



Samantha Lernout
President
Citizens for Safe Ground Water Inc.
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March 10, 2020

RE: Jackson Harvest Farms, 1894 Witmer Road - Traffic Impact Study Peer Review
Your File: CSGW
Our File: 190119

Dear Ms. Leanout:

As requested, we have reviewed the Jackson Harvest Farms, 1894 Witmer Road - Traffic Impact Study Peer Review, prepared by AECOM, and dated February 4, 2020 (the 'AECOM report'). The AECOM report is a peer review of the aggregate pit proponent's transportation impact study prepared by Paradigm Transportation Solutions Limited and dated February 2019 (the 'Paradigm report').

The following discussion is limited to those issues most worthy of comment. Lack of comment on any particular aspect of the AECOM report does not imply our agreement or disagreement.

Trip Generation Potential

In Section 2.1.3 of the AECOM report the following is indicated:

"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."

The PCE conversion account for truck to move slow and accelerate at a slower rate through an intersection. A 3.2 PCE indicates that each truck from the subject development is equivalent is 3.2 passenger vehicles. This is a fair value, and I cannot see why the AECOM report is taking an issue with it in relation to intersection capacity.

The greatest impact of the lower truck speeds and acceleration/deceleration rate will be on the stopping and turning sight distances at the site access and adjacent intersections, as opposed to intersection capacity. The Paradigm report does not consider these impacts in their report. We discuss this further in the Road Safety section below.

Peak Hour Factor

In Section 2.2.3 of the AECOM report the following is indicated:

"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 peak hour factor (PHF) accounts for higher fluctuations in travel demand at an intersection during the peak hour of the day. A typical peak hour factor is 0.8 to 0.9 which signifies peak 15-minute travel demands are the intersection that are 10 to 20% higher than the hourly average. The Paradigm report assumes that the peak hour travel demands are constant (PHF of 1.0), which is not consistent with the traffic counts they collected. This assumption underestimates the existing and future travel demands and results in better than expected operating conditions at the study area intersections.

Having said that, given the intersection capacity analysis results showing level of service "A" or "B" under all future scenarios, it is not expected that accounting for the PHF will result in the study area intersections becoming critical with the development related traffic from the pit.

Road Safety

The Region of Waterloo Transportation Impact Study Guidelines (July, 2014) indicate the following in relation to collision analysis components:

"The study should include a safety impact analysis to identify the effects of the development on the collision risk of the site and the adjacent road system. The study should recommend countermeasures where warranted and modifications to the site plan and the road system to enhance the level of safety for motorists, cyclists and pedestrians. Designs and recommendations should comply with the Ministry of Transportation of Ontario (MTO) Geometric Design Standards for Ontario Highways, the Ontario Traffic Manuals, and the Transportation Association of Canada Geometric Design Guide for Canadian Roads, as well as Region of Waterloo policies and practices."

Section 5 of the Paradigm report indicates:

"Given the operational analyses above, no improvements are required to the surrounding roadway network in order to accommodate the forecast traffic volumes in a safe and efficient manner, from a traffic operational perspective. However, from a safety perspective, the need for auxiliary turn lanes, sight distances, and other concerns relating to the use of the aggregate pit for the study area intersection and access were investigated."

The AECOM report concluded that:

"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."

Based on our review of Google Streetview™ images, it appears that available sight distances are in excess of 200 or more metres in either direction from the pit access location shown in Figure 5.1 of the Paradigm report.

The AECOM report does not comment on the lack of safety analysis at the intersection of Queen Street and Witmer Road intersection.

Both the Region of Waterloo TIS guidelines and the Paradigm report suggest that sight lines should be reviewed at the study access and intersections. The Paradigm report provides a qualitative comment regarding the sight lines at the proposed pit access, and does not evaluate the sightlines at the intersection of Queen Street and Witmer Road.

Based on a cursory desktop review, it is likely that adequate approach site distances (i.e., sight triangles) are not available on the southwest quadrant of the intersection of Queen Street and Witmer Road. Departure sight distances from the eastbound stop bar may also be deficient to select a gap in vehicles approaching from the south on Queen Street.

Witmer Road is currently a relatively low travelled roadway, which may not fully exhibit the effects of the geometric deficiencies at the intersection due to the low frequency of vehicle conflicts. The additional eastbound left turn heavy trucks from the pit activities may create safety issues at this stop-controlled intersection, due to the poor geometry and additional side street conflicts.

I trust the above meets your needs at this time. If you would like to discuss the provided comments, please do not hesitate to contact me.

Sincerely,



Russell Brownlee, M.A. Sc., FITE, RSP₁, P. Eng.