We have undertaken a peer review of the Draft Traffic Impact Study, March 2014, prepared by C.F. Crozier & Associates Inc., for the proposed Tri-County Aggregate extraction pit. Our review was focused on issues pertaining to the County Road system.

Our comments are referenced to the applicable sections in the report.

3.3 Traffic Data

The existing traffic counts were increased to account for additional trips from existing and proposed other gravel sources. However, little information was provided to indicate how these trips were calculated (eg. assumptions regarding daily production etc). A table should be provided detailing this, and a separate figure provided showing the trips generated from future sources.

The study has included background traffic including active and proposed Greenwood's pits 3, 4, 5 and 6 in a total annual extraction limit of 1,000,000 tonnes. We have been provided with a copy of a Traffic Study prepared by Paradigm Transportation Solutions for Greenwood Aggregates Limited that identifies that Greenwood are applying to increase their annual extraction limit from 1,000,000 tonnes to 3,000,000 tonnes. If approved, this would significantly increase the background traffic.

3.4 Intersection Operations

The existing intersection operations are calculated as LOS B. While this indicates a very good level of service (refer to definitions in Appendix B), the closing statement that the intersections operate “without traffic operations issues” is too general, and should be revised to identify the LOS characteristic only (this statement also occurs elsewhere in the report).

6.0 Site Generated Traffic

More information is required detailing how the site generated traffic was calculated, including extraction rate and truck size. The report indicates that the number of trips was calculated based on average production throughout the day and operating year. This does not account for peaks in operation based on normal fluctuations for this this type of activity. A factor of 2.0 to 4.0 is usually applied when analyzing pit operations to better represent peak hourly volumes.

7.2 Auxiliary Lane Analysis

The TAC Manual does not provide specific warrants for left turn lanes. The method in the MTO Geometric Design Standards for Ontario Highways should be used.

8.1 Sight Distance

A design speed of 100 km/h (posted + 20 km/h) should be used for CR 3.
The report states that the available sight distance was measured as 211 metres. The report does not indicate what driver’s eye and target heights were used in the measurement. For stopping sight distance, the eye height should be 1.05, and the object height 0.38. The sight distance should be shown graphically on the road profile. Based on the above parameters, the reported sight distance of 211 metres does not appear to be available based on the profile provided.

The report does not address Intersection Sight Distance. The County of Dufferin requires a minimum sight distance of 230 metres at commercial entrances. This sight distance should be provided at this intersection given the heavy commercial truck traffic proposed.

8.3 17th Line Vertical Profile

The section title refers to 17th Line, but information is also provided for CR 3.

The profiles show numerous sub-standard vertical curves. It is noted that the profiles were obtained from digital elevation modelling with an error of up to 0.3 m, and may not be accurate enough to determine the vertical curve K values. In particular, the reported crest of K=6 on CR 3 should be confirmed by survey.

In regard to CR 3, the sight distance and K values in the vicinity of the intersection needs to be confirmed before further recommendations are made. In regard to the four points at the bottom of page 11, we offer the following preliminary comments:

1. It is acknowledged that collision statistics do not indicate an existing problem. However, if there are alignment deficiencies, these should be addressed in light of the proposed continuing heavy truck traffic. The report does not identify the “very specific set of conditions that must apply”.
2. Speed reduction warning signs are not used for vertical curves (a hidden intersection tab may be used, and is currently in place). The regulatory speed can be reduced in rare circumstances, but this should be after all other options are exhausted.
3. Reducing the speed limit along CR 3 is not practical or desirable.
4. Road reconstruction should be considered to address sub-standard sight distance.

8.4 Truck Acceleration Lane

An analysis should be done of the distance required for trucks to obtain operating speed on the eastbound grade, and the differential in operating speeds between the trucks and eastbound through traffic.

ADDITIONAL COMMENTS

It is acknowledged that the intersection of CR 3 and 17th Line has operated for a number of years with heavy gravel truck traffic, and the reported collision experience is low. However, given the proposed usages that will continue to generate heavy truck traffic, the intersection should be studied more closely to identify any improvements that could enhance safety and operations.

Intersection operations and improvements need to consider the total future volume from licensing of all pits that will use this haul route. Some means of apportioning improvement costs should be determined.