

February 4, 2020

Our Reference
60623049

Andrew Martin, MCIP, RPP
Manager of Planning/EDO
Development Services Department
Township of Wilmot
60 Snyder's Road West
Baden, ON N3A 1A1

Jackson Harvest Farms, 1894 Witmer Road - Traffic Impact Study Peer Review

Dear Mr. Martin,

AECOM has been retained by the Township of Wilmot ("the Township") to undertake a Peer Review of the Traffic Impact Study for Jackson Harvest Farms, 1894 Witmer Road in Wilmot ("TIS Report"), prepared by Paradigm Transportation Solutions Ltd. ("the Consultant"), dated February 2019.

While a high-level review of the calculations was undertaken to confirm the general validity of results and adherence to the specified guidelines, AECOM does not take liability for any omissions or exceptions that the Consultant may have made throughout their assessment.

1. Background

This review considers the TIS Report as prepared by the Consultant, dated February 2019. The TIS Report was prepared for a proposed aggregate extraction pit located at 1894 Witmer Road in Petersburg, in the Township of Wilmot, Ontario. The subject site is currently farmland and contains residential properties at the north end of the site. The TIS Report reviews traffic conditions on Witmer Road from the intersection at Queen Street (Regional Road 12) to a point approximately 3 km to the west. The study area includes the following intersections:

1. Witmer Road and Queen Street (Regional Road 12), unsignalized; and
2. New access to the Pit from Witmer Road

It is advised that the Township confirm if there are any proposed or planned developments surrounding the subject development that need to be considered in the TIS Report.

2. Detailed Peer Review Comments

The TIS Report was carried out utilizing standard traffic impact study methodology and is subject to the requirements of the Region of Waterloo (RoW) Transportation Impact Study Guidelines (*Transportation Impact Study Guidelines*, Region of Waterloo, 2014).

2.1 Traffic Counts & Demand Estimates

- 2.1.1 The RoW TIS Guidelines indicate that “any factors utilized in the transportation impact study that are not in concurrence with the recognized standards must be agreed upon with Regional Staff prior to submission of the final report”. It is not clear if the Peak Hour Factor of 2 referenced in *Table 3.1* of the TIS Report was confirmed with Regional or Township staff. This Peak Hour Factor was used in the analysis to convert average hourly truck volume accessing/egressing the site to a peak hour volume. This Peak Hour Factor can significantly affect the magnitude of site-generated traffic assessed in the Synchro analysis and in turn inform the level and degree of mitigation required. The Consultant is asked to provide documented support or justification for use of this conversion factor of 2.
- 2.1.2 The calculation of truck demand for the subject development (as shown in *Table 3.1* of the TIS Report) and the calculation of truck demand for the adjacent Spring Valley Trout Farm site (as shown in *Table 4.1* of the TIS) use inconsistent parameters.
- The Consultant is asked to verify and explain the differences in inputs for the number of operating days per year and the operating hours per day.
- 2.1.3 The TIS Report utilizes a Passenger Car Equivalent factor of 3.2 PCE/Truck. The peer review was unable to find a source and/or justification for use of this value in the analysis.
- It is advised and important that any assumption(s) or calculation(s) relating to the use of PCE factors be included in the TIS Report.
- 2.1.4 The TIS Report does not account for receiving operations of the development site, including the deliveries of recycled asphalt and concrete and the resulting truck traffic volumes. These additional volumes should be included in the traffic analysis.
- 2.1.5 The turning movement counts on which the Consultant based the analysis were collected on June 21, 2018. The TIS Report does not include any discussion regarding seasonal variation of traffic volumes and the appropriateness of utilizing traffic counts collected during the summer months.

2.2 Synchro Analysis Inputs and Results

- 2.2.1 The TIS Report states that 5 to 10 percent of the site-generated demand will be routed to/from the subject site via Sandhills Road for local deliveries. However, *Figure 3.1* in the TIS Report illustrates all trips entering/exiting the pit access to/from the east (i.e. via Queen St), with no vehicles entering/exiting the site to/from the west (via Sandhills Road).
- The Consultant is asked to clarify the discrepancy between the described trip assignment methodology and the volumes shown in *Figure 3.1*, and to confirm if traffic originating in/destined to the west is included in the Synchro analysis. Specifically, the Consultant should confirm if truck traffic is intended to travel west on Witmer Road to Sandhills Road.
- 2.2.2 The eastbound and westbound through volumes as depicted in *Figure 4.3* of the TIS Report for both the AM and PM peak hours are not consistent with those utilized in the Synchro analysis, as provided in *Appendix E*.
- The consultant is asked to review and address this discrepancy and to confirm which volumes the results of the Synchro analysis are based on.
- 2.2.3 The Synchro analysis utilizes Peak Hour Factor (PHF) values of 1.0 for every turning movement. The collected turning movement count data provided in *Appendix B* includes PHF calculated from the counts collected by the Consultant.
- The Consultant is asked to provide justification for why a PHF of 1.0 was utilized for all turning movements when actual PHF data is available.

2.3 Site Access Location and Internal Circulation

- 2.3.1 The TIS Report recommends the site access to the proposed Pit be placed approximately 220 m east of the western border of the property as this is *“the crest of a hill, giving the furthest possible site in both directions”*.

The RoW TIS Guidelines indicate that *“sight distances should be evaluated to ensure safe conditions in accordance with Transportation of Canada Geometric Design Guide for Canadian Roads”*. The TIS Report does not provide an evaluation of sight distance from this location. Furthermore, it should also be noted that the presence of a vertical curve in this section of Witmer Rd may reduce available sight distance to/from the site access.

The Consultant is advised to perform a sightline assessment as part of this TIS Report as per TAC standards if not already done so, specifically showing required and provided stopping sight distances and the proposed location of the entrance relative to the west property line of the subject site.

- 2.3.2 *Section 5.1* of the TIS Report concludes that since traffic volumes are forecast to be less than 100 vehicles/hour for both approaches in the AM and PM peaks, there is no requirement for auxiliary lanes.

The Consultant is advised to revisit this conclusion based on outcomes of all previous referenced comments in this peer review and cite all applicable standards or guidelines in support of their conclusion(s).

- 2.3.3 The RoW TIS Guidelines require an evaluation of site circulation to *“demonstrate a high safety factor with respect to queuing...”*.

The Consultant is advised to include input in the TIS report on the Pit operator's functional site plan/layout, with discussion on internal circulation, acceleration, deceleration and queuing on Witmer Road.

3. Conclusion

In summary, the overall methodology and conclusions made by the TIS Report are considered to be generally complete in that the proposed development should not result in traffic operations that are significantly more adverse than background conditions. However, in a number of circumstances, the TIS Report does not provide an appropriate level of detail, justification or explanation of inputs, assumptions and result outputs of the analysis, such that there is insufficient information available to fully verify the conclusions of this TIS Report. Similarly, in some instances, the TIS Report contains a number of discrepancies between methodology and inputs reported in the text and the Synchro output reports included in the appendices. The more concerning deficiencies identified in the Peer Review include:

- Concerning inconsistencies between the reported turning volumes in the TIS Report and the turning volumes actually used in the supporting Synchro analysis;
- The use of a factor of 2 to convert average truck hourly volume to peak hour truck volume in developing site-generated traffic projections, without providing supporting justification. The trip generation methodology utilized in this analysis is highly sensitive to the selection of this conversion factor, and moreover, the peak loading when the Pit is operating at its licensed limit. Further explanation and/or sensitivity testing is strongly advised to confirm the impacts of the development;
- Incomplete calculation of truck demand, not accounting for deliveries of recycled asphalt and concrete and the resulting truck traffic volumes;
- The use of PHF of 1.0 for all turning movements without justification and explanation, despite calculated PHF for all turning movements, based on collected data, are available to the Consultant; and
- Incomplete safety review regarding available sight distance to and from the Pit site access and requirements for auxiliary turn lanes at the site access intersection, especially considering the impact of slow-moving heavily laden vehicles as they exit the property.

For completeness, it is advised that the Township seek clarifications or amendments to the TIS Report to close out the findings of this Peer Review.

Should you have any questions regarding the contents of this letter, please do not hesitate to contact Mark Reitmeier at (905) 755 8975.

Yours sincerely,



Khawar Ashraf
Director of Transportation Planning & Engineering,
Transportation | Transit & Rail
AECOM Canada Ltd.
T: 905 747 1767
M: 905 242 1000
E: khawar.ashraf@aecom.com

cc: Mark Reitmeier