect to the proposed driveway on the New Maryland Highway. Based on the above results a recommendation was made with respect to the provision of access to and from New Maryland Highway and Atkinson Lane.
Provide Report	<ul style="list-style-type: none"> A Draft Report was prepared and submitted for review and comment. Following any comments received, a Final Report will be prepared and submitted.

2 Existing 2024 Conditions

2.1 Traffic Volumes

The existing AM and PM peak hour turning movement traffic volumes for the New Maryland Highway/ Atkinson Lane and New Maryland Highway/ Baker Brook Court intersections are summarized in **Figure 2**.

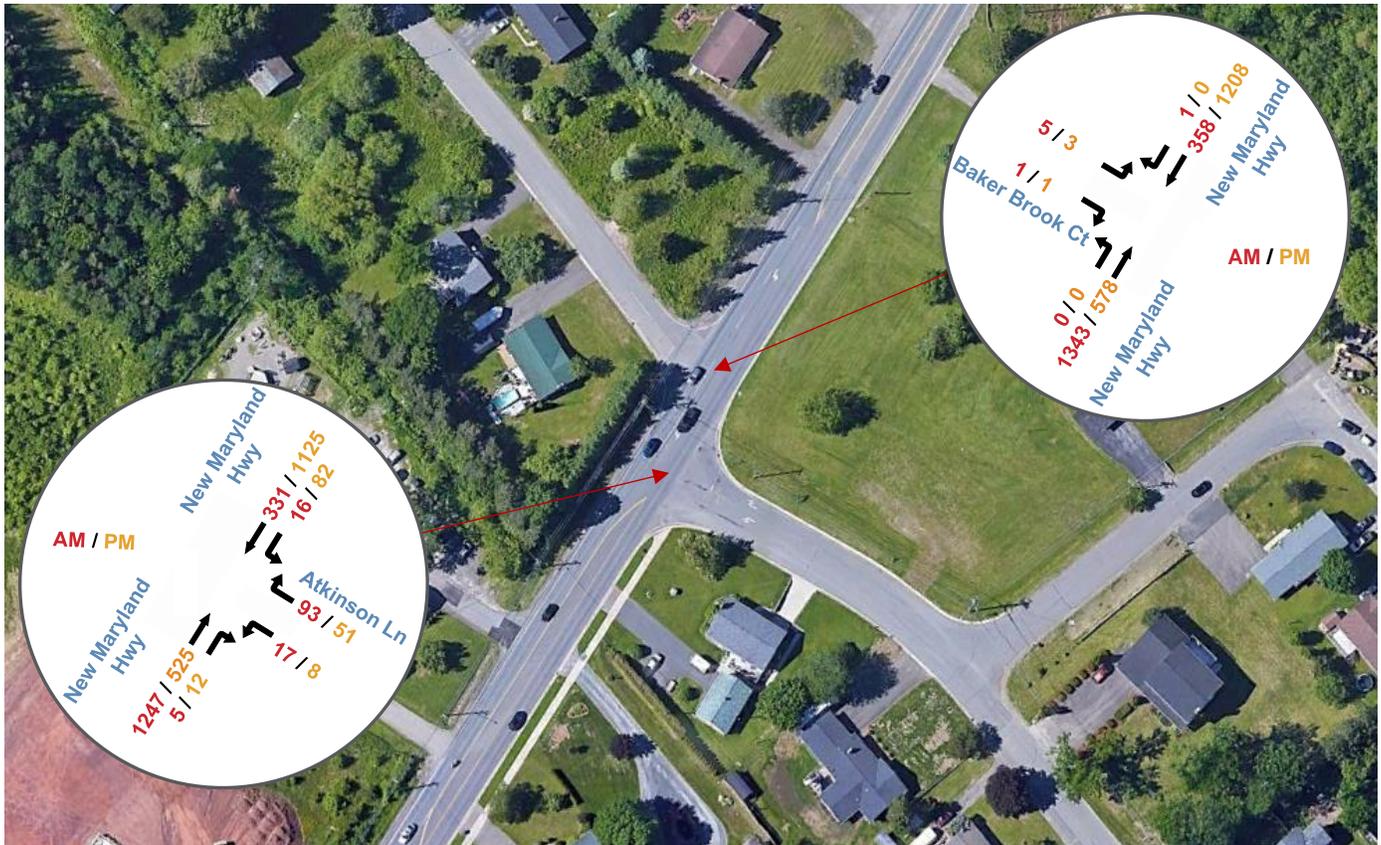


Figure 2: Summary of Existing 2024 Traffic Volumes

2.2 Existing Level of Service

Existing (2024) operational conditions at the New Maryland Highway/ Atkinson Lane and New Maryland Highway/ Baker Brook Court intersections were evaluated using Synchro 11 traffic analysis software (based on existing traffic volumes, road configuration, and traffic control). Key operational measures include level of service (LOS), average delay per vehicle in seconds and volume to capacity (v/c) ratios for the various intersection turning movements. Queuing on the approaches is also identified. Standard LOS criteria for both signalized and stop sign-controlled intersections are shown in **Table 2**.

It is noted that the v/c ratio at signalized intersections is typically considered “acceptable” if it is at or below 0.85 for through movements and 0.90 for exclusive turning movements.

Table 2: Level of Service Criteria for Intersections¹

LOS	Signalized Intersections Control Delay (sec/veh)	LOS Description	Stop Controlled Intersections Control Delay (sec/veh)
A	less than 10.0	Very low delay; most vehicles do not stop (Excellent)	less than 10.0
B	between 10.0 and 20.0	Higher delay; more vehicles stop (Very Good)	between 10.0 and 15.0
C	between 20.0 and 35.0	Higher level of congestion; number of vehicles stopping is significant, although many still pass through intersection without stopping (Good)	between 15.0 and 25.0
D	between 35.0 and 55.0	Congestion becomes noticeable; vehicles must sometimes wait through more than one red light; many vehicles stop (Satisfactory)	between 25.0 and 35.0
E	between 55.0 and 80.0	Vehicles must often wait through more than one red light; considered by many agencies to be the limit of acceptable delay (Acceptable)	between 35.0 and 50.0
F	greater than 80.0	Considered to be unacceptable to most drivers; occurs when arrival flow rates exceed the capacity of the intersection (Unacceptable)	greater than 50.0 ¹

Table 3 summarizes the existing (2024) AM and PM peak hour levels of service for the various turn movements at the New Maryland Highway/ Atkinson Lane and New Maryland Highway/ Baker Brook Court intersections. The Synchro outputs are included in **Appendix 2**.

Table 3: Operational Analysis Results under Existing 2024 Conditions

Scenario	Intersection	Traffic Control	Peak Hour	Overall LOS & Delay (sec/veh)	Criteria	Atkinson Lane			New Maryland Highway			New Maryland Highway							
						EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Existing	1. New Maryland Hwy/ Atkinson Ln		AM	4.4 A	V/C				0.41		0.59				0.05				
					Delay (s/veh)				70.7		47.1		Free	Shared	12.2	Free			
					LOS				F		E		Flow		B	Flow			
							Queue (m)				11		23			1			
			PM	1.4 A	V/C				0.22		0.15					0.10			
					Delay (s/veh)				87.8		13.5		Free	Shared	9.2	Free			
LOS						F		B		Flow		A	Flow						
				Queue (m)				5		4			2						
Existing	2. New Maryland Hwy/ Baker Brook Ct		AM	0.6 A	V/C	0.23													
					Delay (s/veh)	57.6							0	Free			Free	Shared	
					LOS	F							A	Flow			Flow		
							Queue (m)	6											
			PM	0.4 A	V/C	0.16													
					Delay (s/veh)	58.8							0	Free			Free	Shared	
LOS	F									A	Flow			Flow					
				Queue (m)	4														

The results of the traffic operations show that, under **existing conditions**, the New Maryland Highway/ Atkinson Lane and New Maryland Highway/ Baker Brook Court intersections are operating at an overall excellent LOS A during both peak periods. All individual movements on New Maryland Highway are operating at LOS A with v/c ratios of 0.10 or less. However, left turn access to New Maryland Highway is found to be poor (LOS F) on both Atkinson Lane and Baker Brook Court in both peak periods. This is attributable to the high through volumes on the New Maryland Highway. However, the v/c ratios are low, as are the volumes, indicating the demand does not exceed capacity. It is

¹ Source: Highway Capacity Manual 6th Edition – Transportation Research Board (TRB)

noted that the 95th percentile queue lengths on the Atkinson Lane approach to the New Maryland Highway in the AM peak is approximately 28 metres. Field observations indicate this queue can be longer at times.

In summary, both Study Area intersections overall are operating efficiently. However, left turn access to New Maryland Highway is poor (LOS F) on both Atkinson Lane and Baker Brook Court in both peak periods, although volumes and v/c ratios are low.

3 Horizon Year (2030) Traffic Conditions without Development

3.1 2030 Traffic Volumes without Development

To reflect horizon year 2030 travel conditions without development, the 2024 AM and PM peak hour volumes along New Maryland Highway were expanded at a 1 percent/annum rate for the Study Area intersections. The projected 2030 volumes without development are summarized in **Figure 3**.



Figure 3: Summary of Future 2030 Traffic Volumes without Development

3.2 2030 Level of Service without Development

Table 4 summarizes the future (2030) without development AM and PM peak hour levels of service for the various turn movements at New Maryland Highway/ Atkinson Lane and New Maryland Highway/ Baker Brook Court intersections. The Synchro outputs are included in **Appendix 3**.

The results of the traffic operations show that, under **future (2030) traffic conditions without development**, both intersections are projected to operate similarly to existing (2024) conditions. Left turn movements on Atkinson Lane and Baker Brook Court continue to experience LOS F conditions. In addition, right turn movements on Atkinson Lane decrease from an LOS E to LOS F under 2030 conditions without development. For both intersections, all v/c ratios are within acceptable limits at 0.66 or less. The 95th percentile queue length on the Atkinson Lane approach in the AM peak is projected to be approximately 30 metres. Again, this is less than what has been observed in the field.

Table 4: Operational Analysis Results under Future 2024 Conditions without Development

Scenario	Intersection	Traffic Control	Peak Hour	Overall LOS & Delay (sec/veh)	Criteria														
						Atkinson Lane			New Maryland Highway			New Maryland Highway							
Future 2030 without Development	1. New Maryland Hwy/ Atkinson Ln		AM	5.2	V/C				0.48		0.66					0.06			
				A	Delay (s/veh)			89.5		58.2		Free	Shared		12.7	Free			
					LOS			F		F		Flow			B	Flow			
				Queue (m)			14		4					1					
			PM	1.4	V/C			0.54		0.15					0.10				
				A	Delay (s/veh)			105.9		14		Free	Shared		9.3	Free			
	LOS				F		B		Flow			A	Flow						
	Queue (m)			1		4					2								
						Baker Brook Court			New Maryland Highway			New Maryland Highway							
Future 2030 without Development	2. New Maryland Hwy/ Baker Brook Ct		AM	0.7	V/C	0.27						-							
				A	Delay (s/veh)	69.8		Shared				0	Free			Free	Shared		
					LOS	F					A	Flow				Flow			
				Queue (m)	7					0									
			PM	0.4	V/C	0.18								-					
				A	Delay (s/veh)	70.5		Shared				0	Free				Free	Shared	
	LOS	F						A	Flow				Flow						
	Queue (m)	4						0											

In summary, both intersections operate similarly to existing (2024) conditions, but with slight decreases in operability. Most left and right turn movements onto New Maryland Highway from Atkinson Lane and Baker Brook Court experience LOS F conditions.

4 Trip Generation and Assignment

4.1 Trip Generation

Generally, when estimating the amount of traffic that will be generated by a new development, the Institute of Transportation Engineers (ITE) trip rates are utilized. ITE has developed trip rates for various types of developments based on the development characteristics such as floor area, number of employees, lot size and/or number of units. ITE has published their trip rates for various developments in a document entitled “Trip Generation”. The 11th edition has been utilized to estimate the trips to and from the proposed development.

The 11th edition has various residential land uses, one of which is single-family attached housing. **Table 5** summarizes the estimated trips that would be generated by the proposed development for both the AM and PM peak hour travel periods. It is estimated the development will generate 5 trips to and from the development in the AM peak and 6 in the PM peak.

Table 5: Trip Generation for the New Development

Lot Classification	ITE Land Use Code	Unit	Size	Land Use Description	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
Residential	215	Dwelling Units	10	Single-Family Attached Housing	1	4	5	3	3	6

4.2 Trip Assignment

The generated trips have been assigned to the Study Area streets and intersections based on existing traffic distribution patterns on the New Maryland Highway and Atkinson Lane during the peak travel periods. An even split of generated traffic was assumed for the driveways on Atkinson Lane, and the parking lot access to New Maryland Highway. **Figure 4** shows the trips generated to the Study Area, and **Figure 5** illustrates the total AM and PM traffic volumes at the Study Area intersections with the development in place for the 2030 horizon year.

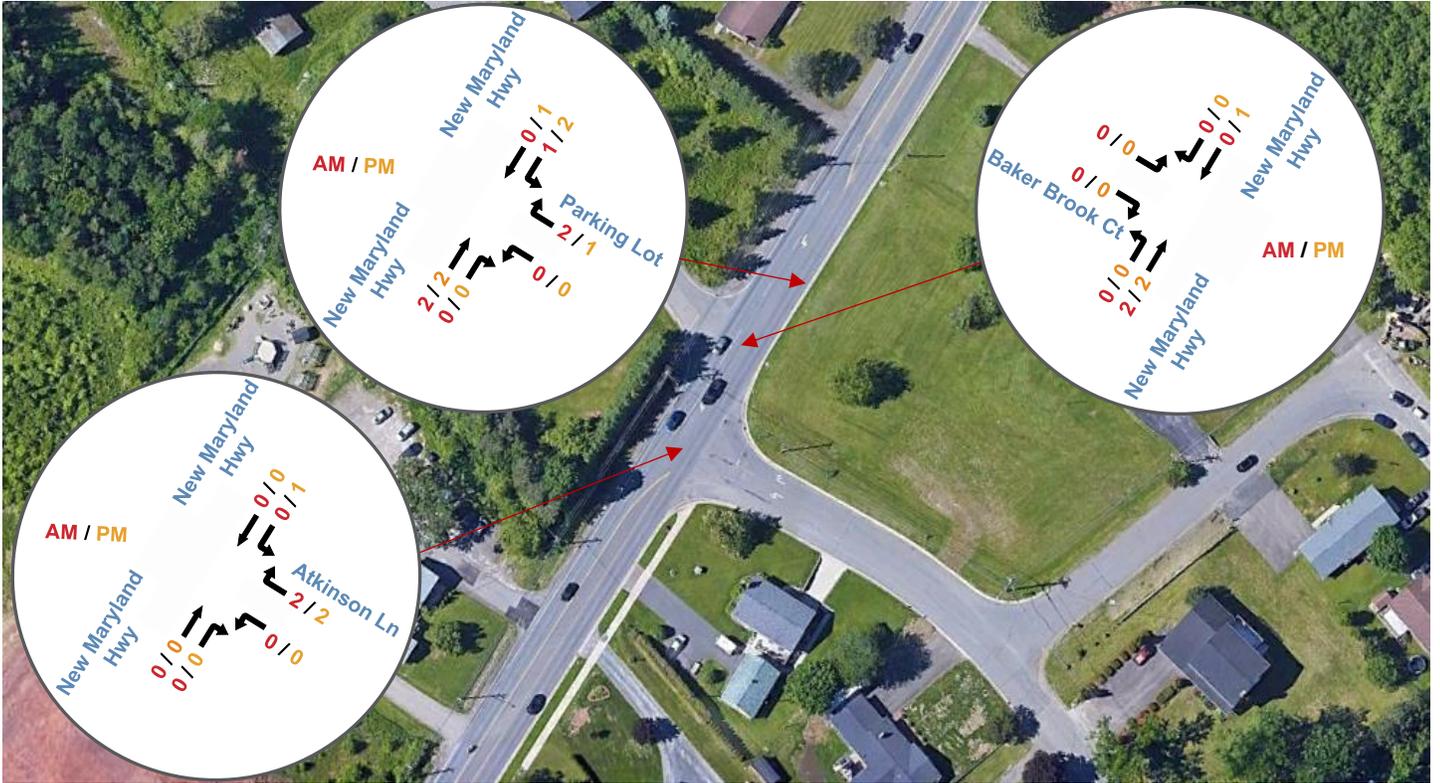


Figure 4: Trip Assignment

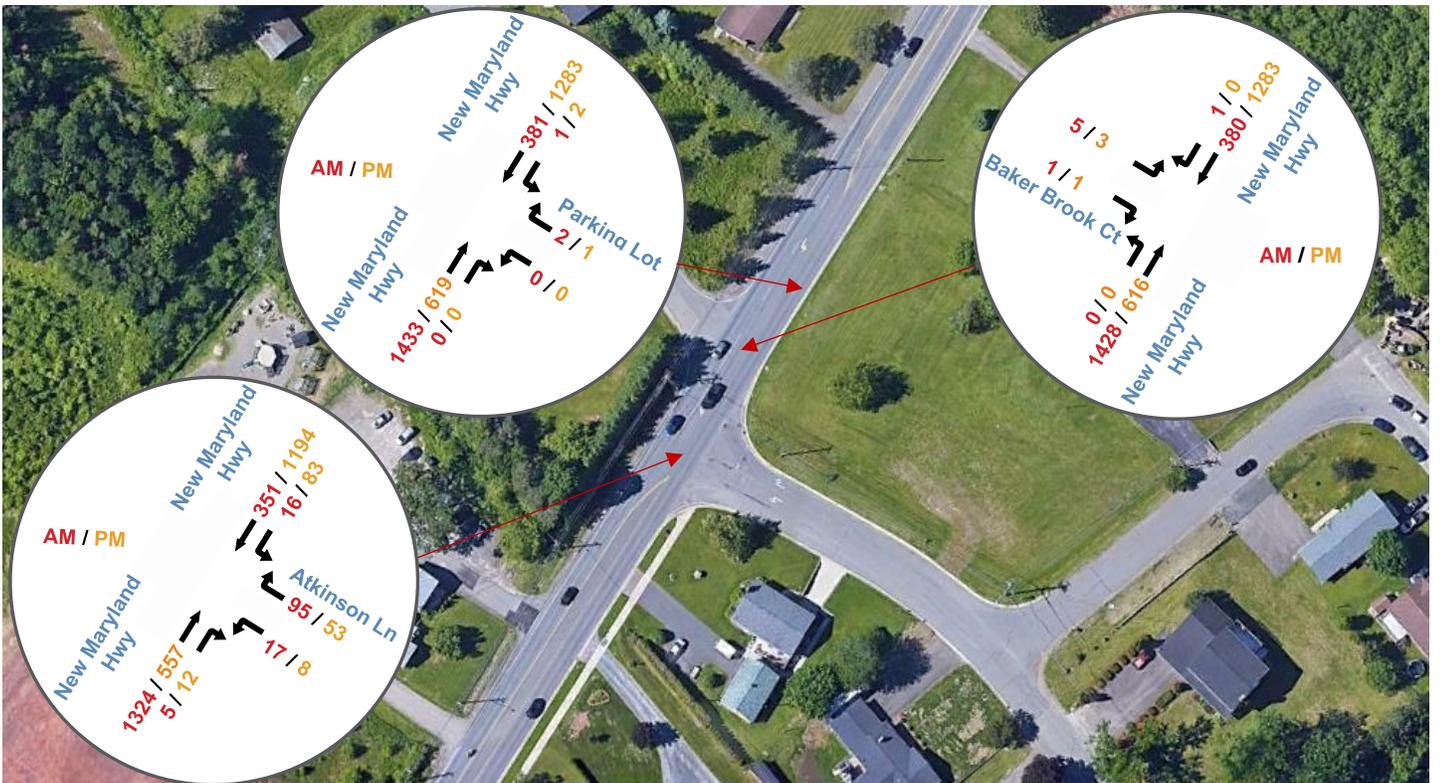


Figure 5: Summary of Future 2030 Traffic Volumes with Development

5 Horizon Year (2030) Traffic Conditions with Development

5.1 2030 Level of Service with Development

Table 6 summarizes the future (2030) with development AM and PM peak hour levels of service for the various turn movements at the New Maryland Highway/ Atkinson Lane, New Maryland Highway/ Baker Brook Court, and New Maryland Highway/ Parking Lot Access intersections. The Synchro outputs are included in **Appendix 4**.

Table 6: Operational Analysis Results under Future 2030 Conditions with Development

Scenario	Intersection	Traffic Control	Peak Hour	Overall LOS & Delay (sec/veh)	Criteria	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
						Atkinson Lane			New Maryland Highway			New Maryland Highway							
Future 2030 with Development	1. New Maryland Hwy/ Atkinson Ln		AM	5.4 A	V/C				0.48		0.68				0.06				
					Delay (s/veh)			89.5		59.8		Free	Shared	12.7	Free				
					LOS			F		F		Flow		B	Flow				
			Queue (m)			14		28				1							
			PM	1.5 A	V/C			0.25		0.16				0.11					
					Delay (s/veh)			105.9		14		Free	Shared	9.3	Free				
LOS					F		B		Flow		A	Flow							
Queue (m)			6		4				2										
						Baker Brook Court			New Maryland Highway			New Maryland Highway							
Future 2030 with Development	2. New Maryland Hwy/ Baker Brook Ct		AM	0.7 A	V/C	0.28		Shared				-							
					Delay (s/veh)	72.1				0	Free			Free	Shared				
					LOS	F			A	Flow				Flow					
			Queue (m)	7			0												
			PM	0.4 A	V/C	0.19		Shared						-					
					Delay (s/veh)	71.7				0	Free			Free	Shared				
LOS	F					A	Flow				Flow								
Queue (m)	4			0															
						Parking Lot Access			New Maryland Highway			New Maryland Highway							
Future 2030 with Development	3. New Maryland Hwy/ Parking Lot Access		AM	0.0 A	V/C				0.02						0.00				
					Delay (s/veh)				31.5		Shared		Free	Shared	13.5	Free			
					LOS				D				Flow		B	Flow			
			Queue (m)				0						0						
			PM	0.0 A	V/C			0.00		Shared						0.00			
					Delay (s/veh)				12.9				Free	Shared	8.9	Free			
LOS						B				Flow		A	Flow						
Queue (m)				0						0									

95th percentile volume exceeds capacity, queue may be longer

The results of the traffic operations show that, under **future (2030) conditions with development**, the New Maryland Highway/ Atkinson Lane and New Maryland Highway/ Baker Brook Court intersections continue to operate at an overall excellent LOS A during both peak periods. All individual movements on New Maryland Highway are operating at LOS A with v/c ratios of 0.11 or less. Left and right turn movements on Atkinson Lane and Baker Brook Court continue to experience LOS F conditions. For both intersections, all v/c ratios are within acceptable limits at 0.68 or less.

The 95th percentile queue length on the Atkinson Lane approach in the AM peak hour is projected to be approximately 30 metres, although field observations of existing conditions suggest the queues are longer at times. It should be noted that the queue on the Atkinson Lane approach will block the driveways to the proposed development in the AM peak. This would result in vehicles from the development driveways attempting to back out into the queue of vehicles on Atkinson Lane.

The results of the traffic operations at the new intersection of New Maryland Highway/ Parking Lot Access show that the intersection is projected to operate at an overall LOS A during both peak periods. All individual movements are projected to operate at LOS D or better, with v/c ratios of 0.01 or less. With little anticipated traffic from the new development, little delay is expected. However, similar to the other intersections, high through volumes on New Maryland Highway make turning more difficult from intersecting streets.

In summary, all three intersections are projected to operate at an overall LOS A for both peak periods. Most of the individual turning movements onto/from the New Maryland Highway to/from Atkinson Lane and Baker Brook

Courts are projected to continue to operate at LOS F. Through movement on New Maryland Highway are significantly impacting turning movements. All individual v/c ratios are projected at 0.68 or less, indicating sufficient capacity to meet demand. The queuing on Atkinson Lane in the AM peak will block the driveways associated with the proposed development.

5.2 Discussion with NBDTI

The proposed development plan and the development details were sent to the New Brunswick Department of Transportation and Infrastructure (NBDTI) for comment because of the proposed access to the New Maryland Highway (Route 101). The following comments were received from the District and Traffic:

- They are concerned with the number of closely spaced driveways on Atkinson Lane and their proximity to the intersection with Route 101.
- Queuing on Atkinson Lane will block access to and from the driveways.
- The close proximity of Baker Brook Court to the proposed access for the development parking is a concern.

5.3 Discussion with the Village

Discussions were also held with the Village with respect to potential traffic issues relating to the development. Key items brought up in the discussions included:

- Discussions should be held with NBDTI with respect to access to the New Maryland Highway.
- A minimum of one barrier free parking space should be provided.
- A minimum setback of 5 metres from the property line would be acceptable.
- Switching the building such that the front faces the New Maryland Highway would meet the Villages by-laws and urban design standards.
- Concerns were expressed at the Planning Advisory Committee with respect to the number and spacing of driveways on Atkinson Lane and the impact on traffic.

5.4 Recommended Improvements

Based on the comments from the NBDTI, the Village of New Maryland and the traffic operation results associated with queuing on Atkinson Lane during peak periods, it is recommended that the proposed development be reoriented such that the front of the building is adjacent and parallel to the New Maryland Highway, with access to the parking lot for all units from either the New Maryland Highway to the north of the building or access to Kerry Lane to the east, if possible. Access to Kerry Lane would be the preferred option because of the likely requirement to widen the New Maryland Highway to enable the extension of the existing left turn lane into Atkinson Lane. The Kerry Lane option would also reduce the number of conflict points on the New Maryland Highway in this general area. No individual driveways to the dwelling units would be via the New Maryland Highway.

It should be noted that neither option documented above would change to any great extent the traffic operational results described in Section 5.1 above and as shown in Table 6.

6 Summary of Findings

6.1 Existing 2023 Conditions

Both Study Area intersections (New Maryland Highway/ Atkinson Lane and New Maryland Highway/ Baker Brook Court) are operating efficiently with overall levels of service A for both peak periods. All individual movements on New Maryland Highway are operating at LOS A with v/c ratios of 0.10 or less. However, left turn access to New Maryland Highway is found to be very poor (LOS F) on both Atkinson Lane and Baker Brook Court in both peak periods. However, the volumes and v/c ratios for these movements are low. The poor LOS is attributable to the high through volumes on New Maryland Highway. The 95th percentile queue lengths on the Atkinson Lane approach to the New Maryland Highway in the AM peak is approximately 28 metres. Field observations indicate this queue can be longer at times.

6.2 Future 2030 Conditions without Development

Both intersections operate similarly to existing (2024) conditions, but with slight decreases in operability. Left turn movements on Atkinson Lane and Baker Brook Court continue to experience LOS F conditions. In addition, right turn movements on Atkinson Lane decrease from an LOS E to LOS F. For both intersections, all v/c ratios are within acceptable limits at 0.66 or less. The 95th percentile queue length on the Atkinson Lane approach is similar to existing conditions at 30 m, but again, the field observations indicate this queue can be longer at times.

6.3 Trip Generation and Assignment

The 11th edition of the “Trip Generation” manual has trip rates for various residential land uses, including rates for attached housing. It is estimated the development will generate 5 trips to and from the development in the AM peak and 6 in the PM peak.

The generated trips have been assigned to the Study Area streets and intersections based on existing traffic distribution on Atkinson Lane during the peak travel periods. An even split of generated traffic was assumed for the driveways on Atkinson Lane, and the parking lot access to New Maryland Highway.

6.4 Horizon Year 2030 Conditions with Development

Traffic operations at the New Maryland Highway/ Atkinson Lane and New Maryland Highway/ Baker Brook Court intersections continue to operate at an overall excellent LOS A during both peak periods. All individual movements on New Maryland Highway are operating at LOS A with v/c ratios of 0.11 or less. Left and right turn movements on Atkinson Lane and Baker Brook Court continue to experience LOS F conditions. For both intersections, all v/c ratios are within acceptable limits at 0.68 or less. The 95th percentile queue length on the Atkinson Lane approach in the AM peak hour is projected to be approximately 30 metres, although field observations of existing conditions suggest the queues are longer at times. The Atkinson Lane approach will block the driveways to the proposed development in the AM peak, resulting in poor access for vehicles attempting to back out into the queue on Atkinson Lane or for vehicles trying to enter a driveway.

Traffic operations at the new intersection of New Maryland Highway/ Parking Lot Access show that the intersection is projected to operate at an overall LOS A during both peak periods. All individual movements are projected to operate at LOS D or better, with v/c ratios of 0.01 or less. With the anticipated low traffic volumes from the new development, little delay is expected. However, similar to the other intersections, high through volumes on New Maryland Highway significantly impact turning movements onto/from intersecting streets.

6.5 Discussion with NBDTI and the Village of New Maryland

The following comments were received from the NBDTI's Fredericton District and Traffic:

- They are concerned with the number of closely spaced driveways on Atkinson Lane and their proximity to the intersection with Route 101.
- Queuing on Atkinson Lane will block access to and from the driveways.
- The close proximity of Baker Brook Court to the proposed access for the development parking is a concern.

6.6 Discussion with the Village of New Maryland

The following key items were discussed with the Village of New Maryland:

- Discussions should be held with NBDTI with respect to access to the New Maryland Highway.
- A minimum of one barrier free parking space should be provided.
- A minimum setback of 5 metres from the property line would be acceptable.
- Switching the building such that the front faces the New Maryland Highway would meet the Villages by-laws and urban design standards.
- Concerns were expressed at the Planning Advisory Committee with respect to the number and spacing of driveways on Atkinson Lane and the impact on traffic.

6.7 Recommended Improvements

Based on the comments from the NBDTI, the Village and the traffic operation results, it is recommended that the proposed development be reoriented such that the front of the building is adjacent and parallel to the New Maryland Highway, with access to the parking lot for all units from either the New Maryland Highway to the north of the building or access to Kerry Lane to the east if possible. Access to Kerry Lane would be the preferred option because of the likely requirement to widen the New Maryland Highway to extend the left turn lane. Access to Kerry Lane would also reduce the number of conflicts points on the New Maryland Highway. No individual driveways to the dwelling units would be via the New Maryland Highway.

It should be noted that neither option documented above would change to any great extent the traffic operational results described in **Section 5.1** above and as shown in **Table 6**.

Appendix 1 – Site Plan

Appendix 2 – Existing Synchro Output

Intersection

Int Delay, s/veh 4.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↖		↘	↗
Traffic Vol, veh/h	17	93	1247	5	16	331
Future Vol, veh/h	17	93	1247	5	16	331
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	47	80	96	63	57	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	116	1299	8	28	394

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1753	1303	0
Stage 1	1303	-	-
Stage 2	450	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	94	196	-
Stage 1	254	-	-
Stage 2	642	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	89	196	-
Mov Cap-2 Maneuver	89	-	-
Stage 1	254	-	-
Stage 2	608	-	-

Approach	WB	NB	SB
HCM Control Delay, s	52.7	0	0.8
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	89	196	530
HCM Lane V/C Ratio	-	-	0.406	0.593	0.053
HCM Control Delay (s)	-	-	70.7	47.1	12.2
HCM Lane LOS	-	-	F	E	B
HCM 95th %tile Q(veh)	-	-	1.6	3.3	0.2

HCM 6th TWSC
 2: New Maryland Highway & Baker Brook Court

Existing 2024 - AM Peak
 05/07/2024 7:30 am

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	5	1	0	1343	358	1
Future Vol, veh/h	5	1	0	1343	358	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	31	25	25	94	83	25
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	4	0	1429	431	4

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1862	218	435	0	-	0
Stage 1	433	-	-	-	-	-
Stage 2	1429	-	-	-	-	-
Critical Hdwy	6.63	6.93	4.13	-	-	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	72	787	1123	-	-	-
Stage 1	622	-	-	-	-	-
Stage 2	220	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	72	787	1123	-	-	-
Mov Cap-2 Maneuver	72	-	-	-	-	-
Stage 1	622	-	-	-	-	-
Stage 2	220	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	57.6	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1123	-	88	-	-
HCM Lane V/C Ratio	-	-	0.229	-	-
HCM Control Delay (s)	0	-	57.6	-	-
HCM Lane LOS	A	-	F	-	-
HCM 95th %tile Q(veh)	0	-	0.8	-	-

Intersection						
Int Delay, s/veh	1.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	51	525	12	82	1125
Future Vol, veh/h	8	51	525	12	82	1125
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	67	71	88	60	85	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	72	597	20	96	1250

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	2049	607	0	0	617
Stage 1	607	-	-	-	-
Stage 2	1442	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	61	496	-	-	963
Stage 1	544	-	-	-	-
Stage 2	218	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	55	496	-	-	963
Mov Cap-2 Maneuver	55	-	-	-	-
Stage 1	544	-	-	-	-
Stage 2	196	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.1	0	0.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	55	496	963	-
HCM Lane V/C Ratio	-	-	0.217	0.145	0.1	-
HCM Control Delay (s)	-	-	87.8	13.5	9.2	-
HCM Lane LOS	-	-	F	B	A	-
HCM 95th %tile Q(veh)	-	-	0.7	0.5	0.3	-

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	3	1	0	578	1208	0
Future Vol, veh/h	3	1	0	578	1208	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	36	25	92	88	89	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	4	0	657	1357	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	2014	679	1357	0	-	0
Stage 1	1357	-	-	-	-	-
Stage 2	657	-	-	-	-	-
Critical Hdwy	6.63	6.93	4.13	-	-	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	57	395	505	-	-	-
Stage 1	205	-	-	-	-	-
Stage 2	515	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	57	395	505	-	-	-
Mov Cap-2 Maneuver	57	-	-	-	-	-
Stage 1	205	-	-	-	-	-
Stage 2	515	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	58.8	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	505	-	79	-	-
HCM Lane V/C Ratio	-	-	0.156	-	-
HCM Control Delay (s)	0	-	58.8	-	-
HCM Lane LOS	A	-	F	-	-
HCM 95th %tile Q(veh)	0	-	0.5	-	-

Appendix 3 – Horizon Year 2030 without Development Synchro Output

HCM 6th TWSC
 1: New Maryland Highway & Atkinson Lane

Future 2030 without Development - AM Peak

Intersection						
Int Delay, s/veh	5.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	17	93	1324	5	16	351
Future Vol, veh/h	17	93	1324	5	16	351
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	47	80	96	63	57	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	116	1379	8	28	418

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1857	1383	0	0	1387
Stage 1	1383	-	-	-	-
Stage 2	474	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	81	176	-	-	494
Stage 1	233	-	-	-	-
Stage 2	626	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	76	176	-	-	494
Mov Cap-2 Maneuver	76	-	-	-	-
Stage 1	233	-	-	-	-
Stage 2	590	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	65.6	0	0.8
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	76	176	494
HCM Lane V/C Ratio	-	-	0.476	0.661	0.057
HCM Control Delay (s)	-	-	89.5	58.2	12.7
HCM Lane LOS	-	-	F	F	B
HCM 95th %tile Q(veh)	-	-	2	3.9	0.2

HCM 6th TWSC
 2: New Maryland Highway & Baker Brook Court

Future 2030 without Development - AM Peak

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	5	1	0	1426	380	1
Future Vol, veh/h	5	1	0	1426	380	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	31	25	25	94	83	25
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	4	0	1517	458	4

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1977	231	462	0	-	0
Stage 1	460	-	-	-	-	-
Stage 2	1517	-	-	-	-	-
Critical Hdwy	6.63	6.93	4.13	-	-	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	61	772	1097	-	-	-
Stage 1	603	-	-	-	-	-
Stage 2	199	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	61	772	1097	-	-	-
Mov Cap-2 Maneuver	61	-	-	-	-	-
Stage 1	603	-	-	-	-	-
Stage 2	199	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	69.8	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1097	-	75	-	-
HCM Lane V/C Ratio	-	-	0.268	-	-
HCM Control Delay (s)	0	-	69.8	-	-
HCM Lane LOS	A	-	F	-	-
HCM 95th %tile Q(veh)	0	-	1	-	-

HCM 6th TWSC
 1: New Maryland Highway & Atkinson Lane

Future 2030 without Development - PM Peak

Intersection						
Int Delay, s/veh	1.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	51	557	12	82	1194
Future Vol, veh/h	8	51	557	12	82	1194
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	67	71	88	60	85	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	72	633	20	96	1327

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	2162	643	0	0	653
Stage 1	643	-	-	-	-
Stage 2	1519	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	52	473	-	-	934
Stage 1	523	-	-	-	-
Stage 2	200	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	47	473	-	-	934
Mov Cap-2 Maneuver	47	-	-	-	-
Stage 1	523	-	-	-	-
Stage 2	179	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	27.1	0	0.6
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	47	473	934	-
HCM Lane V/C Ratio	-	-	0.254	0.152	0.103	-
HCM Control Delay (s)	-	-	105.9	14	9.3	-
HCM Lane LOS	-	-	F	B	A	-
HCM 95th %tile Q(veh)	-	-	0.9	0.5	0.3	-

HCM 6th TWSC
 2: New Maryland Highway & Baker Brook Court

Future 2030 without Development - PM Peak

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	3	1	0	614	1282	0
Future Vol, veh/h	3	1	0	614	1282	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	36	25	92	88	89	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	4	0	698	1440	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	2138	720	1440	0	-	0
Stage 1	1440	-	-	-	-	-
Stage 2	698	-	-	-	-	-
Critical Hdwy	6.63	6.93	4.13	-	-	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	48	371	469	-	-	-
Stage 1	185	-	-	-	-	-
Stage 2	493	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	48	371	469	-	-	-
Mov Cap-2 Maneuver	48	-	-	-	-	-
Stage 1	185	-	-	-	-	-
Stage 2	493	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	70.5	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	469	-	67	-	-
HCM Lane V/C Ratio	-	-	0.184	-	-
HCM Control Delay (s)	0	-	70.5	-	-
HCM Lane LOS	A	-	F	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

Appendix 4 – Horizon Year 2030 with Development Synchro Output

HCM 6th TWSC
 1: New Maryland Highway & Atkinson Lane

Future 2030 with Development - AM Peak

Intersection						
Int Delay, s/veh	5.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↖		↖	↗
Traffic Vol, veh/h	17	95	1324	5	16	351
Future Vol, veh/h	17	95	1324	5	16	351
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	47	80	96	63	57	84
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	119	1379	8	28	418

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1857	1383	0	0	1387	0
Stage 1	1383	-	-	-	-	-
Stage 2	474	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	81	176	-	-	494	-
Stage 1	233	-	-	-	-	-
Stage 2	626	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	76	176	-	-	494	-
Mov Cap-2 Maneuver	76	-	-	-	-	-
Stage 1	233	-	-	-	-	-
Stage 2	590	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	66.7	0	0.8
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	76	176	494
HCM Lane V/C Ratio	-	-	0.476	0.675	0.057
HCM Control Delay (s)	-	-	89.5	59.8	12.7
HCM Lane LOS	-	-	F	F	B
HCM 95th %tile Q(veh)	-	-	2	4	0.2

HCM 6th TWSC
 2: New Maryland Highway & Baker Brook Court

Future 2030 with Development - AM Peak

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	5	1	0	1428	380	1
Future Vol, veh/h	5	1	0	1428	380	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	31	25	25	94	83	25
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	4	0	1519	458	4

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1979	231	462	0	-	0
Stage 1	460	-	-	-	-	-
Stage 2	1519	-	-	-	-	-
Critical Hdwy	6.63	6.93	4.13	-	-	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	60	772	1097	-	-	-
Stage 1	603	-	-	-	-	-
Stage 2	199	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	60	772	1097	-	-	-
Mov Cap-2 Maneuver	60	-	-	-	-	-
Stage 1	603	-	-	-	-	-
Stage 2	199	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	72.1	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1097	-	73	-	-
HCM Lane V/C Ratio	-	-	0.276	-	-
HCM Control Delay (s)	0	-	72.1	-	-
HCM Lane LOS	A	-	F	-	-
HCM 95th %tile Q(veh)	0	-	1	-	-

HCM 6th TWSC
 3: New Maryland Highway & Parking Lot Access

Future 2030 with Development - AM Peak

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	TT		TT			TT
Traffic Vol, veh/h	0	2	1433	0	1	381
Future Vol, veh/h	0	2	1433	0	1	381
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	2	1558	0	1	414

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1767	1558	0	0	1558
Stage 1	1558	-	-	-	-
Stage 2	209	-	-	-	-
Critical Hdwy	6.63	6.23	-	-	4.13
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219
Pot Cap-1 Maneuver	83	138	-	-	423
Stage 1	190	-	-	-	-
Stage 2	806	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	83	138	-	-	423
Mov Cap-2 Maneuver	83	-	-	-	-
Stage 1	190	-	-	-	-
Stage 2	804	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	31.5	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	138	423
HCM Lane V/C Ratio	-	-	0.016	0.003
HCM Control Delay (s)	-	-	31.5	13.5
HCM Lane LOS	-	-	D	B
HCM 95th %tile Q(veh)	-	-	0	0

HCM 6th TWSC
 1: New Maryland Highway & Atkinson Lane

Future 2030 with Development - PM Peak

Intersection						
Int Delay, s/veh	1.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↗	↖		↙	↗
Traffic Vol, veh/h	8	53	557	12	83	1194
Future Vol, veh/h	8	53	557	12	83	1194
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	0	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	67	71	88	60	85	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	75	633	20	98	1327

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	2166	643	0	0	653	0
Stage 1	643	-	-	-	-	-
Stage 2	1523	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	52	473	-	-	934	-
Stage 1	523	-	-	-	-	-
Stage 2	199	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	47	473	-	-	934	-
Mov Cap-2 Maneuver	47	-	-	-	-	-
Stage 1	523	-	-	-	-	-
Stage 2	178	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	26.7	0	0.6
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT	
Capacity (veh/h)	-	-	47	473	934	-
HCM Lane V/C Ratio	-	-	0.254	0.158	0.105	-
HCM Control Delay (s)	-	-	105.9	14	9.3	-
HCM Lane LOS	-	-	F	B	A	-
HCM 95th %tile Q(veh)	-	-	0.9	0.6	0.3	-

HCM 6th TWSC
 2: New Maryland Highway & Baker Brook Court

Future 2030 with Development - PM Peak

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	3	1	0	616	1283	0
Future Vol, veh/h	3	1	0	616	1283	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	36	25	92	88	89	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	4	0	700	1442	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	2142	721	1442	0	-	0
Stage 1	1442	-	-	-	-	-
Stage 2	700	-	-	-	-	-
Critical Hdwy	6.63	6.93	4.13	-	-	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	47	371	468	-	-	-
Stage 1	185	-	-	-	-	-
Stage 2	491	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	47	371	468	-	-	-
Mov Cap-2 Maneuver	47	-	-	-	-	-
Stage 1	185	-	-	-	-	-
Stage 2	491	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	71.7	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	468	-	66	-	-
HCM Lane V/C Ratio	-	-	0.187	-	-
HCM Control Delay (s)	0	-	71.7	-	-
HCM Lane LOS	A	-	F	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

HCM 6th TWSC
 3: New Maryland Highway & Parking Lot Access

Future 2030 with Development - PM Peak

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	TT		TT			TT
Traffic Vol, veh/h	0	1	619	0	2	1283
Future Vol, veh/h	0	1	619	0	2	1283
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	673	0	2	1395

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1375	673	0	0	673	0
Stage 1	673	-	-	-	-	-
Stage 2	702	-	-	-	-	-
Critical Hdwy	6.63	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	148	454	-	-	916	-
Stage 1	506	-	-	-	-	-
Stage 2	454	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	147	454	-	-	916	-
Mov Cap-2 Maneuver	147	-	-	-	-	-
Stage 1	506	-	-	-	-	-
Stage 2	449	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	454	916
HCM Lane V/C Ratio	-	-	0.002	0.002
HCM Control Delay (s)	-	-	12.9	8.9
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0	0