R.J. Burnside & Associates Limited 3 Ronell Crescent Collingwood ON L9Y 4J6 CANADA
telephone (705) 446-0515 **fax** (705) 446-2399 **web** www.rjburnside.com

BURNSIDE
[THE DIFFERENCE IS OUR PEOPLE]

April 6, 2021

Via: Email

Trevor Ireton, P.Eng.
Grey County Transportation Department
595 9th Avenue East
Owen Sound, Ontario N4K 3E3

Dear Trevor Ireton:

Re: Windfall Traffic Impact Study and Roundabout Design
Peer Review
Project No.: 300052620.0000

Further to your request, this letter provides Burnside's peer review of the following Traffic Impact Study (TIS), prepared for the Windfall Development in the Town of the Blue Mountains:

- Windfall Traffic Impact Study; dated June 19, 2020; prepared by Tatham Engineering

In order to confirm that the traffic modelling parameters were consistent with the preliminary design for the proposed Grey Road 19 (GR19) / Crosswinds Boulevard Roundabout (i.e., referred to as Crosswinds Roundabout) we have also referenced the following drawings:

- GR 19 & Crosswinds Boulevard Roundabout, 90% Submission; dated August 2020; prepared by Tatham Engineering.

1.0 Background and Scope of Review

The *Functional Servicing Report, Georgian Gate Residential* Development (C.C. Tatham & Associates, March 2021) provided initial review of the traffic generation from the Windfall Development. A subsequent TIS was submitted for the Windfall Development in September 2018, as an initial update to the earlier study. The current TIS (June 2020) is submitted to support an increase of 50 units to the overall development, via the conversion of some of the single-detached units into semi-detached units, increasing the overall unit count from the previously proposed 609 units to 659 units in the revised plan.

It should be noted that the scope of our peer review does not include a full review of the preliminary roundabout designs but only includes our review of the forecasted traffic operations of the roundabout as set out in the TIS. It is assumed that the County will review the Civil components of the overall roundabout design (i.e., grading, drainage, signage, line marking, landscaping, illumination, etc.).

During our peer review, we have reached out to Tatham Engineering for additional information and have received the following to assist in our review:

- Summary of physical parameters and speed criteria used in the roundabout design; January 21, 2021.
- Revised ARCADY modelling for the roundabout; January 29, 2021.

This information was subsequently provided by Tatham Engineering via email.

2.0 Review of Traffic Operations

2.1 Trip Generation

We had requested that additional justification be provided to support the trip generation from the Windfall Development, considering that the rates used were substantially below ITE trip generation rates. No additional information has been provided on this issue. We acknowledge that the lower rates were supported by monitoring of the traffic that is currently generated by the partial development of the site and that seasonal recreational homes may influence the trip generation rates during peak periods.

The 2011 Functional Servicing Report (March 2011) forecasted that the subject development will generate 848 vehicles per hour (vph) in the weekday PM peak hour and 809 vph in the Saturday peak hour, based on 609 residential units. The subsequent TIS (September 2018) forecasted that the subject development will generate 647 vph in the weekday PM peak hour and 670 vph in the Saturday peak hour, based on 681 residential units. The current TIS (June 2020) forecasts that the subject development will generate 430 vph in the weekday PM peak hour and 528 vph in the Saturday peak our, based on 659 residential units.

The trip generation monitoring in the 2018 TIS was based on the traffic generated from about 9% of the development completed. The trip generation rates were found to be reasonably close to the trip generation rates provided in the *Trip Generation Manual* (Institute of Transportation Engineers). The trip generation monitored in the 2020 TIS was based on the traffic generated from about 40% of the development completed. The new trip generation were found to be considerably lower than the ITE rates (i.e., about 20% of the weekday peak rate and about 57% of the Saturday peak rate). The 2020 TIS subsequently applied the Saturday rate for both the weekday and Saturday conditions.

Given the significant differences in trip generation rates applied, when compared to either the ITE rates or to the previously monitored rates, it is recommended that a sensitivity analysis be provided to assess the traffic operations using the ITE trip generation rates. This will assist in identifying an upper limit to the traffic impacts that may occur over the longer term.

2.2 Background Traffic Growth

The 2020 TIS forecasts background traffic growth based on trip generation forecasts for the developments in the immediate study area, plus the addition of a growth factor of 2% per annum to account for growth from the broader study area. Burnside's recent traffic study work for the County on GR19 and GR 21 forecasts that the growth from the broader area may be higher,

particularly to/from the north on GR 19 and GR21. Further justification should be provided to confirm the assumed 2% traffic growth rate applied to the growth from the broader area.

2.3 Trip Assignment

The 2020 TIS notes that adjustments were made to the traffic assignments from the Windfall Development, the Second Nature Development and the Blue Vista Development, to reflect the impact of the extension of Crosswinds Boulevard to its access with GR19 (i.e., opposite to Jozo Weider Boulevard). Details of the assumed adjustments to the traffic assignments should be provided in the report.

2.4 Recommended Road Improvements

The County plans to implement the following improvements to GR19 in the study area:

- Construction of a 2-lane roundabout at the intersection of GR19 / GR21.
- Construction of a 2-lane roundabout at the intersection of GR19 / Crosswinds Boulevard.
- Construction of a 4-lane cross section on GR19, between GR21 and GR119.

The 2020 TIS concludes that these improvements can accommodate the traffic to 2035 in the study area, including the additional 50 residential units now being proposed. We have confirmed the traffic operation calculations that form the basis of this conclusion. However, as noted above, we recommend that a sensitivity analysis be provided with adjusted trip generation rates, along with further review of the trip assignment and growth assumptions. Since the TIS calculates reserve capacity for the two proposed roundabouts and for the GR19 corridor in the 2035 horizon, the current designs may accommodate the more conservative assumptions. However, the operations at the intersection of GR19 / Jozo Weider Boulevard / Crosswinds Boulevard may require some additional mitigation measures under the adjusted scenario.

The 2020 TIS suggests that a 3-way stop (i.e., all-way stop control (AWSC)) be provided at the intersection of the Phase 3 access at Crosswinds Boulevard, to facilitate pedestrian / cyclist crossings. Calculations should be provided to confirm that the warrants for an AWSC are met in accordance with *Book 5 of the Ontario Traffic Manual.*

The 2020 TIS forecasts that traffic volumes on Crosswinds Boulevard will be between 250 and 300 vph per direction in the peak hour and that this is within the planning capacity for this road. We would concur that these volumes are within the typical ranges for higher volume collector road. However, considering the length of this road and its location within a residential area, it is recommended that additional information be provided to ensure that sufficient traffic calming is provided along the corridor, along with provisions for pedestrian / cyclist crossings. Consideration should also be given to ensuring that through traffic infiltration is minimized (i.e., diversion of traffic from the County road network onto Crosswinds Boulevard), given the overall road network configuration and operations in this area.

3.0 Roundabout Design Parameters

The design proposed at the Windfall access onto GR19 is for a 2-lane roundabout, with inscribed circle diameter (ICD) of 46 to 51 m, depending on the approach. The approaches to

the Crosswinds Roundabout provide a transition to the existing 2 travel lanes on GR19, pending any widening of GR19 in the future.

The revised ARCADY modelling now reflects the design drawings

Designs for roundabouts are intended to provide for both the safety and mobility of traffic operations. The design parameters should meet typical guidelines that have been developed to achieve a balance between these objectives. Our peer review notes the following parameters, where guidelines are not met in the proposed designs:

- The east-west circulatory speed in the roundabout (i.e., 37 to 42 km/h) is higher than the entry speed (i.e., 45 km/h). Typically, it is desirable to have entry speeds that are lower than the circulatory speed.
- The circulatory speed for left turn movements is about 21 km/h, or about 21 km/h below the eastbound through movement in the roundabout (i.e., 42 km/h). A maximum differential of 20 km/h is desirable between these speeds.
- The ICD proposed in the design is representative of a low speed environment. Typical ICDs for urban 2-lane roundabouts are in the range of 45 to 55 m, while typical ICDs for rural 2-lane roundabouts are in the range of 55 to 61 m. Maximum desirable entry speed for an urban 2-lane roundabout is 40 km/h, while the maximum desirable entry speed for a rural 2-lane roundabout is 50 km/h. The entry speeds proposed in the designs varies between 42 to 45 km/h and therefore may be representative of the semi-urban environment in this area, with its lower posted speed (i.e., 60 km/h posted speed), as compared to rural conditions.
- The west leg of the roundabout has a very small entry angle (5 degrees), while Transportation Association of Canada (TAC) recommends an entry angle of between 20 and 60 degrees. This may be a safety issue since it requires motorists to look too far over their shoulders to observe the potential for conflicting vehicles in the roundabout.

We had requested additional comment on the safety of pedestrian movements through the roundabout, however no additional information was provided to respond to this comment. We do not anticipate significant pedestrian movements crossing GR19 in this area. We recommend that pedestrian and cyclist usage of the roundabout be monitored after its construction to confirm if any enhanced pedestrian crossing measures are required to maintain safety in this area.

Our peer review confirms that the traffic design of the Crosswinds Roundabout is generally acceptable, subject to the above items being resolved. We recommend that the above items be further considered in finalizing the designs for this roundabout.

4.0 Phasing Considerations

Improvements to GR19 to the east and west of the proposed Crosswinds Roundabout are currently being planned through a Class Environmental Assessment, including the potential to widen the road to 4 travel lanes. The preliminary planning for that project suggests that the existing centreline of GR19 will be shifted about 3.3 m to the north. The proposed Crosswinds Roundabout has been sited to accommodate the future 4-lane section, including the shifting of the centreline. However, the interim design for the roundabout (i.e., interface with the existing

2-lane section) presupposes that the roundabout construction will occur in advance of the 4-lane widening.

We understand that temporary signals have now been constructed at the Crosswinds access, which provides for improved traffic operations, pending the implementation of the planned roundabout. This provides some flexibility in coordinating the two projects and reducing the disruption and duplication that is inherent in proceeding as two separate projects. Therefore, we recommend that the County consider combining the two projects. The provision of the final design by the developer should be adjusted to interface with the design of the 4-lane widening, once it is available. The integration of the two projects will not have any significant impact on the operations of the roundabout, as designed.

5.0 Concluding Remarks

This letter has provided a peer review of the *2020 Windfall TIS.* The following additional information is requested to conclude our peer review:

- Sensitivity analysis of traffic operations using ITE trip generation rates.
- Additional confirmation of the background traffic growth from the broader study area.
- Confirmation of trip assignment due to the full connectivity of Crosswinds Boulevard.
- Confirmation that AWSC warrants are met on Crosswinds Boulevard.
- Confirmation of crossing requirements and traffic calming requirements on Crosswinds Boulevard and at the access roundabout.
- Adjustments to the roundabout designs to meet recommended geometric guidelines.
- Coordination of designs for the roundabouts on GR19 with the County's completion of a 4-lane cross section along this corridor.

If there are questions pertaining to this review, please give me a call.

Yours truly,

R.J. Burnside & Associates Limited

Henry Centen, P. Eng.
Senior Transportation Engineer
HBC:ba