

Proposed Burlington Quarry Expansion JART COMMENT SUMMARY TABLE – Transportation

Please accept the following as feedback from the Burlington Quarry Joint Agency Review Team (JART). Fully addressing each comment below will help expedite the potential for resolutions of the consolidated JART objections and individual agency objections. **Additional, new comments may be provided once a response has been prepared to the comments raised below and additional information provided.**

	JART Comments (February 2021)	Reference	Source of Comment	Applicant Response (June 2021)	JART Response December 2021
	Report/Date: Transportation / Haul Route Study, February 2020		Author: Paradigm Transportation Solutions Limited		
1.	<p>In addition to the provided comments, the Transportation Planning Department provided the following background studies, with corresponding links, for the TIS to consider in its growth rate assumptions and overall background traffic characterization:</p> <ul style="list-style-type: none"> Dundas Corridor Study - Brant St to Bronte Rd - MCEA Study: (2015) https://www.halton.ca/For-Residents/Roads-Construction/Municipal-Class-Environmental-Assessment-Studies/Dundas-Corridor-Study-Brant-St-to-Bronte-Rd-(1) Hamilton - Waterdown/Aldershot Transportation Master Plan – East-West Corridor Study – (2012) https://www.hamilton.ca/city-planning/master-plans-class-eas/waterdownaldershot-transportation-master-plan 	General	Halton Region	<p>The growth rates used in the Dundas Corridor Study and the Hamilton - Waterdown/Aldershot Transportation Master Plan are consistent with the growth rate used in the February 2020 traffic report prepared for the proposed Burlington Quarry Extension.</p> <p>The generalized background traffic growth assumes an annual growth rate of 2% per annum. This growth rate is considered conservative (i.e., high) for the study area. In general terms, peak hour traffic growth is driven by urban development trends and in this area, the new urban development for the next few years is the Waterdown urban expansion, urban Burlington intensification and north Oakville urban expansion. These urban development trends would indicate that traffic growth is most likely to increase in the eastbound and westbound directions along Dundas Street with limited growth along the north/south arterial roadways of Guelph Line and Cedar Springs Road, south of Dundas Street.</p>	2% per annum is considered conservative and is acceptable
2.	Perform safety analysis for the future crossing of No. 2 Side Road. This is where the access to the proposed southern expansion will align with the existing access and large trucks will be crossing city road.	General	City of Burlington	True North Safety (TNS) has prepared a safety analysis for the crossing of No. 2 Sideroad. This report has been provided to JART under separate cover.	The study is related to No. 2 Sideroad and there are no additional comments as the safety issues have been addressed as part of the safety review.
3.	Provide information that the applicant's traffic consultant used to come up with the traffic generated by the quarry. It is needed to confirm the number of vehicles, where these vehicles are coming from and travelling to.	General	City of Burlington	Appendix A in the February 2020 Traffic Study contains confidential data provided by Nelson Aggregate Co. This data was provided to the JART peer reviewer (CIMA Canada Inc.) in November 2020 subject to a Non Disclosure Agreement (NDA) with Nelson Aggregate Co. We understand the City of Burlington is relying upon the peer reviewer to conduct the review on behalf of the City of Burlington.	Confirmed that the numbers provided correspond with the information in the report.
4.	With regard to deemed right of way widths and widening requirements, under the current official plan, the following information is provided, please be advised however that through the application process, through review of the traffic studies, etc., by vested departments/agencies, it may be necessary for additional lands to be dedicated for additional lanes, turning lanes, daylight and visibility triangles etc., Site Engineering defers to the expertise of the City's Transportation department and the Region's Transportation department to confirm requirements.	General	City of Burlington	See MHBC cover letter for response to Comments #4-#14	The deemed rights-of-way should be shown on the site plan with the right of ways clear of quarry operations and facilities.

5.	No. 2 side Road is a City of Burlington owned road, the deemed right of way is 30.0 metres, the actual width varies from +/- 20.0 metres to 25.0 metres. In order to meet the deemed width a variable widening of up to +/- 5.0 metres would be required. The widening would be dedicated (free of charge and all legal and survey costs would be the responsibility of the applicant) through the planning application process. Only an Ontario Land Surveyor (OLS) would be able to accurately determine the actual dimensions and prepare a drawing which accurately shows the deemed right of way/widening.	General	City of Burlington	Refer to Comment Response #4.	Refer to JART Comment Response #4.
6.	Colling Road is a City of Burlington owned road, the deemed right of way is 20.0 metres, the actual width meets deemed, no widening required.	General	City of Burlington	Refer to Comment Response #4.	Refer to JART Comment Response #4.
7.	Cedar Springs Road is a City of Burlington owned road, the deemed right of way is 30.0 metres, the actual width varies from +/- 20.0 metres to 30.0 metres. In order to meet the deemed width a variable widening of up to +/- 5.0 metres would be required. The widening would be dedicated (free of charge and all legal and survey costs would be the responsibility of the applicant) through the planning application process. Only an Ontario Land Surveyor (OLS) would be able to accurately determine the actual dimensions and prepare a drawing which accurately shows the deemed right of way/widening.	General	City of Burlington	Refer to Comment Response #4.	Refer to JART Comment Response #4.
8.	Guelph Line is a Region of Halton owned road, please contact the Region for deemed width and any widening and daylight triangle requirements.	General	City of Burlington	Refer to Comment Response #4.	Refer to JART Comment Response #4.
9.	Official Plan/Transportation Master Plan Right-of-Way Requirements: Any lands within 17.5 metres (57.4 feet) of the centre line of the original right-of-way of Guelph Line (Regional Road 1) that are part of the subject property shall be dedicated to the Regional Municipality of Halton for the purpose of road right-of-way widening and future road improvements.	General	Halton Region	Refer to Comment Response #4.	Refer to JART Comment Response #4.
10.	Municipal Class Environmental Assessment Study/Environmental Study Report (Transportation Planning) Right-of-Way Requirements Guelph Line (Regional Road 1): Any additional lands that are part of the subject property and have been identified as required for the future widening of Guelph Line (Regional Road 1), as identified in a future Municipal Class Environmental Assessment Study/Environmental Study Report, shall be dedicated to the Regional Municipality of Halton for the purpose of road right-of-way widening and future road improvements.	General	Halton Region	Refer to Comment Response #4.	Refer to JART Comment Response #4.
	Currently, a Municipal Class Environmental Assessment has not been completed.				

11	<p>Detail Design Project (Engineering & Construction) Right-of-Way Requirements - Guelph Line (Regional Road 1):</p> <p>Any additional lands that are part of the subject property and have been identified as required for the future widening of Guelph Line (Regional Road 1), as identified in a future Detailed Design Project, shall be dedicated to the Regional Municipality of Halton for the purpose of road right-of-way widening and future road improvements. Currently, a Detail Design has not been completed.</p>	General	Halton Region	Refer to Comment Response #4.	Refer to JART Comment Response #4.
12	<p>A daylight triangle measuring 15.0 metres along Guelph Line (Regional Road 1) and 15.0 metres along Colling Road shall be dedicated to the Regional Municipality of Halton for the purpose of road right-of-way widening and future road improvements.</p>	General	Halton Region	Refer to Comment Response #4.	Refer to JART Comment Response #4.
13	<p>All lands to be dedicated to Halton Region shall be dedicated with clear title (free and clear of encumbrances) and a Certificate of title shall be provided, in a form satisfactory to the Director of Legal Services or his/her designate.</p>	General	Halton Region	Refer to Comment Response #4.	Refer to JART Comment Response #4.
14	<p>Please provide a draft reference plan detailing all of the proposed widening (and daylight triangle) dedications. The quarry lands (both the expansion and existing quarry) north of No. 2 Side Road, are, or will be one property, therefore the widening dedications would be taken on both the expansion and existing quarry lands, as well as for the frontage of the south expansion lands.</p>	General	City of Burlington	Refer to Comment Response #4.	Refer to JART Comment Response #4.
15.	<p>Mitigation Measures – Future Operational Analysis</p> <p>Various movements at intersections within the study area were identified as operating at or above capacity during Total Traffic Conditions. The report does not specifically identify how critical movements operating over capacity attributable to the proposed development can be improved. For example, eastbound and northbound through movements during the AM peak hour at Guelph Line and Dundas Street, are expected to operate above capacity. The eastbound through movement is expected to be addressed by the Dundas Street road widening outlined in the Region's Transportation Master Plan (TMP).</p> <p>However, no specific improvements are recommended for northbound movements on Guelph Line by the report or the Region's TMP.</p> <p>Further information is required regarding proposed improvements for alleviating movements that are expected to operate at or above capacity attributable to the traffic generated by the proposed</p>	General	CIMA Canada Inc.	<p>The following critical movements, per the Halton Region TIS guidelines, are forecast to occur under Total Traffic conditions.</p> <p>Dundas Street and Guelph Line</p> <ul style="list-style-type: none"> • Eastbound left-turn (capacity issue) • Eastbound through (capacity issue) • Westbound left-turn (capacity & queueing issue) • Westbound through (capacity issue) • Northbound left-turn (capacity & queueing issue) • Northbound through (capacity issue) Dundas Street & Cedar Springs Road/Brant Street • Eastbound through (capacity issue) • Westbound left-turn (capacity & queueing issue) • Northbound left-turn (capacity & queueing issue) Guelph Line and 2 Side Road • Eastbound Left-Turn Lane (capacity issue) • Westbound approach (capacity issue) <p>Site generated traffic is not creating any new critical movements at the above noted intersections. Site generated traffic is expected to contribute volumes to only the following critical movements:</p> <p>Dundas Street and Guelph Line</p> <ul style="list-style-type: none"> • Eastbound left-turn – AM peak hour = 4 PCE, PM = zero • Northbound through – AM peak hour = 7 PCE, PM = zero Dundas Street & Cedar Springs Road/Brant Street 	<p>Partially Addressed</p> <p>The effects of the site traffic on the identified future total critical movements are minimal. However, as per the Halton Region Transportation Impact Study Guidelines, when the operations of Regional intersection movements exceed acceptable levels, the TIS is required to investigate how to mitigate the impact of the Proposed Development.</p> <p>The report should identify all movements requiring mitigation measures, even if not as a direct result of the proposed development. A section is required in the revised Transportation Impact Study which provides a summary of the recommendations in accordance with Halton Region Guidelines.</p>

development.

- Eastbound through – AM peak hour = 4 PCE, PM = zero Guelph Line and 2 Side Road
- Eastbound Left-Turn Lane – AM peak hour = 21 PCE, PM = 4.

Of the four critical movements identified as being a concern under the total traffic horizon where site traffic contributes volumes, the following movements are also considered critical under the background traffic horizon (i.e. no site traffic):

Dundas Street and Guelph Line

- Eastbound left-turn – (capacity issue)
- Northbound through – (capacity issue) Dundas Street & Cedar Springs Road/Brant Street
- Eastbound through – (capacity issue) Guelph Line and 2 Side Road
- Eastbound Left-Turn Lane (capacity issue)

Site traffic related to a 2.0 million tonnes per annum extraction limit has negligible impact on traffic operations. Of the four critical movements identified to occur under total traffic operations, site traffic is expected to have very little impact on intersection operations beyond the 2 Side Road intersection with Guelph Line. **Table 1** below summarizes the change in delay per vehicle, v/c ratio and queue length between total traffic operations and background traffic operations.

The generalized increase in background traffic growth (2% per annum) is expected to have a greater impact on intersection operations than site traffic generated by the site.

TABLE 1: OPERATION SUMMARY – CRITICAL MOVEMENTS IMPACTED BY SITE TRAFFIC

Intersection/ Movement	Horizon Year	Intersection Operations								Change						
		AM Peak Hour				PM Peak Hour				AM Peak Hour			PM Peak Hour			
		LOS	Delay	v/c	Q	LOS	Delay	v/c	Q	Delay	v/c	Q	Delay	v/c	Q	
Dundas Street & Guelph Line	EBL	Existing	C	25	0.44	51	F	125	0.89	41						
		Background	C	28	0.53	60	F	176	1.02	47	3	0.09	9	51	0.13	6
		Total	C	28	0.54	62	F	176	1.02	47	0	0.01	2	0	0.00	0
	NBT	Existing	B	14	0.31	58	C	27	0.88	289						
		Background	F	182	1.32	208	E	62	0.84	115	168	1.01	150	35	-0.04	-174
		Total	F	187	1.32	210	E	62	0.84	115	5	0.00	2	0	0.00	0
Dundas Street & Brant Street	EBT	Existing	C	33	0.94	195	C	25	0.41	63						
		Background	E	57	1.04	288	C	26	0.44	70	24	0.10	93	1	0.03	7
		Total	E	58	1.04	229	C	25	0.24	10	1	0.00	-59	-1	-0.20	-60
Guelph Line & 2 Side Road	EBL	Existing	D	29	0.53	24	F	53	0.57	24						
		Background	E	41	0.70	40	F	93	0.80	38	12	0.17	16	40	0.23	14
		Total	F	121	1.08	94	F	100	0.83	41	80	0.38	54	7	0.03	3

16. Mitigation Measures – Queue Lengths
Some of the 95th percentile queues reported are expected to exceed the available storage length (e.g., 2024 PM peak hour northbound and westbound left turning movements at Guelph Line & Dundas Street are expected to exceed available storage by 106.0 and 214.0 metres, respectively). The eastbound through movement is expected to be addressed by the Dundas Street road widening outlined in the Region’s Transportation Master Plan (TMP) as previously mentioned; however, no mitigation measures are recommended to address the excessive northbound left queues.

Assess and provide mitigation measure to address the excessive 95th percentile queues that are expected to exceed available storage at Guelph Line & Dundas Street.

General

CIMA
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Inc.

The following queue lengths are forecast to exceed the available existing storage at the signalized intersection of Dundas Street and Guelph Line under total traffic conditions.

- Westbound left-turn
- Northbound left-turn

Site generated traffic is not expected to contribute volumes to these two movements. Both turning movements are identified as critical movements under existing conditions and are expected to remain critical with or without the approval of the quarry extension.

It is anticipated that the storage requirements for the westbound left-turn movement from Dundas Street to Guelph Line will be addressed by the Dundas Street road widening outlined in the Region’s Transportation Master Plan (TMP). The existing storage lane length for this movement is approximately 115 m. The forecast queue length is approximately 400 m. The forecast volume for this movement is approximately 715 PCE during the PM peak hour. The forecast volume suggests the need for dual westbound left-turn lanes.

The existing storage lane length for the northbound left-turn lane is 50 m. Guelph Line between Dundas Street and Driftwood Drive/Coventry Way is currently designed as a 5 lane cross-section with a painted centre median measuring approximately 5 m in width. The Carncastle Gate intersection with Guelph Line operates as a right-in/right-out connection with left-turns restricted by a raised centre median. There are no private driveways or intersections along Guelph Line between Dundas Street and Driftwood Drive/Coventry Way. This would allow the road authority to repaint the existing center median to provide additional storage for the northbound left-turn movement. The analysis contained in the February 2020 report suggests a storage lane length of approximately 190 m is needed for this movement. The additional storage can be accommodated by repainting the existing center median to provide the additional storage.

Table 2 below summarizes the operational conditions for the Dundas Street and Guelph Line intersection under total traffic conditions with the implementation of a dual westbound left-turn lane with 115 m of storage (existing storage) and northbound left-turn lane with 190 m of storage.

The additional storage for the northbound left-turn lane and dual westbound left-turn lanes would address the forecast queueing issues expected to occur under the five-year horizon (year 2024). Site generated traffic is not expected to contribute volumes to these two movements.

Addressed

The following mitigation measures are provided at Guelph Line & Dundas Street to address the forecasted queueing issues:

- Dual westbound left-turn lanes; and
- Extending the northbound left-turn lane storage lane capacity to 190 metres.

Table 2 outlines the 2024 total traffic operations with the proposed mitigation measures.

TABLE 2: TOTAL TRAFFIC OPERATIONS – WITH REMEDIAL MEASURES (DUNDAS STREET & GUELPH LINE)

Analysis Period	Intersection	Control Type	MOE	Direction / Movement / Approach																OVERALL
				Eastbound				Westbound				Northbound				Southbound				
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Guelph Line & Dundas Street	TCS	LOS	C	F	C	F	E	B	>	C	D	F	>	F	D	D	D	D	F
			Delay	28	118	23	100	79	14	>	31	37	202	>	184	46	48	43	47	99
			V/C	0.54	1.16	0.31		0.83	0.35	>		0.39	1.38	>		0.69	0.45	0.05		1.10
			95th	62	402	53		63	67	>		43	218	>		54	64	5		
			Storage Avail.	100	-	70		115	-	>		190	-	>		70	-	70		
PM Peak Hour	Guelph Line & Dundas Street	TCS	LOS	F	C	C	D	C	D	>	D	F	E	>	F	D	E	D	D	D
			Delay	171	34	27	39	23	42	>	37	168	62	>	96	44	58	49	53	50
			V/C	1.02	0.58	0.14		0.77	0.98	>		1.22	0.84	>		0.62	0.77	0.37		1.00
			95th	50	134	24		75	380	>		156	115	>		48	98	50		
			Storage Avail.	100	-	70		115	-	>		190	-	>		70	-	70		

MOE - Measure of Effectiveness

V/C - Volume to Capacity Ratio

> - Shared Right-Turn Lane

TCS - Traffic Control Signal

95th - 95th Percentile Queue Length

< - Shared Left-Turn Lane

TWSC - Two-Way Stop Control

LOS - Level of Service

17	<p>Safety Analysis It is suggested for the terms of reference that a 'Safety Analysis' section will be included in the report to discuss potential safety or operational issues (per Region's TIS Guidelines, Section 3.6.2) in the study area. Even if there are no safety issues, a review should be completed and documented in the TIS report.</p> <p>Include a Safety Analysis section in the report to discuss potential safety or operational issues.</p>	General	CIMA Canada Inc.	<p>True North Safety prepared a safety analysis for No. 2 Sideroad which has been provided to JART under separate cover. Guelph Line is a Regional Road that has been designed to accommodate truck traffic and is the existing haul route and the only haul route available for the proposed Burlington Quarry Extension. Refer to Comment Response #18.</p>	<p>Addressed A Safety Analysis Report is provided by the True North Safety Group.</p>
18	<p>Haul Route Study Although the Report states that there are no changes to the proposed haul route and no new impacts to the road network are anticipated, the Report does not mention the preparation of a Haul Route Study. It should be noted that the request for a Haul Route Study was identified by the Region's report LPS08-20 – Proposed Expansion to the Burlington Quarry (Nelson), Pre-Consultation Meeting.</p> <p>Complete a Haul Route Study following the requirements identified by the Region's Aggregate Resources Reference Manual for the preparation of a Transportation/Haul Route Study.</p>	General	CIMA Canada Inc.	<p>The Burlington Quarry has been producing aggregate since 1953. The proposed quarry extensions will allow the Burlington Quarry to continue to produce aggregate at its existing location. The haul route used to ship material to market will remain unchanged. All material shipped to market, except local deliveries, will travel east to/from Guelph Line (Regional Road 1). The Regional Road network will support the movement of goods to market including the resources produced at the Burlington Quarry. All Regional roads are classified and designed to accommodate truck traffic¹.</p> <p>All trucks hauling material to market are expected to follow and adhere to the existing, and future, truck route network. Local deliveries may require a deviation from identified truck routes.</p> <p>To the west of the subject site there is an existing truck prohibition which limits truck traffic on No 2 Sideroad. No changes to the truck prohibition are proposed. The existing prohibition was established by Council Resolution CC-83-05. The existing truck prohibition requires all quarry truck traffic to travel to/from Guelph Line. No other haul route options are available to the subject site. The site driveway for heavy vehicles is located approximately 350 metres from the Regional road network. The existing haul route provides the shortest most direct route to the Regional road network while limiting impacts to local roadways.</p> <p>The rock trucks shipping material across No 2 Sideroad from the South Extension lands will be contained to the driveway intersection. The South Extension driveway is located approximately 485 m west of Guelph Line. Rock trucks will not travel along No 2 Sideroad. Rock trucks will only cross No 2 Sideroad until the South Extension is exhausted.</p>	<p>Addressed The proposed extension does not change the existing haul routes. The February 2020 traffic report and PTSL's June 2021 response addressed the criteria outlined in the Transportation/Haul Route Study Objectives listed in the Section 4.9 of the Region's Aggregate Resource Reference Manual.</p>
19	<p>Travel Demand Figure 2.1 shows that the highest traffic volumes during the PM peak occurs between 2:00 PM and 3:00 PM. This is confirmed by the statement in Section 2.2.3 that says: "Shipping actively begins to taper off around 3PM". However, the TMCs provided in Appendix B for the driveway site show that the highest PM peak hour occurs between 4:30 and 5:30 PM. Please confirm and update the report as necessary to be consistent.</p> <p>Please update Sections 2.2.1 and 2.2.3 to a consistent PM peak hour with the TMCs.</p> <p>If the PM peak hour at the site is the same as the Guelph Line peak hour, no changes in the traffic analysis are necessary. However, if the PM peak hour at the site occurs between 2:00 and 3:00 PM, it is recommended to conduct an additional PM peak operational analysis.</p>	Section 2.2.1, Section 2.2.3, Figure 2.1, and Appendix B	CIMA Canada Inc.	<p>Although the site traffic tapers off around 3PM the AM and PM hour of the adjacent street was used to provide a conservative analysis of intersection capacity.</p> <p>At Guelph Line & No 2 Side Road the entering volume during the PM peak hour is 1,156 vehicles. During the 3:00 PM hour the entering volumes are 356 vehicles per hour lower at 800 vehicles per hour.</p> <p>Table 3 below summarizes the two-way traffic volumes on Guelph Line at No 2 Side Road and the two-way volumes using the site driveway for the AM and PM count periods. High lighted cells indicate the peak hour for Guelph Line and the site driveway. The two-way volumes using both Guelph Line and the site driveway peak at the same time during the AM count period. During the PM count period, two-way volumes using the site driveway peak prior to Guelph Line. The peak hour for the network is the adjacent street PM peak hour.</p> <p>Off peak analysis is not expected to result in the identification of any new capacity issues vs. the findings of the February 2020 Traffic Report.</p>	<p>Addressed Comment indicates that the PM peak hour at Guelph Line & Number 2 Side Road was used (as shown in Section 2.2.1) and not the peak hour of the Site access.</p>

TABLE 3: TWO-WAY VOLUME SUMMARY

Period	Time Ending	Guelph Line Two-Way	Driveway Two-Way	SUM
AM	08:00	781	79	860
	08:15	839	84	923
	08:30	850	88	938
	08:45	846	80	926
	09:00	821	83	904

PM	16:00	732	41	773
	16:15	784	33	817
	16:30	884	28	912
	16:45	977	28	1,005
	17:00	1,037	27	1,064
	17:15	1,090	23	1,113
	17:30	1,078	19	1,097
	17:45	1,067	17	1,084
	18:00	1,022	10	1,032

20 Trip Generation
 In Section 2.2.3 the report provides details of heavy vehicle generation in recent years at the existing site. It is noted that the Nelson Quarry does not own or operate any trucks for the transportation of materials from the point of origin to the quarry or to an end use location; rather, it is the customer and their contractors, that transports material. Given the report examines the customers' truck fleet, outlines are given for typical truck sizes, trailer configurations and average net load per outgoing trip. However, to determine the estimated truck trips generated by the proposed site expansion, the proponent's consultant conducted a review of detailed shipping records from 2014 to 2018. The report indicates that records used for the review are confidential and only available upon request.

The details provided in Section 2.2.3 of the report are satisfactory; however, a review of the detailed shipping records would be beneficial to provide more details on truck types and material loads to verify the typical truck sizes and load volumes to be expected as part of the Quarry's operations. As such, it is recommended that the Region should request the detailed shipping records from Appendix A.

Section 2.2.3 and Appendix A

CIMA Canada Inc.

Appendix A in the February 2020 Traffic Study contains confidential data provided by Nelson Aggregate Co. This data was provided to the JART peer reviewer (CIMA Canada Inc.) in November 2020 subject to a Non Disclosure Agreement (NDA) with Nelson Aggregate Co. We understand the Region of Halton is relying upon the peer reviewer to conduct the review on behalf of the Region of Halton.

Addressed
 Nelson Aggregate Company's quarry trucking details were provided for review in November 2020.

21	<p>Trip Distribution Future quarry activity estimates are based on the turning movement count done in October 2019 and factored to the maximum quarry production of 2.0 million tonnes per annum. The TMC data indicates 84 AM peak hour trips with 28 (98 passenger car equivalents (PCE)) two-way additional heavy vehicle trips and 15 PM peak hour trips with 1 (4 PCE) two-way additional heavy vehicle trip. No justification is provided for the number of estimated additional two-way trips.</p> <p>Additionally, the trip distributions shown in Figures 4.2A and 4.2B require further explanation or adjustments. For example, Figure 4.2A indicates 28 additional inbound trips are making southbound right-turns from Guelph Line but there are only 21 outbound trips making an eastbound left-turn onto Guelph Line.</p> <p>Please provide further justification for the number of additional trips estimated in Table 4.1. Additionally, update Figure 4.2A and 4.2B to reflect outbound trips returning on the same path as the inbound trips or provide justification for the different origin/destination points. Any changes to the future operations should be reflected in the future improvement scenario.</p>	Table 4.1 and Figures 4.2A and 4.2B	CIMA Canada Inc.	<p>Nelson does not own or operate any trucks for the shipping of material to market; rather, customers and their contractors transport the material from the quarry by truck.</p> <p>The site's trip generation for 2 million tonnes has been estimated by prorating the existing extraction rate 1.5 million tonnes.</p> <p><i>"the estimated total future truck levels shown in Table 4.1 of the subject TIS are appropriate estimates for the future peak hour truck volumes."</i> - Refer to comment #23</p> <p>As Nelson does not own or operate any of the trucks shipping material to market, vehicles may not return to the site on the same path. The estimated trip distribution pattern reflects existing travel patterns as documented under existing conditions. Table 4 below, summarizes the estimated trip distribution.</p> <div data-bbox="1498 512 2256 858" data-label="Table"> <p style="text-align: center;">TABLE 4: ESTIMATED TRIP DISTRIBUTION</p> <table border="1"> <thead> <tr> <th rowspan="2">Origin/Destination</th> <th colspan="2">AM Peak Hour</th> <th colspan="2">PM Peak Hour</th> </tr> <tr> <th>In</th> <th>Out</th> <th>In</th> <th>Out</th> </tr> </thead> <tbody> <tr> <td>North via Guelph Line</td> <td>60%</td> <td>40%</td> <td>60%</td> <td>75%</td> </tr> <tr> <td>South via Guelph Line</td> <td>15%</td> <td>30%</td> <td>20%</td> <td>15%</td> </tr> <tr> <td>South via Brant Street</td> <td>0%</td> <td>5%</td> <td>0%</td> <td>0%</td> </tr> <tr> <td>East via Dundas Street</td> <td>20%</td> <td>15%</td> <td>20%</td> <td>10%</td> </tr> <tr> <td>West via Dundas Street</td> <td>5%</td> <td>10%</td> <td>0%</td> <td>0%</td> </tr> <tr> <td>Total</td> <td>100%</td> <td>100%</td> <td>100%</td> <td>100%</td> </tr> </tbody> </table> </div> <p>No update to the site traffic assignment or the site trip generation for a 2.0 million tonne licence limit is recommended at this time.</p> <p>The haul route used to ship material to market will remain unchanged from existing. All material shipped to market, except local deliveries, will travel east to/from Guelph Line (Regional Road 1). The Regional Road network will support the movement of goods to market including the resources produced at the Burlington Quarry. All Regional roads are classified and designed to accommodate truck traffic².</p>	Origin/Destination	AM Peak Hour		PM Peak Hour		In	Out	In	Out	North via Guelph Line	60%	40%	60%	75%	South via Guelph Line	15%	30%	20%	15%	South via Brant Street	0%	5%	0%	0%	East via Dundas Street	20%	15%	20%	10%	West via Dundas Street	5%	10%	0%	0%	Total	100%	100%	100%	100%	<p>Addressed Based on the review of the data provided in Appendix A, the estimated total future truck levels shown in Table 4.1 of the subject TIS are appropriate estimates for the future peak hour truck volumes.</p> <p>The comments section provides justification for the trip distributions (shown in Figures 4.2A and 4.2B of the report) in Table 4: Estimated Trip Distribution.</p>
Origin/Destination	AM Peak Hour		PM Peak Hour																																									
	In	Out	In	Out																																								
North via Guelph Line	60%	40%	60%	75%																																								
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Total	100%	100%	100%	100%																																								
22	<p>Paradigm Methodology Paradigm reviewed the detailed shipping records, provided in Appendix A, that contain shipping details from 2014 to 2018. Based on the shipping details, they estimated trucking levels for a 2.0 tonnes per annum scenario. This scenario includes three distinct types of truck trips entering and exiting the quarry. The first distinct type, which accounts for all the outbound trips, is aggregate material that is mined and processed in the quarry. The second and third distinct types, which are incoming trips to the quarry, are clean fill and recycling materials. Estimates of approximately 50.0% to 58.0% of the incoming trucks with clean fill and recycling material between 2014 and 2017 also left with a load of aggregate. In 2018, the proportion these incoming trucks leaving with aggregate increased by about 23.0%. The estimates were used to calculate the annual inbound and outbound truck trips from 2014 to 2018.</p> <p>Additionally, estimates of the future increase to</p>	Table 4.1 and Appendix A	CIMA Canada Inc.	Acknowledged.	Refer to JART Comment response #20.																																							

	<p>truck volumes were calculated based on the details shipping records. The estimates were developed by adding the truck volumes from the October 2019 site driveway turning movement count to the volumes estimated from the average daily trucks served in 2018. The volumes from the TMC as well as the estimated volumes are shown in Table 4.1 of the TIS report.</p>				
23.	<p>Peer Review Findings Based on the review of the detailed data provided in Appendix A, CIMA verified that the estimated 50.0% of the clean fill and recycling trips that left with aggregate, was used to calculate annual inbound and outbound truck trips from 2014 to 2017, while 77.0% was used for 2018.</p> <p>Based on the review of the detailed 2018 data provide in Appendix A, the estimated total future truck levels shown in Table 4.1 of the subject TIS are appropriate estimates for the future peak hour truck volumes.</p> <p>From Table 4.1, the future estimated truck volume is 29, which is added to the existing TMC volumes. To verify the estimated volumes CIMA examined the 2018 month-by-month total (aggregate, clean fills and recycling trips) average daily trucks served in 2018. The total average daily trucks served averaged for the year was 31 trucks (rounded up). The value is fairly close to the 29 total trucks estimated by Paradigm.</p> <p>However, CIMA was unable to verify the distribution of the estimated 29 total trucks between the AM and PM peak hours. The subject TIS distributes 28 trucks (evenly distributed between inbound and outbound) to the AM peak hour and 1 outbound truck to the PM peak hour. Based on the TMC volumes shown in Table 4.1, 15.0% of the estimated 29 added trucks, or 4 trucks, should be allocated to the PM peak hour.</p> <p>The TMC provided in Appendix B, does not include a detailed breakdown of the vehicles in the PM peak hour. A detailed breakdown of the vehicle types entering and exiting the site, such as the one for the AM peak hour, is needed to verify the added truck volumes in PM peak hour of the subject TIS.</p> <p>In summary, the process used to estimate the added future truck volumes for both peak hours was verified; however, the distribution of the added truck volumes could not be verified.</p> <p>It is recommended that a detailed breakdown of</p>	Table 4.1 and Appendices A and B	CIMA Canada Inc.	Appendix B of the February 2020 TIS contains the existing turning movement counts. The TMC data provides a break down of vehicle classification.	<p>Partially Addressed Appendix B provides a detailed breakdown of vehicle types for the AM peak hour. However, it does not provide the breakdown of heavy vehicles for the PM peak hour. Additionally, attachment 3 provides a breakdown of vehicle class for all study area intersections except for at Gravel Pit & Number 2 Side Road intersection.</p>

	PM peak hour TMC data be provided, similar to the data provided for the AM peak hour.				
24	<p>Future Traffic Operations Tables 4.2 and 4.3 show future traffic operations at all study area intersections. Signalized and unsignalized intersections are together in the same table. Signalized and unsignalized intersections should not be in the same table as the level of service for a stop-controlled intersection differs from a signalized intersection.</p> <p>Please provide separate tables for signalized and unsignalized intersections for all traffic operational analyses.</p>	Tables 4.2 and 4.3	CIMA Canada Inc.	<p>Acknowledged. Separate tables are not required to summarize operational conditions. The tables contained in the February 2020 TIS reflects the different LOS thresholds for unsignalized and signalized intersections.</p> <p>Attachment 1 contains the requested separate operational tables for ease of review.</p>	Addressed Attachment 1 provides the separate tables for signalized and unsignalized intersections.
25	<p>Mitigation Measures – Traffic Signal Warrant A traffic signal warrant analysis was undertaken for the intersection of Guelph Line & No. 2 Sideroad. The report mentions that the traffic signal was not warranted. However, the volumes used for the traffic signal warrant did not match those in Figures 4.3A/B (Total Traffic Conditions).</p> <p>It is recommended to review the volumes used for the traffic signal warrant and update the analysis as necessary.</p>	Figures 4.3A and 4.3B	CIMA Canada Inc.	<p>OTM warrants utilize total count volume forecast for the intersection with no PCE factor applied.</p> <p>Attachment 2 contains supplementary OTM Warrant analysis with a PCE factor applied.</p> <p>Traffic control signals at the intersection of Guelph Line & No. 2 Sideroad are not warranted using OTM Book 12 Justification 7.</p>	Addressed Attachment 2 provides a supplementary signal warrant analysis. The results indicate that signalization is not warranted.
26	<p>Access Road In Section 5.2.1 the second bullet point for site operational assumptions indicates the expected number of working days per year will be 208. However, in Table 5.1 the number of operating days used for calculating average tonnage per year is 250.</p>	Section 5.2.1 and Table 5.1	CIMA Canada Inc.	<p>The difference between Section 5.2.1 and Table 5.1 accounts for the theoretical maximum tonnage of 2.0 tonnes per annum. The table assumes the 2.0 million tonne per annum limit is comprised of only new material extracted from the South Extension.</p> <p>The traffic impact assessment has been completed based on the proposed limit of 2.0 million tonnes per annum and considers asphalt production, aggregate recycling and clean fill imported for rehabilitation.</p> <p>With the existing 208 working days per year the tonnage would be approximately 1.75M tonnes where 250 working days per year equates to approximately 2.1M tonnes.</p>	Partially Addressed Table 5 in the comments provides an updated table with 208 working days per year. However, no explanation is provided for the change in two-way truck traffic crossing Number 2 Side Road (from 85 PCE vehicles to 90 PCE vehicles during the AM during the PM) from the AM peak hour to the PM peak hour. Finally, reference is made for the Number 2 Side Road access to the Halton Region Access Management Guidelines. The Number 2 Side Road access is over 400 metres from Guelph Line. The Halton Region Access Management Guidelines for a full movement access indicates a spacing between 300 to 400 metres.

Additionally, Table 5.1 shows the number of two-way truck trips is 24 per hour (84 PCE). However, the number of PCE vehicles per hour increase from 85 PCEs in the AM peak to 90 PCEs in the PM peak without any further background.

Finally, Section 5.2.1 mentions that the South Extension Access Road will be designed to accommodate the heavy truck design vehicle (CAT 775 70-tonne rock truck) and will be stop-controlled, however no reference to the requirements of Halton Region's "Access Management Guidelines" is presented as part of the report.

Update Table 5.1 with the proper estimate for the working days per year and update the affected calculations.

Please provide clarification for the change in two-way truck traffic crossing Number 2 Side Road from the AM peak hour to PM peak hour.

Please refer to Region's Access Management Guidelines for the South Extension's Access Road design considerations.

Although this adjustment was made, the number of working days per year has no effect on the truck trip generation as the generation based on the number of trucks, trips per hour and hours of operation. **Table 5** below provides an updated table with 208 working days.

TABLE 5: ESTIMATED SOUTH QUARRY EXTENSION CROSSING TRAFFIC

Measure	Units	Input	Calculation
CAT 772 Trucks	Trucks	4	
One Way Trips per Hour	Trips/Hour	3	
Operating Hours per Day	Hours/Day	10	
One way Truck Trips	Truck Trips/Day		120
Operating Days per Year	Days/Year	208	
One way Truck Trips	Truck Trips/Year		24,960
Average Load per Truck	Tonnes/Truck	70	
Average Tonnes per Year	Tonnes/Year*		1,747,200
Loaded Inbound Trips	Trucks/Hour		12
Empty Outbound Trips	Trucks/Hour		12
Total Two-Way Truck Trips	Trucks/Hour		24

**Extraction limited by license amount.*

The No. 2 Side Road driveway is proposed approximately 485 m west of Guelph Line. No. 2 Side Road is under the City of Burlington jurisdiction and is classified as a collector roadway³. Halton Region Access Management Guidelines do not apply to this City roadway. But the proposed spacing between the site driveway and Guelph Line exceeds the minimum spacing guideline outlined in the Regional document. "The general spacing guidelines for a full movements access is 300 metres to 400 metres⁴."

For additional information regarding the No. 2 Sideroad crossing, please see the True North Safety study provided to JART under separate cover.

It is expected that the South Extension Access Road will be designed to accommodate the heavy truck design vehicle and that the northbound and southbound approaches will operate under stop control. Additional signage and/or gates to restrict the Access Road to authorized vehicles only should be considered.

27. Provision of Confidential Truck Counts
In Appendix A, an NDA has been requested for release of Confidential Truck Count Data by Nelson Aggregated to the Region. The Region would like to pursue this request to allow for confirmation of TIS analysis and results, including peer review consultant permissions to view the data. Without the held data the Trip Generation assumptions about the typical truck sizes and load volumes to be expected as part of the Quarry's operations based on truck types and material loads cannot be verified.

(Note: Planning's direction/assistance on how to proceed with the NDA process will be required.)

Appendix A
Halton Region

Appendix A in the February 2020 Traffic Study contains confidential data provided by Nelson Aggregate Co. This data was provided to the JART peer reviewer (CIMA Canada Inc.) in November 2020 subject to a Non Disclosure Agreement (NDA) with Nelson Aggregate Co. We understand the Region of Halton is relying upon the peer reviewer to conduct the review on behalf of the Region of Halton.

Refer to JART Comment response #20.

28.	<p>Peak Hour Factor The intersection of No. 2 Side Road and the Quarry driveway was the sole TMC to provide a 15-minute volume breakdown. CIMA was not able to verify the peak hour factor (PHF) for the other study area intersections due to the provided TMCs not having 15-minutes volume breakdowns.</p> <p>Please provide the full TMC for all study area intersections in Appendix B.</p>	Appendix B	CIMA Canada Inc.	The PHF was established using existing traffic data as per the Region of Halton TIS guidelines. Full 15-minute volume breakdown TMC's for all locations are provided in Attachment 3 .	Addressed Full 15-minute volume breakdown TMCs for all locations are provided in Attachment 3.
JART Site Plan Comments (December 2021)		Reference	Source of Comment	Applicant Response	JART Response
29.	<p>The northbound and southbound approaches to Side Road No. 2 shall be controlled by stop sign control.</p> <p>Comment: The information presented in the Site Plan corresponds with the recommendation provided in Section 5.2.1. of the Burlington Quarry Extension Traffic Report (February 2020) and reconfirmed by the Safety Review of the Proposed Access Plan completed by True North Safety Group (TNS) in June 2021.</p>		CIMA Canada Inc.		
30.	<p>The new roadway crossing will be located on the crest on Side Road No. 2 (in the location shown on the plan view) with a clear sight distance of at least 215 metres in each direction along Side Road No. 2 for both the northbound and southbound approaches.</p> <p>Comment: The information presented in the Site Plan corresponds with the recommendation provided in Section 5.2.2. of the Burlington Quarry Extension Traffic Report (February 2020). However, the information presented in Section 2.4.5. of the TNS report indicates a recommended sight distance of 220 in each direction for the 70-tonnes trucks.</p>		CIMA Canada Inc.		
31.	<p>The roadway geometry and road bed structure will be designed to accommodate the rock trucks that the licensee plans to operate</p> <p>Comment: Information contained in the Site Plan should include the recommendation presented in Section 2.4.4. of the TNS report.</p>		CIMA Canada Inc.		

32.	<p>Prior to extraction commencing in the South Extension, the licensee will be responsible to upgrade the crossing on Side Road No. 2 to municipal standards. During operations in the South Extension, the licensee will be responsible for maintaining this crossing. The licensee is responsible for all costs associated with the crossing, including signage at the crossing. (Financial Report).</p> <p>Comment: No comments. Side Road No. 2 is under municipal jurisdiction.</p>		CIMA Canada Inc.		
33.	<p>Various notes on the proposed site plan should reflect the integrated nature of the operation desired by the proponent. This includes, but not limited to, capping the maximum number of vehicle trips across all licenced areas (current and proposed). The maximum number of vehicle trips shall be cumulative across all licenced areas (current and proposed).</p>		Halton Region		