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August 28, 2020 Project No. 202066

Trevor Hume, BA, Dip. GIS/RS
EDM Planning Services Ltd.
2111 Maitland Street, Suite 300
Halifax, NS B3K 2Z8

Re: 538 Pleasant Street, Dartmouth, NS – Traffic Impact Statement

Mr. Hume,

Harbourside Transportation Consultants has completed a traffic impact statement to support the application for the rezoning of 538 Pleasant Street in Dartmouth, Nova Scotia. The application proposes to rezone the lands from Commercial (C-2) to General Industrial (I-2) to enable the construction and operation of a concrete ready-mix facility.

The traffic impact statement addresses the following requirements outlined by the Halifax Regional Municipality (HRM):

- Provides trip generation calculations for the existing use and proposed use;
- Provides the expected trip distribution;
- Discusses sight lines at the proposed driveways;
- Discusses truck turning radii and how the vehicles are expected to move in and out of, and around the site;
- Discusses anticipated impacts to traffic on Pleasant Street as a result of slow-moving vehicles.

Site Context: The site is located at the corner of Pleasant Street and Station Road in Dartmouth. The site context is illustrated in Figure 1. Pleasant Street is an arterial roadway that runs between downtown Dartmouth and Eastern Passage. Pleasant Street is an important corridor that provides access to Highway 111. The site is located within 0.5 kilometres of the terminus of Highway 111. Pleasant Street is designated as a truck route under HRM By-law T-400.

In the vicinity of the site, Pleasant Street has a four-lane cross section with concrete sidewalks on both sides of the roadway (Figure 2). The posted speed limit on Pleasant Street along the frontage of the site is 50 km/h, the posted speed limit increases to 60 km/h west of Everette Street. Station Road is an unpaved access road (Figure 3).

Figure 1: Site Context

Figure 2:Pleasant Street

Figure 3:Station Road

Existing Site Land Use: The site was previously used as a propane storage and truck distribution facility; however, the site is now vacant. There are three existing accesses to the site: one on Pleasant Street, one on the corner of the intersection with Station Road and one on Station Road. The existing site access is shown in Figure 4.

Figure 4:Existing Site Access

Proposed Development: The rezoning of the site from Commercial (C-2) to General Industrial (I-2) would enable the construction and operation of a concrete ready-mix facility. The proposed site plan for the facility is shown in Figure 2.

Access: The proposed facility will maintain the existing access on Pleasant Street to access the facility's employee parking lot located outside the fence which surrounds the facility. This access will be used by passenger cars only. The existing access on the corner of the intersection and the access on Station Road will be removed. Trucks will access the proposed facility through two new accesses on Station Road.

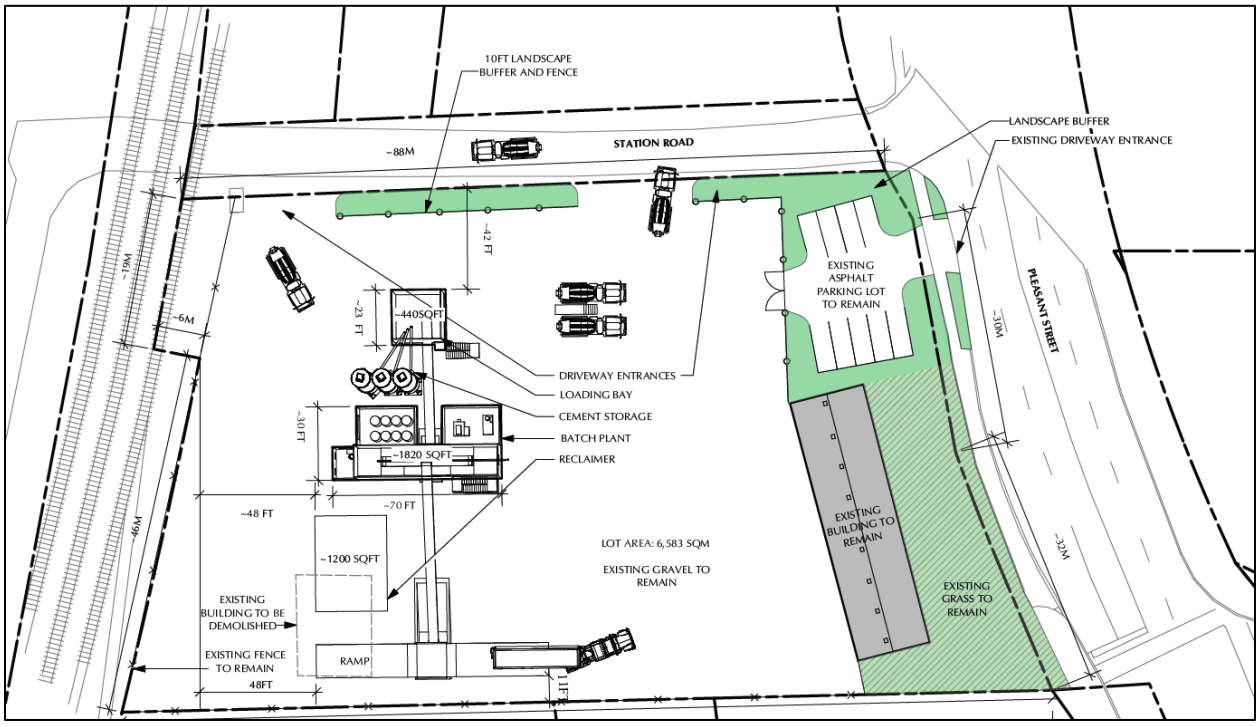

Figure 5: Site Plan

Trip Generation: Trip generation estimates are typically quantified using the Institute of Transportation Engineers (ITE) *Trip Generation Manual (10th edition)*, however, ITE does not provide trip generation rates specific to a concrete ready-mix facility. Trip generation estimates were developed by counting trips at an existing facility that is comparable in size, the Ocean Ready-Mix facility on Stanley Street in Halifax, NS.

Vehicles entering and exiting the Ocean Ready-Mix facility were recorded during the morning (7:00 to 9:00 am) and afternoon (4:00 to 6:00 pm) peak periods of traffic on Tuesday, August 25th, 2020. Vehicles were categorized as cars or trucks and recorded in 15-minute intervals. A summary of the traffic count data can be found in Appendix A.

The weekday morning and afternoon peak hour trip generation estimates for the proposed facility are summarized in Table 1. The proposed facility is expected to generate 18 vehicle trips in the morning peak hour (9 trips entering, 9 trips exiting) and 7 vehicle trips in the afternoon peak hour (2 trips entering, 5 trips exiting).

Table 1: Trip Generation Estimates

Land Use	AM Peak Hour			PM Peak Hour		
	Entering	Exiting	Total	Entering	Exiting	Total
Concrete Ready-Mix Facility	9	9	18	2	5	7
Note: Trip generation estimates are in 'vehicles per hour.'						

Trip Distribution: Over 90 percent of traffic generated by the proposed facility is expected to travel to/from Highway 111. The major traffic movements in and out of the site will be:

- Entering: Trucks travelling to the site will turn right from Pleasant Street onto Station Road.
- Exiting: Trucks leaving the site will turn left from Station Road onto Pleasant Street.

Sight Distance: Stopping sight distance on Pleasant Street and turning sight distance at the access points were reviewed to ensure the required sight distance is available. For arterial roadways, the HRM *Municipal Design Guidelines* (2013) specifies that the minimum stopping sight distance and minimum turning sight distance should meet the requirements of the Transportation Association of Canada's (TAC) *Geometric Design Guide for Canadian Roads.* The sight distance requirements for a four-lane undivided roadway and a design speed of 60 km/h are summarized in Table 2.

Table 2: TAC Sight Distance Requirements

Sight Distance Requirements	Passenger Car	Single-Unit Truck
Minimum stopping sight distance	85 metres	
Minimum turning sight distance – left-turn from stop	135 metres	175 metres
Minimum turning sight distance – right-turn from stop	110 metres	145 metres

Stopping Sight Distance: Approximate measurements for stopping sight distance on Pleasant Street indicate that the stopping sight distance requirement is met in both directions.

Turning Sight Distance – Station Road: There is over 200 metres of sight distance looking to the right of Station Road (Figure 6) and there is over 175 metres of sight distance looking to the left of Station Road (Figure 7). Approximate measurements for turning sight distance at the Station Road intersection indicate that the turning sight distance requirements for single-unit trucks will be met in both directions.

Turning Sight Distance – Parking Lot Access: Approximate measurements for turning sight distance at the existing driveway indicate that the turning sight distance requirements for passenger cars will be met in both directions.

Figure 6: Right of Station Road

Figure 7: Left of Station Road

Truck Turning Movements and Site Circulation: Trucks are expected to access the proposed facility from Station Road and circulate counter-clockwise on site as follows. Trucks will turn from Pleasant Street onto Station Road and proceed to the second access point located furthest away from Pleasant Street. Trucks will turn left to enter the site from where concrete truck will proceed to the loading bay located near the front of the site and aggregate trucks will proceed to ramp located near at the back of the site. After loading or unloading activities are complete, trucks will proceed to the first access point located closer to Pleasant Street and turn right onto Station Road to exit the site.

The truck turning movements in and out of the proposed facility and circulating around the site were reviewed using Vehicle Tracking. The turning movements and site circulation for a concrete truck is illustrated in Figure 8. The proposed layout can accommodate all concrete truck turning movements.

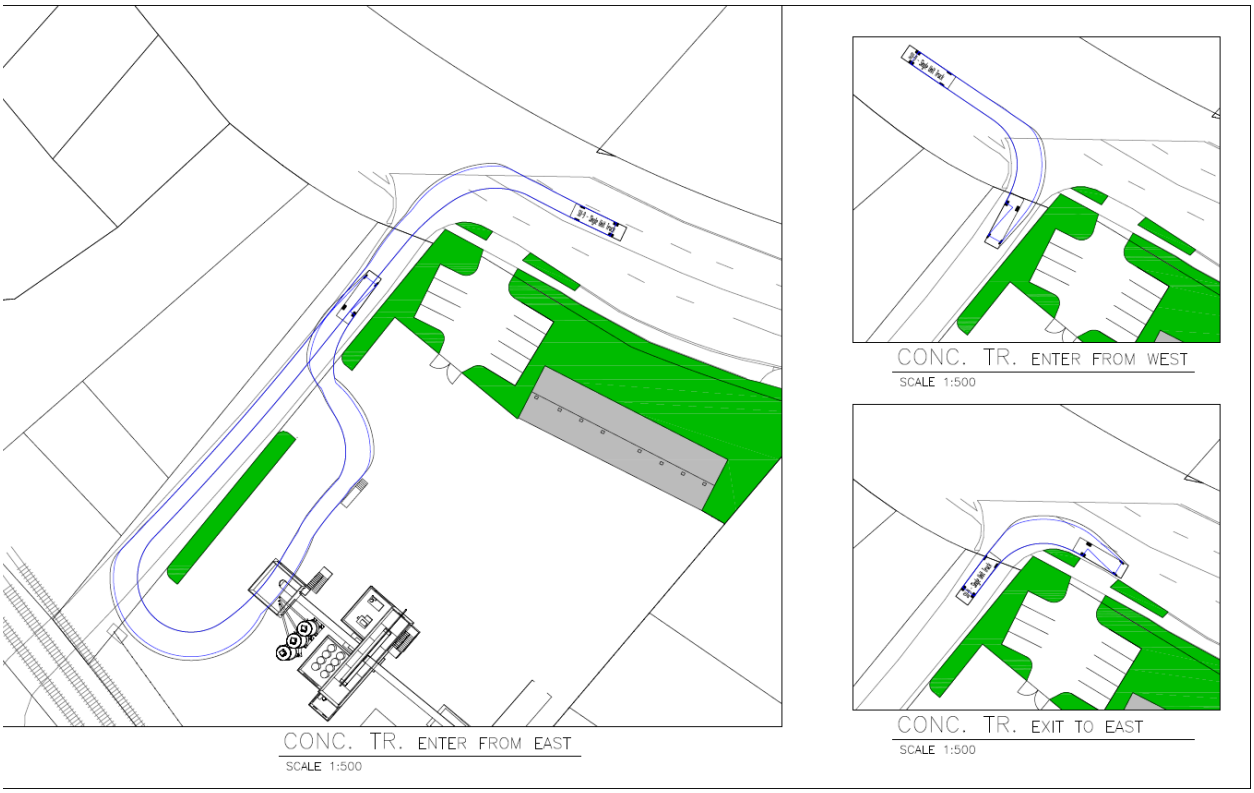

Figure 8: Truck Turning and Site Circulation for a Concrete Truck

The turning movements and site circulation for an aggregate delivery truck is illustrated in Figure 9. A WB-17 vehicle was used to represent an aggregate truck. The WB-17 will encroach at the intersection of Pleasant Street and Station Road under the following movements:

- Turning right from Pleasant Street onto Station Road,
- Turning right from Station Road onto Pleasant Street

The proposed layout can accommodate the site circulation of the WB-17 and the turning movements in and out of the site access points.

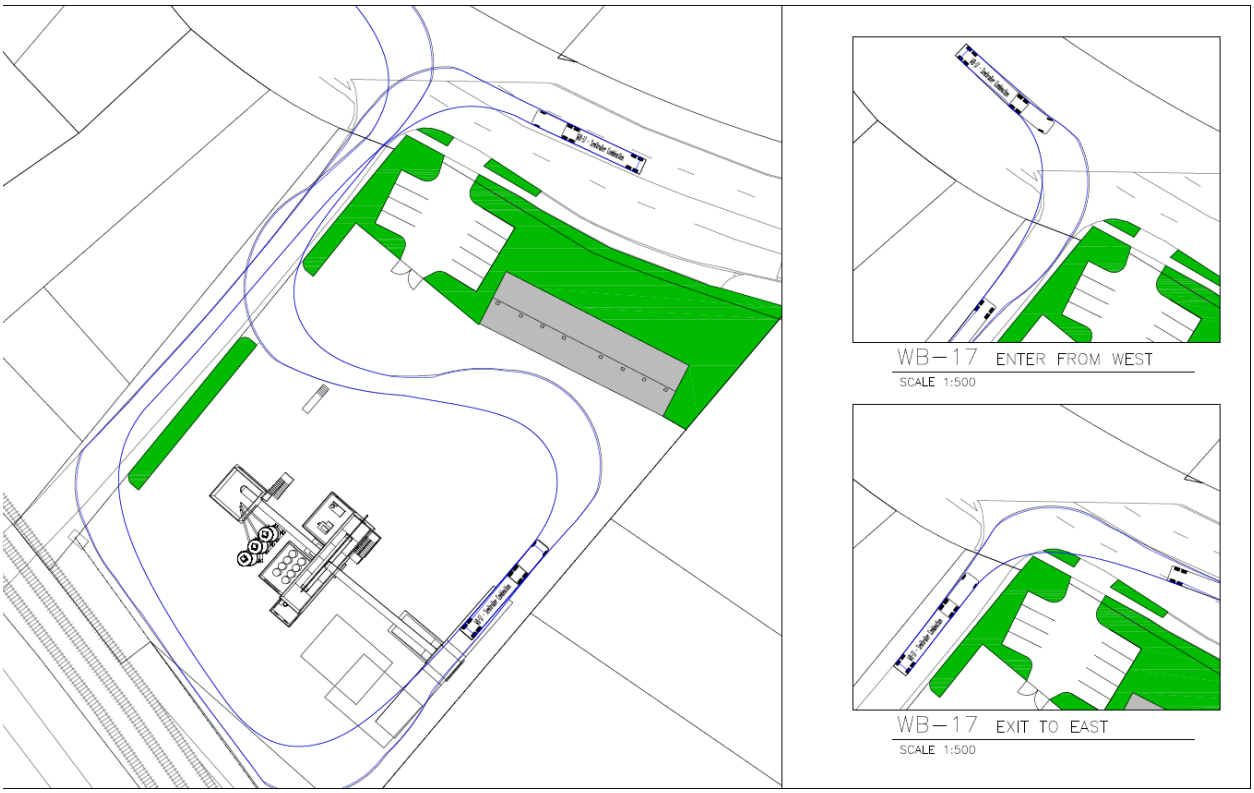

Figure 9: Truck Turning and Site Circulation for an Aggregate Truck

Impact of Slow-Moving Vehicles: The proposed ready-mix concrete facility will generate movements of slow-moving vehicles turning onto Pleasant Street. The slow-moving vehicles are not expected to have a significant impact to traffic on Pleasant Street because slow-moving vehicles are generally expected on this stretch of roadway. There are adjacent facilities that generate heavy truck traffic in the area including:

- Irving Oil Halifax Harbour Terminal located across from Highway 111
- Imperial Oil Marketing Terminal located approximately 0.35 km southwest
- Cherubini Metal Works located approximately 1.7 km southwest

The proposed facility is located near the traffic signals at the intersection of Pleasant Street and Everette Street, the gaps in traffic created by the traffic signals may lessen the impact of slow-moving vehicles.

Conclusions: It is anticipated that the vehicle trips associated with the proposed facility can be accommodated on Pleasant Street with negligible impact on traffic operations. This is a high-level qualitative assessment - no analytical capacity calculations have been completed.

The facility and Station Road can accommodate all passenger car and concrete truck turning movements in and out of the proposed site. Aggregate delivery trucks will encroach at the intersection of Pleasant Street and Station Road intersection as is common throughout HRM with delivery trucks of this type.

If you have any questions or additional discussion, please feel free to contact the undersigned.

Regards,

Original Signed

Michael MacDonald, P. Eng.
Senior Transportation Engineer, Principal
[redacted]

Appendix A

Example Concrete Ready-Mix Facility Traffic Count Data

Manual Count Summary						
Location	Ocean Ready-Mix Concrete Facility Stanley Street, Halifax, NS					
Date	Tuesday, August 25th, 2020					
Weekday Morning (AM) Peak Period						
15-Minute Interval Start	**Trips Entering**		**Trips Exiting**		**15-Minute Volumes**	
	Car	**Truck**	**Car**	**Truck**	**Car**	**Truck**
7:00 AM	0	1	0	0	0	1
7:15 AM	0	1	0	0	0	1
7:30 AM	0	1	1	1	1	2
7:45 AM	0	1	0	1	0	2
8:00 AM	0	2	0	0	0	2
8:15 AM	0	2	0	2	0	4
8:30 AM	0	4	0	6	0	10
8:45 AM	0	1	0	1	0	2
2-Hour Totals	**0**	**13**	**1**	**11**	**1**	**24**
	13		**12**		**25**	
% Trucks	100%		92%		96%	
AM Peak Hour of Generator						
7:45 to 8:45 AM	0	9	0	9	0	18
Peak Hour Total	**9**		**9**		**18**	
% Trucks	100%		100%		100%	
Weekday Afternoon (PM) Peak Period						
15-Minute Interval Start	**Trips Entering**		**Trips Exiting**		**15-Minute Volumes**	
	Car	**Truck**	**Car**	**Truck**	**Car**	**Truck**
4:00 PM	0	1	0	0	0	1
4:15 PM	0	0	0	1	0	1
4:30 PM	0	1	0	2	0	3
4:45 PM	0	0	1	0	1	0
5:00 PM	1	0	0	0	1	0
5:15 PM	0	0	2	0	2	0
5:30 PM	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0
2-Hour Totals	**1**	**2**	**3**	**3**	**4**	**5**
	3		**6**		**9**	
% Trucks	67%		50%		56%	
PM Peak Hour of Generator						
4:30 to 5:30 PM	1	1	3	2	4	3
Peak Hour Total	**2**		**5**		**7**	
% Trucks	50%		40%		43%	