



IBI GROUP
400–333 Preston Street
Ottawa ON K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
ibigroup.com

Memorandum

To/Attention Mike Giampa, P.Eng.
Senior Engineer, Infrastructure Applications
Planning, Infrastructure & Economic
Development Department
City of Ottawa
110 Laurier Avenue West
Ottawa, ON K1P-1J1

Date February 24, 2021

From David Hook, P.Eng.

Project No 113480

cc Jim Burghout, Claridge Homes
Vincent Denomme, Claridge Homes

Subject 1981 Maple Grove Road - Transportation Impact Assessment -
Addendum 1

Introduction

A Transportation Impact Assessment (TIA) was prepared in support of a Plan of Subdivision application for the proposed residential development at 1981 Maple Grove Road and was submitted to the City of Ottawa in February 2018. Following this first TIA submission, the internal road network was refined to address key concerns from City staff and nearby residents. IBI worked with the City Transportation Project Manager to address these concerns and a TIA update was re-issued in October 2018. An additional round of technical comments was received in December 2018. Responses to these comments are provided in **Appendix A**.

The purpose of this memorandum is to summarize the key changes to the Draft Plan of Subdivision from a transportation perspective since the October 2018 submission and the impact these changes may have on the overall conclusions of the TIA, as well as address any outstanding technical comments. The build-out date of this development has been revised to 2023.

Revisions to Draft Plan of Subdivision

The revised Draft Plan of Subdivision has been provided in **Appendix B**. Since the October 2018 TIA was submitted, the following notable revisions have been made to the Draft Plan:

- A mid-block pathway connection (Block 8) was incorporated into the Draft Plan of Subdivision to facilitate increased permeability for active transportation users within the site; and
- The site statistics were refined to include more compact lotting, as shown in **Table 1** below.

Table 1 – Comparison of Site Statistics

UNIT TYPE	TIA UPDATE (OCTOBER 2018)	ADDENDUM 1 (FEBRUARY 2021)
Single Family	51	0
Townhomes	137	211
Total	188	211

A comparison of trip generation for the revised site plan against the October 2018 TIA update submission is provided in **Tables 2 to 4** below.

Table 2 – Comparison of Base Vehicular Trip Generation

TIA SUBMISSION	UNIT TYPE	SIZE (DWELLING UNITS)	PERIOD	TRANS TRIP RATE	GENERATED TRIPS (VPH)		
					IN	OUT	TOTAL
TIA Update (October 2018)	Single Family	51	AM	0.70	10	25	36
			PM	0.90	28	18	46
	Townhomes	137	AM	0.54	27	47	74
			PM	0.71	52	46	98
	Total	188	AM	N/A	38	73	111
			PM	N/A	80	64	144
Addendum 1 (February 2021)	Townhomes	211	AM	0.54	42	73	115
			PM	0.71	80	70	150

Table 3 – Comparison of Person Trip Generation Results

TIA SUBMISSION	UNIT TYPE	PERSON TRIP CONVERSION FACTOR	PERIOD	GENERATED TRIPS (VPH)		
				IN	OUT	TOTAL
TIA Update (October 2018)	Single Family	1/55% = 1.82	AM	10	25	36
		1/64% = 1.56	PM	28	18	46
	Townhomes	1/55% = 1.82	AM	27	47	74
		1/61% = 1.64	PM	52	46	98
	Total		AM	38	73	110
			PM	80	64	144
Addendum 1 (February 2021)	Townhomes	1/55% = 1.82	AM	77	133	210
		1/61% = 1.64	PM	130	115	245

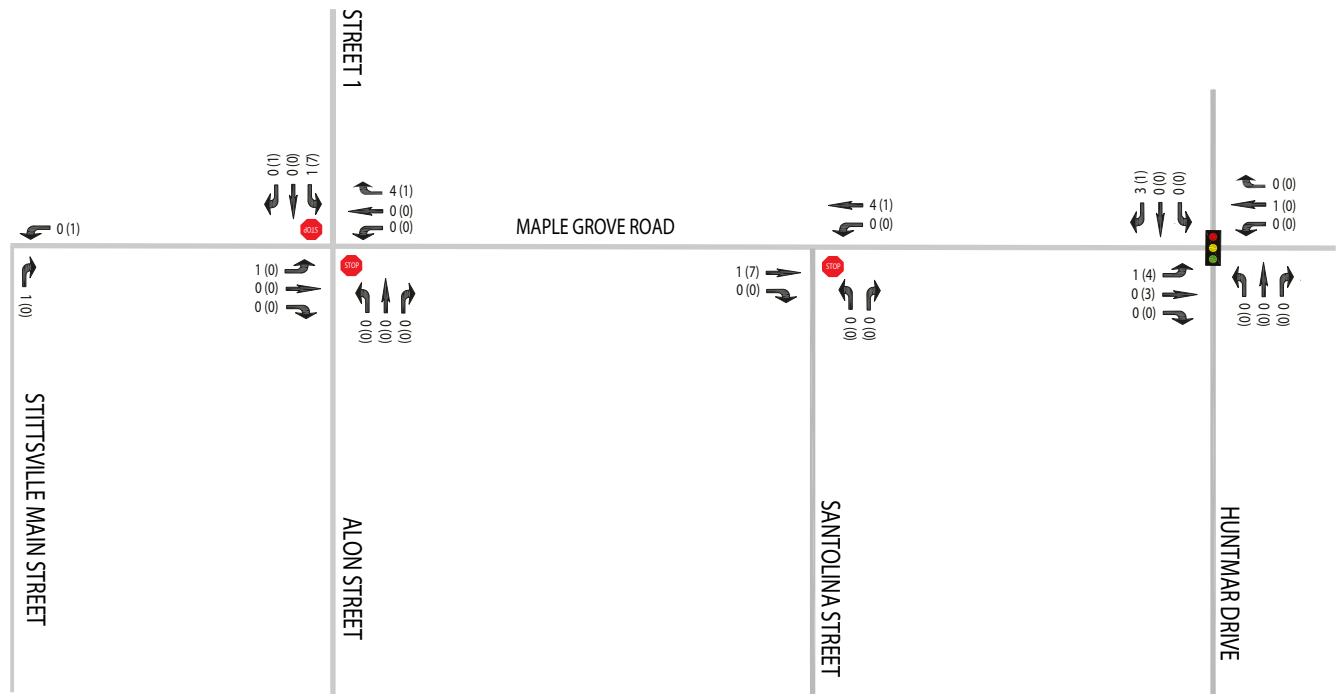
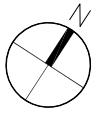
Table 4 – Comparison of Development Generated Travel Demand by Mode

TRAVEL MODE	OCTOBER 2018 TIA UPDATE						TIA ADDENDUM 1 (FEBRUARY 2021)					
	AM PEAK HOUR			PM PEAK HOUR			AM PEAK HOUR			PM PEAK HOUR		
	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
Auto Driver	41	79	120	79	63	142	46	80	126	80	70	150
Transit	16	32	48	27	22	49	18	32	50	27	24	52
Auto Passenger	27	47	74	27	47	74	7	12	19	20	17	37
Cycling	0	0	0	0	0	0	0	0	0	0	0	0
Walking	0	0	0	0	0	0	0	0	0	0	0	0
Other	5	9	14	5	9	14	5	9	15	4	3	7




Despite the fairly significant increase in the overall number of dwelling units proposed since the October 2018 TIA update, the more compact dwellings included in the latest Draft Plan are expected to result in a net increase in vehicular trip generation of just 6 and 8 two-way automobile trips.

The net increase in site-generated traffic volumes and revised total site-generated traffic volumes are provided in **Exhibit 1** and **Exhibit 2**, respectively.

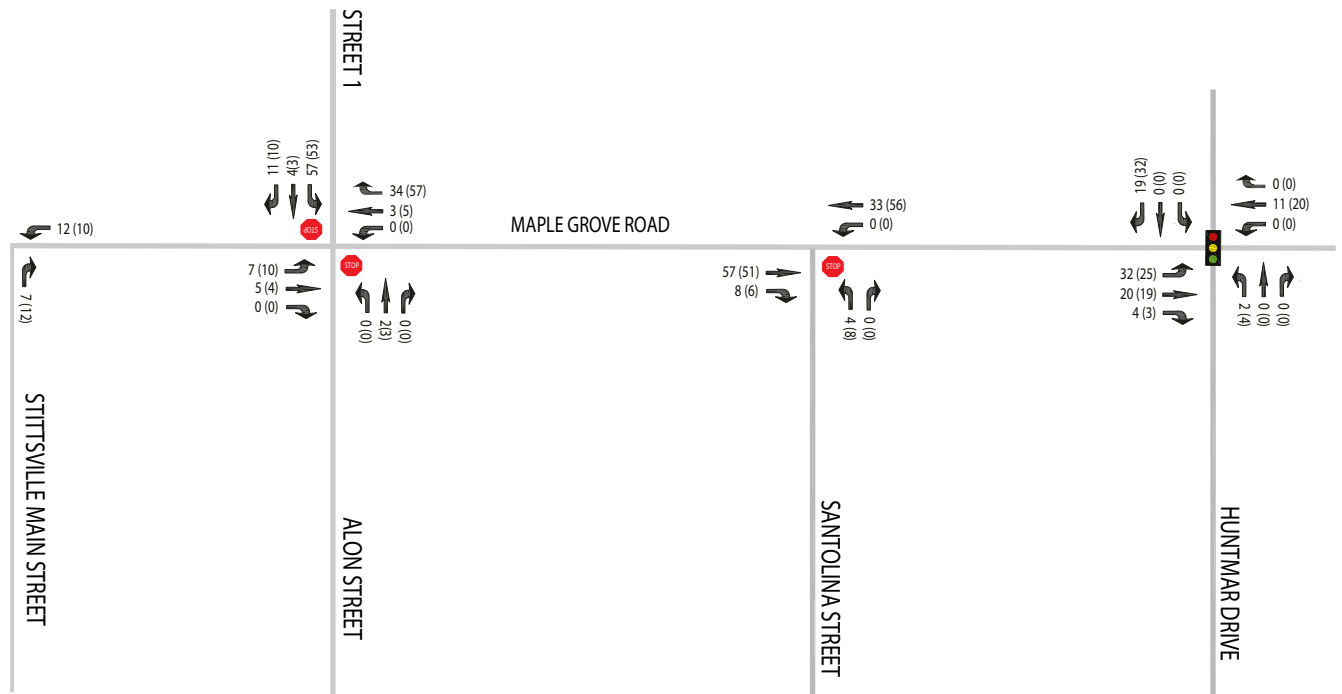
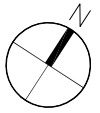
The increase in vehicular trip generation associated with amendments to the site lotting represents a minor increase in site-generated traffic and has no significant impact on the intersection capacity analyses or the overall conclusions of the TIA. To remain consistent with previous submissions, it should be noted that there have been no changes made to the mode share or trip distribution assumptions.



LEGEND

-  STOP CONTROL
-  TRAFFIC CONTROL SIGNAL
-  PERMITTED MOVEMENTS AM & PM
PEAK HOUR VEHICULAR VOLUMES





LEGEND

- STOP CONTROL
- TRAFFIC CONTROL SIGNAL
- PERMITTED MOVEMENTS AM & PM
PEAK HOUR VEHICULAR VOLUMES



Updated Adjacent Developments

The following adjacent development applications have either been initiated, re-activated or become inactive since the latest submission of the TIA in October 2018:

130 Huntmar TIA (Dillon, 2020)

This mixed-use development includes 742 residential dwelling units, approximately 2,790 square metres of commercial uses and an elementary school. The site is expected to be fully built out by 2024.

195 Huntmar TIA (CGH, 2019)

This mixed-use development includes 573 residential dwelling units, approximately 63,695 square metres of commercial uses. The site is expected to be fully built out by 2024.

1869 Maple Grove TIA (EXP, 2020)

This small residential development consists of just 18 townhome units and is expected to generate a negligible increase in traffic on Maple Grove Road. The site is expected to be fully built out by the end of 2021.

173 Huntmar CTS (Parsons, 2014)

A Community Transportation Study (CTS) was conducted in 2014 support of the proposed development at 173 Huntmar Drive. According to DevApps, this application is no longer active and build-out of the site is not expected to occur within the timeframe of the subject development, as discussed in the recently completed TIA for 130 Huntmar Drive.

1919 Maple Grove (IBI, 2018)

A residential development immediately east of the subject site consisting of 62 semi-detached and townhome units, as well as 450 apartment units. The Draft Plan is currently being refined and it is expected that full build-out will be pushed back to a later date as a result of incremental phasing.

Road Network Timing

In May 2020, the City of Ottawa initiated a joint environmental assessment (EA) for the Stittsville Main Street Extension and Huntmar Drive Widening. The timeline for the completion of this EA study and the implementation of a preferred design, however, has yet to be determined. Consistent with the assumptions presented in the TIA in support of the subject development as well as more recent studies for the adjacent developments described above, it is conservatively assumed that these modifications will not be in place within the horizon year of this study.

Maple Grove & Huntmar Intersection Upgrades

According to City staff, funding has now been secured for upgrades to the Maple Grove & Huntmar intersection. The detailed design of this intersection is presently underway and implementation is targeted for the latter half of 2021. These upgrades will include additional auxiliary lanes on each approach, consistent with the recommendations presented in the TIA for 1981 Maple Grove, as well as a 'protected intersection' configuration to help support future multi-modal travel demands within the study area.

Intersection Capacity Analysis

The recently-completed 130 Huntmar TIA (Dillon, September 2020) includes the most refined and conservative analysis available within the study area, considering site-generated traffic impacts of adjacent development lands including the subject site (1981 Maple Grove), as well as 195 Huntmar. The results of the analysis conducted for the 130 Huntmar TIA were used to guide the redesign of the Maple Grove & Huntmar intersection, identifying the need for geometric improvements consistent with the needs identified in the 1981 Maple Grove TIA. As indicated previously, the revised trip generation associated with the latest Draft Plan for the proposed 1981 Maple Grove development will have a negligible impact on the intersection capacity results presented.

The 130 Huntmar TIA analysis was conducted with a similar, conservative approach to the 1981 Maple Grove TIA, based on the premise that future road network improvements would not be relied upon in the distribution of traffic volume projections due to their uncertain timing. The results therefore represent a worst case.

As discussed in the TIA for 130 Huntmar Drive, a 3% growth rate was applied to all movements at the intersection of Maple Grove & Huntmar, which indicates that, even with the planned upgrades, the intersection may reach capacity by 2029. It is expected that with the implementation of the Stittsville Main Street Extension and the construction of Stittsville North-South Arterial (Robert Grant Drive) from Palladium Drive to Hazeldean Road, a large amount of vehicular trips will be diverted away from Maple Grove & Huntmar and ultimately alleviate any future capacity issues at this intersection.

Relevant excerpts from the 130 Huntmar TIA are included in **Appendix C**.

Maple Grove Extension

Following the original submission of the TIA in February 2018, IBI worked closely with the City's Transportation Project Manager to develop a functional design for the Maple Grove extension to Stittsville Main Street. It should be noted that the RMA functional design is based on a 23m cross-section, rather than a 26m cross-section, to maintain a relative alignment with the existing segment of Maple Grove further east. The proposed cross-section includes a multi-use path, 3.5m wide vehicular lanes, a 2.5m wide parking bay, bus stops and concrete sidewalk. The design also includes Pedestrian Crossovers (PXOs) to establish connectivity with existing active transportation infrastructure. The westbound approach to Stittsville Main Street flares to 11m pavement width to provision for a future auxiliary turning lane.

As indicated on the RMA drawings provided in **Appendix D**, the proponent will only be responsible for constructing a portion of the functional design, limited to a full roadway connection to Stittsville Main Street as well as concrete curbs and sidewalks on the north side of the road along the site frontage only. The complete urbanization and all other elements of the functional design are to be implemented by others. The extension of this roadway is required to service the lots fronting directly on Maple Grove Road, but will also facilitate improved transit routes for the area and mitigate traffic infiltration on local roads through the Bryanston Gate community.

Conclusion

The revised Draft Plan of Subdivision and the timing of key infrastructure projects within the study area were reviewed to determine the potential impact these changes would have on the conclusions of the October 2018 TIA update. Although the overall unit count has increased since the previous submission, this has been shown to have a negligible impact on the projected volume of site-generated traffic. Further, the redesign of the Maple Grove & Huntmar intersection slated for construction in 2021 includes geometric modifications which are consistent with recommendations in previous submissions of the TIA. As such, the overall conclusions and recommendations of the October 2018 TIA update remain valid.

Prepared By:

A handwritten signature in black ink, appearing to read "D Hook", with a long horizontal line extending to the right.

David Hook, P.Eng.
Transportation Engineer

Appendix A – Response to Circulation Comments (Transportation)

Step 4 Submission (Analysis) – Circulation Comments & Response

TIA Update Submitted: October 2018
Comments Received: December 2018

Traffic Signals

1) No comments to this TIA for this circulation. Traffic Signal Design and Specification reserves the right to make future comments based on subsequent submissions.

➤ **IBI Response: Acknowledged.**

2) Future considerations:

a) If there are any future proposed changes in the existing roadway geometry for the purpose of modifications to existing TCS(s), i.e. Maple Grove Road/Huntmar Drive, the City of Ottawa Traffic Signal Design and Specification Unit is required to complete a review for traffic signal plant re-design and provide the actual re-design.

➤ **IBI Response: Acknowledged.**

b) If the proposed traffic signals are warranted/approved for installation or modifications to existing TCS are approved, and RMA approved, please forward an approved geometry detail design drawings (dwg digital format in NAD 83 coordinates) including base mapping, existing and new underground utilities/sewers, new/existing catch basins locations, Turn-Radius Modeling and approved pavement markings drawings in separate files for detail traffic plant design lay out.

➤ **IBI Response: Acknowledged.**

c) Please send all digital (CADD) design files to Peter.Grajcar@ottawa.ca 613-580-2424 extension 23035.

➤ **IBI Response: Acknowledged.**

Traffic Engineering

1) Further review of the 11-metre wide west-leg of Maple Grove at Huntmar is required to determine if there is sufficient width to accommodate the required EB left turn lane and other uses within the corridor. In 2026, the total volume reveals 359 eastbound left-turning vehicles. Indicate how this volume of left turning vehicles will be accommodated on Maple Grove Road.

➤ **IBI Response: It is understood that the Maple Grove & Huntmar intersection is planned to include an eastbound left-turn auxiliary lane. Construction of these upgrades is currently planned for late-2021, according to City staff.**

Transit

1) Transit Service via Route 261 is planned to be extended northbound on Stittsville Main Street. In order to adequately service the 1981 Maple Grove Road residential subdivision, a pair of bus and shelter pads should be implemented on Stittsville Main Street at the height of proposed Street 1 for future bus service.

➤ **IBI Response: The Stittsville Main Street extension was considered to be outside of the scope of this TIA, as previously confirmed with the City transportation approvals staff. A recommended design will be developed based on the joint EA that is presently underway for the Stittsville Main Street extension and Huntmar Drive widening.**

2) Additionally, a bus turn around loop is required at the end of Stittsville Main Street as long as it is a dead end. Pedestrian connections from the subdivision to the proposed stop location should be clear and direct.

- **IBI Response: It is intended that Maple Grove Road will be extended to Stittsville Main Street in conjunction with the 1981 Maple Grove development. This will eliminate the need for the existing turnaround loop on Stittsville Main Street.**

Development Review – Transportation Engineering Services

1) The entire premise of this TIA is based on Huntmar Drive and Maple Grove Road intersection being fully built-out with auxiliary turn lanes in all directions. Provide an analysis to determine if the intersection can accommodate this development without the proposed modifications at the intersection of Maple Grove and Huntmar.

- **IBI Response: Noted. As discussed in the TIA – Addendum 1, funding has been secured to implement auxiliary turn lanes on all approaches, consistent with the recommendations of the October 2018 TIA update. Further, the results of a recent TIA conducted by Dillon in support of a planned subdivision at 130 Huntmar Drive has identified the expected intersection performance following the implementation of the intersection upgrades. See Appendix 'C' for details.**

2) Reference error in section 4.6.1.1 paragraph 2 last sentence.

- **IBI Response: Noted. This reference error was intended to refer to Exhibit 20 in the October 2018 TIA update.**

3) RMA – Now that the internal layout of the development has been determined, please proceed with revision the RMA and resubmitting the functional design package.

- **IBI Response: Noted. The RMA functional design for the Maple Grove extension is included in Appendix D of the TIA – Addendum 1.**

Appendix B - Draft Plan of Subdivision



PART NORTH PLAN HALF LOT

Stittsville Main Street Extension (Future)

CONCESSION SOUTH HALF LOT 2 PART (HUNTLEY) PLAN

Stittsville Main Street Extension (Future)



Maple Grove Road Extension

Maple Grove Road

NOT TRAVELLED TURNING CIRCLE

CONCESSION 12 (GOULBOURN)

STITTVILLE MAIN STREET TRAVELLED

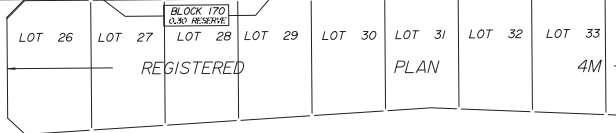
REGISTERED PLAN 4M-1372

BLOCK 169 0.30 RESERVE REGISTERED PLAN 4M-756

LOT 25 REGISTERED PLAN 4M-864

LOT 24 PLAN

ALON STREET



LEGEND

Proposed Pedestrian Facilities



1981 Maple Grove Road
TIA - Addendum 1

Appendix B
Proposed Development

PROJECT No. 113480
DATE: February 2021
SCALE: 0m 50m 100m



Appendix C – Supplemental Intersection Capacity Analyses

2.1.3 Planned Conditions

2.1.3.1 Road Network

The 2013 TMP identified several road network improvements in the study area:

1. Huntmar Drive to be widened between Maple Grove Road and Campeau Drive;
2. A new E/W Arterial road is to be constructed connecting with Street 1 (Robert Grant Expansion); and,
3. A new N/S Arterial road is to be constructed.

Figure 11 shows the 2031 Affordable Network from the TMP. We understand that discussions are underway regarding the alignment of the new N/S Arterial and it may shift further east as a result.

At the time of the 2013 TMP, these projects were all planned for completion prior to the 2031 horizon. However, as of late 2019, City staff indicated that these projects are unlikely to be completed prior to the 2031 horizon.

This analysis has not included the impacts of these road projects. The analysis within this report represents a “worst case” scenario (most constrained transportation scenario). The inclusion of the identified road projects would increase area roadway capacity, alleviating potential vehicle impacts.

Intersection modifications have been included at the intersection of Huntmar Drive and Maple Grove Road as a near term roadway improvement. The existing intersection is reaching capacity, and a widened intersection has been designed which includes the following:

- Auxiliary left-turns on all approaches
- Auxiliary southbound right-turn lane
- Two through lanes on the northbound approach
- Single through lanes on southbound, westbound, and eastbound approaches

Figure 12 illustrates the proposed lane configuration of the development in 2024, while **Figure 13** illustrates the proposed lane configuration of the development in 2029.

3.2 Background Network Travel Demand

3.2.1 Transportation Network Plans

There are several road network projects identified in the Transportation Master Plan, however, City staff indicated that these projects are unlikely to be completed prior to 2031 and therefore the impact of these road network projects has not been included in this analysis.

The Affordable and Ultimate networks will have additional road and transit capacity. The transit service will also be greatly improved, particularly for the proposed development for the Ultimate transit network. With improved transit, the auto mode share will likely be reduced and the new Arterial roadways will provide additional capacity for the remaining auto vehicles. In other words, issues identified as part of this analysis may be short-term and remedied by already-planned improvements.

3.2.2 Background Growth

Table 14 summarizes the predicted growth rate for the Kanata / Stittsville district based on data from the TRANS O-D Surveys. The 2019 traffic counts were grown at a rate of 2.43% annually, non-compounding, to represent 2024 and 2029 background traffic volumes.

Table 14: TRANS O-D Survey Annual Growth Prediction for Kanata / Stittsville

Measurement	2011 Actual	2031 Predicted	Annual Growth
Population	105,215	156,396	2.43%
Auto trips	157,040	233,431	2.43%

A review of historic intersection volumes (3%) confirms that this level of growth is appropriate for reflecting background growth.

3.2.3 Other Developments

There are seven planned developments near the proposed development which will impact study area intersections. Details for each planned development were listed on the City of Ottawa's development applications tool and were outlined in **Section 2.1.3.4**.

These development volumes have been included as part of the background traffic analysis and applied to the future road networks separately.

Figure 21 and **Figure 22** illustrate the forecasted 2024 and 2029 background traffic volumes, respectively.

Table 25: AM (PM) Peak Hour Operations – 2024 Network Intersections

Main Road	Side Road	Overall			Worst Movement		
		Volume	Delay (s)	V/C	Movement	(V/C)	LOS
Huntmar Drive	Hazeldean Road	3020 (4645)	35.5 (43.1)	0.53 (0.73)	NBT (WBT)	0.78 (0.89)	C (D)
	Rosehill Avenue	1240 (1910)	7.4 (15.4)	-	NB (SB)	0.51 (0.85)	A (D)
	Palladium Drive	1970 (2855)	32.2 (34.1)	0.48 (0.58)	NBL (NBL)	0.9 (0.9)	E (E)
	Maple Grove Road	1875 (2760)	29.4 (35.0)	0.47 (0.63)	EBL (SBT)	0.82 (0.87)	D (D)
Terry Fox Drive	Maple Grove Road	3155 (4395)	24.1 (36.0)	0.56 (0.77)	EBL (SBT)	0.88 (0.98)	D (E)
	Palladium Drive	4325 (5575)	36.6 (60.3)	0.66 (0.85)	EBL (SBT)	0.9 (1.04)	E (F)

4.9.2.3

2029 Network Intersection Operations

Table 26 summarizes the Synchro results for the 2029 forecast network intersections during the AM and PM peak hours. **Appendix B** provides full analyses results by movement for signalized intersections.

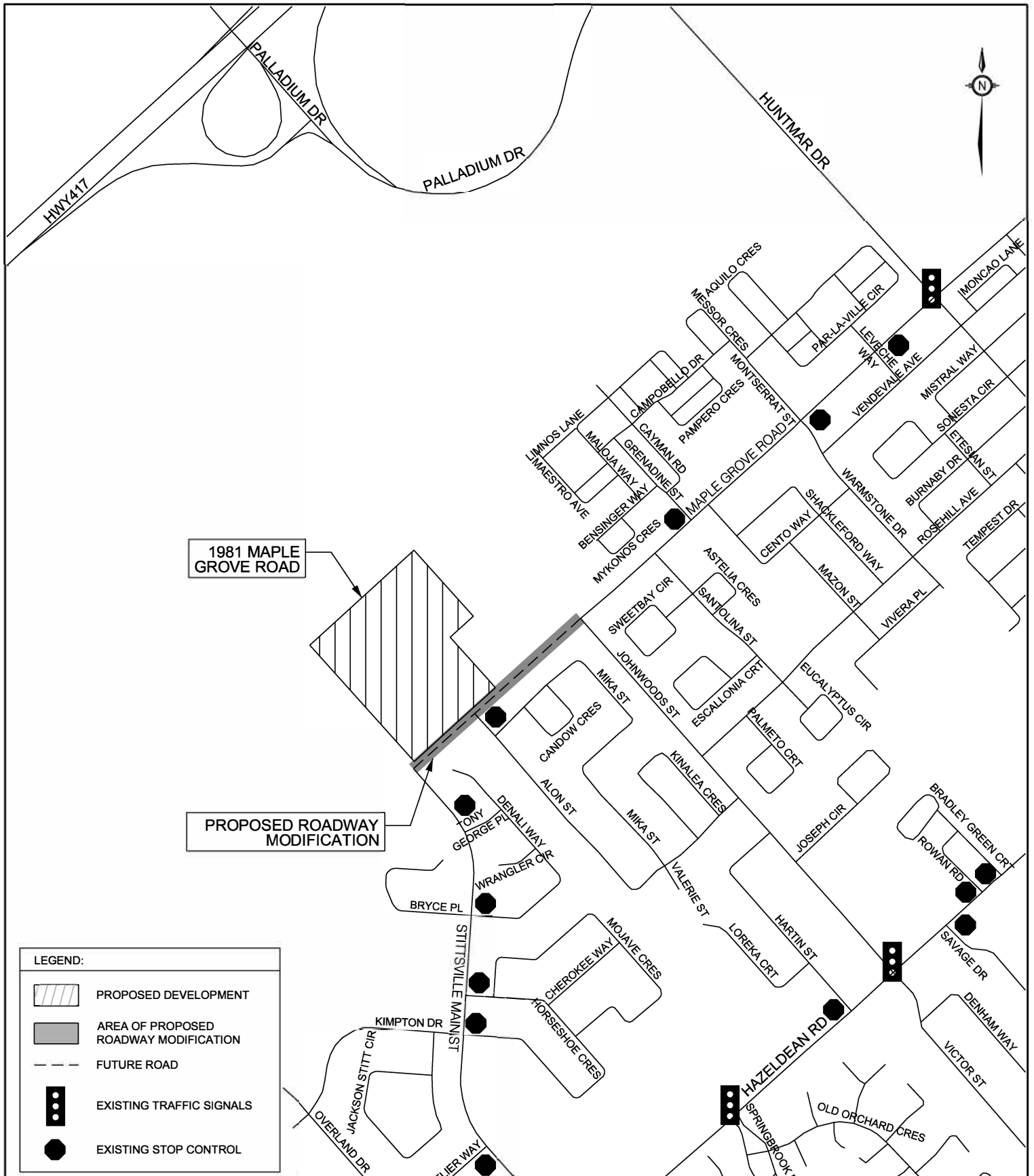
The majority of the intersections operate acceptably with each movement at LOS E or better. The intersections at Huntmar Drive and Hazeldean Road, Terry Fox Drive and Maple Grove Road, and at Terry Fox Drive and Palladium Drive are the most congested with a reported LOS F.

Traffic congestion at the intersections may be mitigated through higher transit mode shares from implementing isolated transit measures or bus rapid transit through the area. It is also noted that peak spreading may occur throughout the peak period as shown in **Table 15**.

Table 26: AM (PM) Peak Hour Operations – 2029 Network Intersections

Main Road	Side Road	Overall			Worst Movement		
		Volume	Delay (s)	V/C	Movement	(V/C)	LOS
Huntmar Drive	Hazeldean Road	3375 (5205)	37.6 (57.1)	0.59 (0.83)	NBT (WBT)	0.79 (1.08)	C (F)
	Rosehill Avenue	1370 (2070)	8.2 (23.9)	-	NB (SB)	0.57 (0.96)	A (E)
	Palladium Drive	2165 (3175)	33.7 (39.4)	0.51 (0.65)	NBL (WBL)	0.93 (0.96)	E (E)
	Maple Grove Road	2075 (3055)	31.0 (46.9)	0.52 (0.72)	EBL (SBT)	0.84 (1.01)	D (F)
Terry Fox Drive	Maple Grove Road	3510 (4905)	27.6 (55.9)	0.65 (0.86)	EBL (SBT)	0.9 (1.08)	E (F)
	Palladium Drive	4830 (5700)	41.1 (63.7)	0.74 (0.86)	SBR (EBL)	0.95 (1.05)	E (F)

Appendix D – Function Design RMA



PLANNING AND GROWTH
MANAGEMENT

KEY PLAN
PROPOSED ROADWAY
MODIFICATIONS (DRAFT)
MAPLE GROVE ROAD
EXTENSION -
ALON TO STITTSVILLE
MAIN STREET

Transportation Engineering Services

Approved By:

Drawing No.:

Completed By:

IBI GROUP

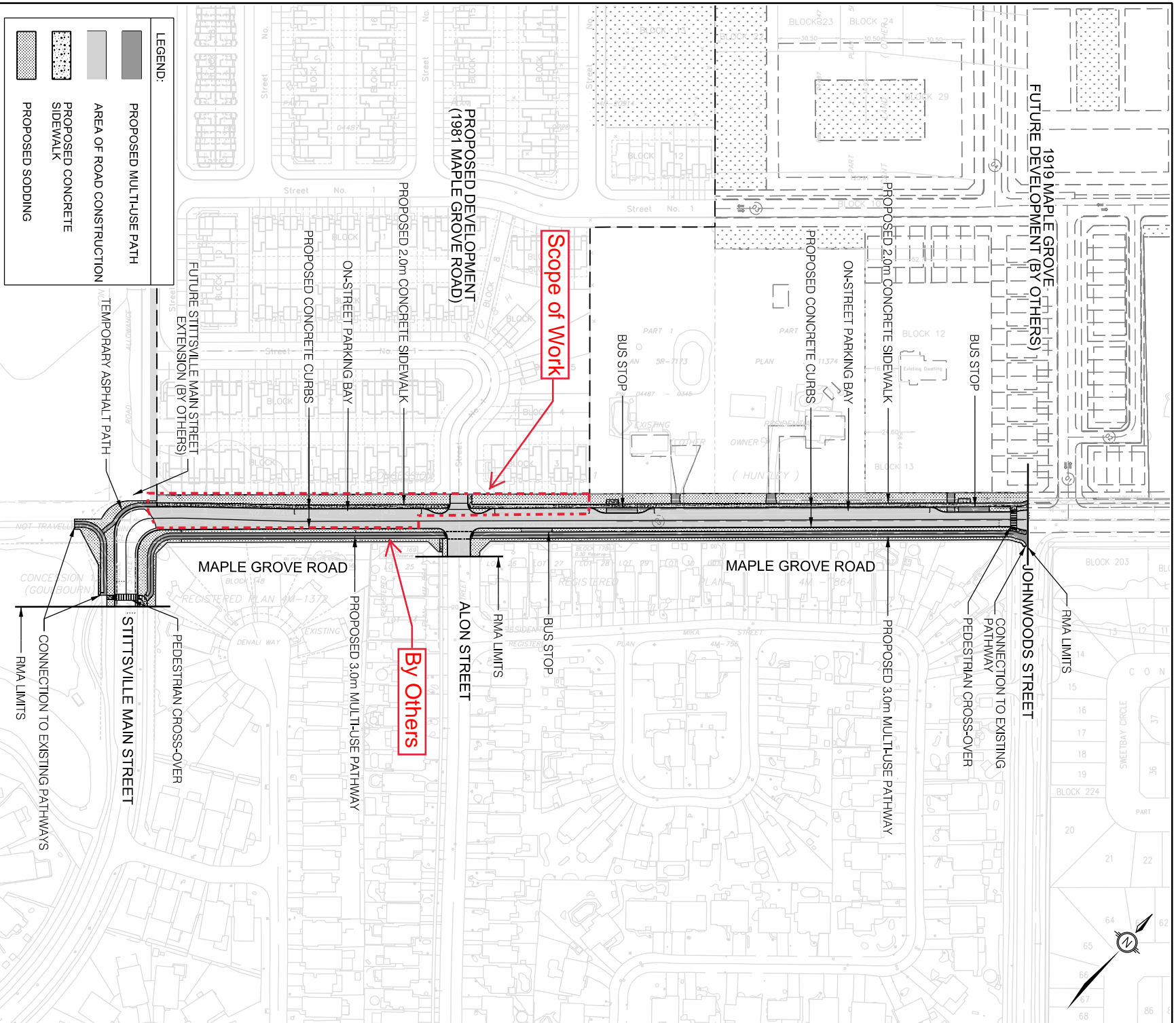
RMA-2018-TPD-046A

Scale:

N.T.S.

Date:

FEBRUARY
2021





**PLANNING AND GROWTH
MANAGEMENT**

**PROPOSED ROADWAY
MODIFICATIONS (DRAFT)**
**MAPLE GROVE ROAD
EXTENSION -
ALON TO STITTSVILLE
MAIN STREET**

Transportation Engineering Services	
Approved By:	Drawing No.:
Completed By:	RMA-2018-TPD-046B
IBI GROUP	
Scale:	Date:
N.T.S.	FEBRUARY 2021