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)	Applicant Response (June 2022)	JART Response (June 2023)
Report/Date: Transportation / Haul Route Study, February 2020		Author: Paradigm Transportation Solutions Limited			
1. 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: □ 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-Stto- Bronte-Rd-(1) □ Hamilton - Waterdown/Aldershot Transportation Master Plan – East-West Corridor Study – (2012) https://www.hamilton.ca/cityplanning/ master-plans-classeas/ waterdownaldershot-transportationmaster- plan 	Halton Region	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. 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.	2% per annum is considered conservative and is acceptable	Addressed. No Action	
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.	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.	Addressed. No Action	
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.	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.	Addressed. No Action	
 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. 	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.	The existing and future rights-of-way are clear of quarry operations and facilities. The ARA Site Plans, attached as Tab 1, identify the existing right of ways. The Region and City have no authority to take land for the future right-of-ways as part of the proposed application to permit the proposed Burlington Quarry Extension since Site Plan Approval or Plan of Subdivision approval from the City and Region is not required.	
 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. 	City of Burlington	Refer to Comment Response #4.	Refer to JART Comment Response #4.	Refer to Comment Response #4.	Not resolved.
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.	City of Burlington	Refer to Comment Response #4.	Refer to JART Comment Response #4	Refer to Comment Response #4.	Not resolved.
 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 	City of Burlington	Refer to Comment Response #4.	Refer to JART Comment Response #4	Refer to Comment Response #4.	Not resolved.

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.						
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	Refer to Comment Response #4.	Not resolved.
9. Official Plan/Transportation Master Plan Right- of- Way Requirements: Any lands within 17.5 metres (57.4 feet) of the center 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.	Refer to Comment Response #4.	The previous JART response to Comment #4 still stands. The deemed rights-of-way should be shown on the site plan with the right of ways clear of quarry operations and facilities.
 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. Currently, a Municipal Class Environmental Assessment has not been completed. 	General	Halton Region	Refer to Comment Response #4.	Refer to JART Comment Response #4.	Refer to Comment Response #4.	Refer to JART Comment Response #9.
 11. Detail Design Project (Engineering & Construction) 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 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. 	General	Halton Region	Refer to Comment Response #4.	Refer to JART Comment Response #4.	Refer to Comment Response #4.	Refer to JART Comment Response #9.
12. 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.	General	Halton Region	Refer to Comment Response #4.	Refer to JART Comment Response #4.	Refer to Comment Response #4.	The previous JART response to Comment #4 still stands. The deemed rights-of-way including the daylight triangles should be shown on the site plan with the right of ways and daylight triangles clear of quarry operations and facilities.
13. 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.	General	Halton Region	Refer to Comment Response #4.	Refer to JART Comment Response #4.	Refer to Comment Response #4.	Refer to JART Comment Response #9.
14. 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.	General	City of Burlington	Refer to Comment Response #4.	Refer to JART Comment Response #4.	Refer to Comment Response #4.	Not resolved.
15. Mitigation Measures –Future Operational Analysis Various movements at intersections within the study area were identified as operating at or above capacity during Total Traffic Conditions. There port does not specifically	General	CIMA Canada Inc.	 The following critical movements, per the Halton Region TIS guidelines, are forecast to occur under Total Traffic conditions. Dundas Street and Guelph Line Eastbound left-turn (capacity issue) Eastbound through (capacity issue) 	Partially Addressed The effects of the site traffic on the identified future total critical movements are minimal. However, as per the Halton Region	As noted the effects of site traffic to critical movements are minimal and are a result of existing and planned traffic levels. Although these mitigation measures are not a	Acknowledged. We are assuming that the requested information will be included in the addendum letter.

	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). However, no specific improvements are recommended for northbound movements on Guelph Line by the report or the Region's TMP . 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 development			Westbound left-turn (capacity & queueing issue) Westbound through (capacity sue) Northbound left-turn (capacity sue) Northbound through (capacity issue) Northbound left-turn (capacity & queueing issue) Westbound left-turn (capacity & queueing issue) Westbound left-turn (capacity & queueing issue) Northbound left-turn (capacity & queueing issue) Westbound left-turn (capacity & queueing issue) Northbound left-turn (capacity & queueing issue) Westbound approach (capacity & queueing issue) Westbound approach (capacity issue) Westbound left-turn (capacity & queueing issue) Westbound left-turn (capacity & queueing issue) Westbound left-turn (capacity issue) Westbound left-turn (capacity issue) Westbound left-turn ane (capacity issue) Westbound 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 Eastbound through – AM peak hour = 21 PCE, PM = zero Guelph Line and 2 Side Road Eastbound through – AM peak hour = 21 PCE, PM = zero Guelph Line and 2 Side Road Eastbound through – 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) 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 coccur under total traffic operations, site traffic coperations. The generalized increase in background traffic growth (2% per an	Tra the movies require sec Tra sun acc
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 Canada 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 400m. 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 repain the existing center median to provide 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 	Add The pro add • • Tat ope me

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.	requirement for Nelson to implement, as requested Paradigm will provide an addendum letter outlining potential remedial measures that could be considered by the road authorities.	
Is required to investigate now to mitigate the impact of the Proposed Development. 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.	measures that could be considered by the road authorities. Timing for the addendum letter is approximately 4-5weeks.	
Addressed The following mitigation measures are provided at Guelph Line & Dundas Street to address the forecasted queuing issues: • Dual westbound left-turn lanes: and	Addressed. No Action	
 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. 		

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.

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

				Period		Со		Di Ea	Direction / I Eastbound				n / Movement nd Westbour d			pproach Northbou Southbo nd und				0				
				Analysis	Intersect ion	nt rol Ty pe	MO E	Left	Through	Right	Approac	Left	Through	Annroac	Left	Through	Right	Approac	Left	Through	Right	Approac		
				∆M Peak Hour	Guelph Line & Dundas Street	T C S	LO S Del ay V/ C 95t h Sto rag e Av ail.	C 2 8 0. 5 4 6 2 1 0 0 3 8	F 1 1 8 1 1 6 4 0 2 -	C 2 3 0 3 1 5 3 7 0 1 7	F 1000	E 79 0. 83 63 15 52	B 1 4 0 3 5 6 7 -	> C > 3 1	D 3 7 0 3 9 4 3 9 4 3 0 1 9 0	F 2021. 38218- -	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	F 1 8 4	D 4 6 9 5 4 7 0 1 6	D 4 8 0 4 5 6 4 - -	D 4 3 0 0 5 5 5 7 6 5	D 4 7	F 99 1. 10	
				PM Peak Hour	Guelph Line & Dundas Street OE - Measu - Shared Ri CS - Traffic ength WSC – Two Level of Se	T C S s ure of ight-T Conti o-Way rvice	LO S Del ay V/ C 95t h Sto rag e Av ail. Effec urn La of Stop	F 1 7 1 1. 0 2 5 0 1 0 5 0 1 0 5 0 0 5 0 0 5 0 0 5 0 0 5 0 0 5 0 0 5 0 0 5 0 0 5 0 0 5 0 0 5 0 0 5 0 0 5 0 0 5 0 0 0 5 0 0 0 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	C 3 4 0 5 8 1 3 4 - - - - - - - -	C 2 7 0 1 4 2 4 7 0 4 6 4 6 9 8 <i>L</i> a	D 3 9	C 2 3 0 7 7 5 1 1 5 4 0	D 4 2 0 - 9 8 3 8 0 -	> C > 3 7 > >	7 F 1 6 8 1 2 2 1 5 6 1 9 0 3 4	E 6 2 0 8 4 1 1 5 - -	> > > > > > - V 1-9	F 9 6	D 4 4 0 6 2 4 8 7 0 2 3 me Pe	E 5 8 0 7 9 8 - - to C	D 4 9 0. 3 7 5 0 7 0 2 1 2 2 1 2 2 1	D 5 3	D 5 0 1 0 0	tio
17.	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. Include a Safety Analysis section in the report to discuss potential safety or operational issues.	General	CIMA Canada Inc.	Tr pr de ro Re	rue North Sa rovided to JA esigned to a oute available esponse #18	afety p ART u ccomr e for tl 8.	repar nder s nodat ne pro	ed a sepa ce tru opos	saf rate uck t ed E	ety a cov traffi Burli	ana /er. ic a ngt	alysi Gu nd i on (s foi elph s the Qua	r No Lin e ex rry E	2 S e is sting xter	ider a Ro g ha	road egic aul r n. F	d wh onal coute Refe	nich Ro e ar r to	has ad t Co	s be that he o mm	en has only ent	bee haul	n

ddraccad	Addrogged No action	
	Addressed. No action	
Satety Analysis Report is provided by the		
rue North Safety Group.		
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18.	Haul Route Study	General	CIMA	The Burlington Quarry ha	as been producing aggregate	e since 1953. The proposed quarry	Addressed	Addressed. No action
	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		Canada Inc.	extensions will allow the existing location. The hau All material shipped to m Line (Regional Road 1). to market including the re are classified and design	Burlington Quarry to continu ul route used to ship materia arket, except local deliveries The Regional Road network esources produced at the Bu ned to accommodate truck tra	e to produce aggregate at its I to market will remain unchanged. s, will travel east to/from Guelph will support the movement of goods irlington Quarry. All Regional roads affic ¹ .	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.	
	Pre- Consultation Meeting. 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.			All trucks hauling materia and future, truck route ne truck routes.	al to market are expected to te twork. Local deliveries may	follow and adhere to the existing, require a deviation from identified		
				To the west of the subject traffic on No 2 Sideroad. prohibition was established prohibition requires all que route options are availab located approximately 35 route provides the shorted impacts to local roadway	ct site there is an existing true No changes to the truck pro ed by Council Resolution CC uarry truck traffic to travel to/ le to the subject site. The sit 50 metres from the Regional est most direct route to the R rs.	ck prohibition which limits truck hibition are proposed. The existing C-83-05. The existing truck from Guelph Line. No other haul e driveway for heavy vehicles is road network. The existing haul egional road network while limiting		
				The rock trucks shipping will be contained to the d approximately 485 m wes	material across No 2 Sidero Iriveway intersection. The So st of Guelph Line. Rock truck	ad from the South Extension lands outh Extension driveway is located ks will not travel along No 2 Sideroad.		
19.	Travel Demand	Section	CIMA	Although the site traffic ta	apers off around 3PM the AN	A and PM hour of the adjacent street	Addressed	Addressed. No action
	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	2.2.1, Section 2.2.3, Figure 2.1, and Appendix B	Inc.	was used to provide a At Guelph Line & No 2 Si vehicles. During the 3:00 at 800 vehicles per hour.	ide Road the entering volum PM hour the entering volum	e during the PM peak hour is 1,156 nes are 356 vehicles per hour lower	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.	
	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.			Table 3below summarizand the two-way volumesHighlighted cells indicate	es the two-way traffic volum s using the site driveway for the peak hour for Guelph Li	es on Guelph Line at No 2 Side Road the AM and PM count periods. ne and the site driveway. The two-		
	Please update Sections 2.2.1 and 2.2.3 to a			way volumes using both the AM count period. Dur	Guelph Line and the site driv ring the PM count period, two	veway peak at the same time during p-way volumes using the site		
	If the PM peak hour at the site is the same as			PM peak hour	uelph Line. The peak hour fo	or the network is the adjacent street		
	the Guelph Line peak hour, no changes in the traffic hour at the site occurs between 2:00 and 3:00 PM, it is recommended to conduct an additional PM peak operational analysis.			Off peak analysis is not e vs. the findings of the Fel Ta	expected to result in the iden bruary 2020 Traffic Report. ABLE 3: TWO-WAY VOLU	tification of any new capacity issues	es	
				Period	Time Guelph	Driveway SUM		
					Ending Line Two-Way	Two-way		
					08:00 781 08:15 839	79 860 84 923		
				AM	08:30 850 08:45 846	88 938 80 926		
					09:00 821 16:00 732	83 904 41 773		
				PM	16:15 784 16:20 884	<u>33</u> 817 28 012		
					16:45 977	28 912 28 1,005		
					17:00 1,037 17:15 1,090	27 1,064 23 1,113		
					17:30 1,078 17:45 1,067	19 1,097		
					17:45 1,067 18:00 1,022	17 1,084 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	Section 2.2.3 and Appendix A	CIMA Canada Inc.	Appendix A in the Febru Nelson Aggregate Co. Th Inc.) in November 2020 s Aggregate Co. We under conduct the review on be	uary 2020 Traffic Study conta his data was provided to the subject to a Non-Disclosure / rstand the Region of Halton i shalf of the Region of Halton.	ains confidential data provided by JART peer reviewer (CIMA Canada Agreement (NDA) with Nelson s relying upon the peer reviewer to	Addressed Nelson Aggregate Company's quarry trucking details were provided for review in November 2020.	Addressed. No action
	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.							

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1.	 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. Additionally, the trip distributions shown in Figures 4.2A and 4.2B require further explanation or adjustments. For example, Figures 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. 	Table 4.1 and Figures 4.2A and 4.2B	CIMA Canada Inc.	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. A The site's trip generation for 2 million tonnes has been estimated by prorating the existing extraction rate 1.5 million tonnes. 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." - Refer to comment #23 The site's trip distribution to the site on the same path. The estimated trip distribution pattern reflects existing travel patterns as documented under existing conditions. Table 4 The site's trip distribution. TABLE 4: ESTIMATED TRIP DISTRIBUTION Origin/Destination AM Peak Hour PM Peak Hour North via Guelph Line 60% 40% 60% 75% South via Brant Street 0% 5% 0% 0%	
	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			East via Dundas Street 20% 15% 20% 10% West via Dundas 5% 10% 0% 0% West via Dundas 5% 10% 0% 0% Total 100 100% 100 100 No update traffic % 100% % 100% 100	
	changes to the future operations should be reflected in the future improvement scenario			or the site trip generation for a 2.0 million tonne license limit is recommended at this time 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 traffic ²	
2.	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. Additionally, estimates of the future increase to 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	Table 4.1 and Appendix A	CIMA Canada Inc.	Acknowledged.	2
3.	 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. 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 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 	Table 4.1 and Appendices A and B	CIMA Canada Inc.	Appendix B of the February 2020 TIS contains the existing turning movement counts. Prince of the February 2020 TIS contains the existing turning movement counts. The TMC data provides a breakdown of vehicle classification. A Verify Verify it Verify it Verify N N	in a contraction of the second

ddressed ased on the review of the data provided in opendix A, the estimated total future truck vels shown in Table 4.1 of the subject TIS e appropriate estimates for the future peak our truck volumes. The comments section provides justification r the trip distributions (shown in Figures 2A and 4.2B of the report) in Table 4: stimated Trip Distribution.	Addressed. No action	
efer to JART Comment response 20.	Addressed. No action	
artially Addressed opendix B provides a detailed breakdown of hicle types for the AM peak hour. However, does not provide the breakdown of heavy hicles for the PM peak hour. dditionally, attachment 3 provides a eakdown of vehicle class for all study area ersections except for at Gravel Pit & umber 2 Side Road intersection.	 Tab 2 contains the detailed breakdown break down of TMC data collected at the existing site driveway. Vehicles are classified as Motorcycles Cars & light goods Buses Single-unit trucks Articulated trucks Bicycles on road Bicycle on crosswalk Pedestrians 	Addressed. Consultant has provided full breakdown of vehicle types for Gravel Pit & Number 2 Side Road as requested.

Γ		trucks estimated by Paradigm.				
		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. 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. 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.				
		It is recommended that a detailed breakdown of PM peak hour TMC data he provided similar				
2	24.	to the data provided for the AM peak hour. 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.	Tables 4.2 and 4.3	CIMA Canada Inc.	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. Attachment 1 contains the requested separate operational tables for ease of review.	Ac Att sig
		Please provide separate tables for signalized and unsignalized intersections for all traffic operational analyses.				
2	25.	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). It is recommended to review the volumes used for	Figures 4.3A and 4.3B	CIMA Canada Inc.	 OTM warrants utilize total count volume forecast for the intersection with no PCE factor applied. Attachment 2 contains supplementary OTM Warrant analysis with a PCE factor applied. Traffic control signals at the intersection of Guelph Line & No. 2 Sideroad are not warranted using OTM Book 12 Justification 7. 	Act sig tha
		as necessary.				
2	26.	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.	Section 5.2.1 and Table 5.1	CIMA Canada Inc.	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. 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. 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.	Pa Ta I tak Hc ch Nu to PM ho Fir Sid Ac Nu Me Ac be
		two- way truck trips is 24 per hour (84 PCE). However, the number of PCE vehicles per hour increase form 85 PCEs in the AM peak to 90 PCEs in the PM peak without any further background.			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	
		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			CROSSING TRAFFIC	

ldressed	Addressed. No action		
tachment 1 provides the separate tables for			
gnalized and unsignalized intersections.			
adressed tachment 2 provides a supplementary	Addressed. No action		
gnal warrant analysis. The results indicate			
at signalization is not warranted.			
artially Addressed	The 90 PCE is a typographical- error. The	Addressed. Consultant has provided the	
ble 5 in the comments provides an updated	PCE calculation for two-way truck trips is 84	required detail for PCE calculation and	
ble with 208 working days per year.	(24 x 3.5) Actual truck trips may vary	access spacing. This detail should be provided in the report	
ange in two- way truck traffic crossing	for vehicles hauling material over the		
umber 2 Side Road (from 85 PCE vehicles	roadway.		
90 PCE vehicles during the AM during the	Vehicles may not return to the southern pit		
A) from the AM peak hour to the PM peak	extension within the same hour.		
nally, reference is made for the Number 2	roadway may taper off during the afternoon		
de Road access to the Halton Region	hours, similar to the pit's overall operation.		
ccess Management Guidelines. The			
etres from Guelph Line. The Halton Region	Number 2 Side Road is under the City of Burlington's Jurisdiction, Halton Region		
cess Management Guidelines for a full	Access Management Guidelines apply to		
ovement access indicates a spacing	Regional Roads.		
	Novorthologo, the appear between the		
	driveway and Guelph Line is noted to be over		
	400 metres and satisfies the Halton Region		
	Access Management Guidelines.		
	No further JART comment. This is assumed		

	of the report.				Measure	Units	Inp Calculation					
	Update Table 5.1 with the proper estimate for				CAT 772 Trucks	Trucks	4					
	he working days per year and update the affected calculations. Please provide clarification for the change in wo- way truck traffic crossing Number 2 Side Road from the AM peak hour to PM peak hour.				Operating Hours per Day	Hours/Day	10					
					One way Truck Trips	Truck Trips/D	120					
					Operating Days per Year	ay Davs/Year	208					
						Truck	24,060					
	Please refer to Region's Access Management Guidelines for the South Extension's Access				Average Load per Truck	Trips/Year Tonnes/Truck	70					
	Road design considerations.				Average Tonnes per Year	. Tonnes/Year*	1,747,200					
					Loaded Inbound Trips	Trucks/Hour	12					
				limited by	Total Two-Way Truck	Trucks/Hour	24	*Extraction				
				amount.	Trips			license				
				The No. 2 Si	ide Road driveway is propo							
		No. 2 Side Road is under the City of Burlington jurisdiction and is classified as a collector										
				roadway ^o . 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	n spacing guideline outlined or a full movements access							
						No. 0 Gidaraad		th a T au a				
				North Safety	al information regarding the study provided to JART un	No. 2 Sideroad	crossing, please see ver.	the True				
				It is expected	d that the South Extension	Access Road wi	I be designed to acco	mmodate the				
		heavy truck design vehicle and that the northbound and southbound approaches will										
				authorized v	ehicles only should be cons	sidered.	ales to restrict the Act					
7.	Provision of Confidential Truck Counts In Appendix A, an NDA has been requested for	Appendix A	Halton Region	Appendix A Nelson Aggr	in the February 2020 Traffi regate Co. This data was pr	ic Study contains ovided to the JA	s confidential data pro RT peer reviewer (CI	wided by MA Canada	Refer to JART Comment response #20.	Refer to JART Comment response #20. Addressed. No Action.		
	release of Confidential Truck Count Data by Nelson Aggregated to the Region. The Region			Inc.) in Nove	ember 2020 subject to a Nor							
	would like to pursue this request to allow for			conduct the	review on behalf of the Reg							
	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											
	and material loads cannot be verified.											
	(Note: Planning's direction/assistance on how to											
8	proceed with the NDA process will be required.) Peak Hour Factor The intersection of No. 2 Side Road and the	Appendix B	CIMA	The PHF wa	s established using existing	traffic data as r	per the Region of Halt	on TIS	Addressed	Addressed, No Action		
			Canada	guidelines. F	Full 15-minute volume break	down TMC's for	all locations are prov	ided in	Full 15-minute volume breakdown TMCs for			
	15-minute volume breakdown. CIMA was not		INC.	Attachment	з.				all locations are provided in Attachment 3.			
	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											
	Please provide the full TMC for all study											
	area intersections in Appendix B.											
	JART Site Plan Comments (December	Reference	Source of Comment		Applicant Response (May 2022)							
	2021)											
Э.	The northbound and southbound approaches to Side Road No. 2 shall be controlled by stop sign		CIMA Canada	Addressed.	No action.							
	control.		Inc.									
	Comment:											
	The information presented in the Site Plan corresponds with the recommendation provided in											
	Section 5.2.1. of the Burlington Quarry Extension											
	by the Safety Review of the Proposed Access											
	Plan completed by True North Safety Group (TNS) in June 2021.											
).	The new roadway crossing will be located on the crest on Side Road No. 2 (in the location shown	: CIMA TNS reviewed the location of the proposed crossing and confirmed in Section 2.4.5 "Drivers in these trucks would have available sight distances of oncoming transformed in Section 2.4.5 "Drivers in these trucks would have available sight distances of oncoming transformed in Section 2.4.5 "Drivers in these trucks would have available sight distances of oncoming transformed in Section 2.4.5 "Drivers in these trucks would have available sight distances of oncoming transformed in Section 2.4.5 "Drivers in these trucks would have available sight distances of oncoming transformed in Section 2.4.5 "Drivers in these trucks would have available sight distances of oncoming transformed in Section 2.4.5 "Drivers in these trucks would have available sight distances of oncoming transformed in Section 2.4.5 "Drivers in these trucks would have available sight distances of oncoming transformed in Section 2.4.5 "Drivers in these trucks would have available sight distances of oncoming transformed in Section 2.4.5 "Drivers in these trucks would have available sight distances of oncoming transformed in Section 2.4.5".						ances of oncoming traffic along No 2 Side	Provided TNS report as part of Tab 3 confirms the required 220 m sight distance			
	on the plan view) with a clear sight distance of at	Road No. 2 (in the location shown Canada Road greater than the recommended 220 m." The TNS is included as Tab 3 . (iew) with a clear sight distance of at Inc.						This should be updated on the site plan.				
	Road No. 2 for both the northbound and											
	southbound approaches.											
	Comment:											
	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 recommanded sight distance of										<u>.</u>	

31.	The roadway geometry and road bed structure will be designed to accommodate the rock trucks that the licensee plans to operate Comment: Information contained in the Site Plan should include the recommendation presented in Section 2.4.4. of the TNS report.	CIMA Canada Inc.	Section 2.4.4 of the TNS report addresses "Approach Site Distance". The following note will be added to the proposed Burlington Quarry Extension ARA Site Plan (March 2022) and the proposed existing Burlington Quarry Site Plans: "The haul truck crossing approaches on No. 2 Sideroad shall be designed and constructed to provide an approach sight distance (i.e., visibility triangle) extending, at a minimum of 25 m on each crossing approach to a point 50 m east and west on No 2 Side Road." The TNS is included as Tab 3 .	Addressed. Consultant has agreed to add excerpt from TNS report to the Site Plan as requested.
32.	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). Comment: No comments. Side Road No. 2 is under	CIMA Canada Inc.	Addressed. No action.	
33.	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 licensed areas (current and proposed). The maximum number of vehicle trips shall be cumulative across all licensed areas (current and proposed).	Halton Region	The ARA Site Plans for the Extension and Existing Quarry reflect the integrated nature of the operation and includes the maximum number of vehicle trips. Regarding the maximum number of on-site trucks between the two site please see proposed Existing Quarry Site Plans (February 2022) page 2 – "On-site Operations" Notes 7 and 8 and the proposed Burlington Quarry Extension Site Plans (March 2022) – page 2 "Noise" 3 E. See Tab 4 for the Existing Quarry Site Plans (February 2022).	Drawing 2 of 4 of the Redlined version of the Draft Operational Plan, Revised September 21, 2022 shows the requested information. It should be noted that the Burlington Quarry Extension Site Plan, Revised September 2022 does include any notes about the maximum number of vehicle trips and should be updated with this information.