5A-150 Pinebush Road
Cambridge ON N1R 8J8
p: 416.479.9684
905.381.2229
519.896.3163

www.ptsl.com

23 November 2020
Project: 200593

Steve Harvey, P.Eng.
Development Engineer
Department of Development Services
The Corporation of the County of Prince Edward
280 Picton Main Street
Picton, ON K0K 2T0

Dear Mr. Harvey:

RE: TECHNICAL REVIEW – VINERIDGE BOUTIQUE TOWNS, TRANSPORTATION STUDY, FLC GROUP, R.J. BURNSIDE & ASSOCIATES LIMITED

The purpose of this letter is to document the technical review of the subject study. The study was prepared by R.J. Burnside & Associates (the consultant).

The Transportation Study was undertaken to assess the traffic impact of the proposed redevelopment of a site located along the private portion of Inkerman Avenue, east of Caen Court, in the southeast area of the community of Picton, Prince Edward County. The site is currently occupied by 38 rental housing units and two vacant churches, which were formerly provided for military personnel. The consultant states that the existing housing would be removed and replaced with 560 townhouses (462 stacked and 98 street).

Inkerman Avenue and Fishcreek Drive provide direct access to the site today and would continue to do so for the proposed development. Each of these streets connect with London Avenue[1], which provides access to the County road network via the County Road 22 (Church Street)/London Avenue intersection. It should be noted that the latter intersection is the sole vehicular access point for this area, which is now known as *"Macaulay Village"*.

[1] Inkerman Avenue intersects with London Avenue. Fishcreek Drive intersects with Diver Belt Drive, which intersects with London Avenue.

Detailed Commentary

The following points provide the detailed technical review of the Transportation Study.

- Study Scope:
  - The consultant states the study is in support of a Zoning By-law Amendment but does not provide further details on the nature of the proposed rezoning (we assume that is addressed in a Planning Rationale report or similar)
  - The consultant states that consultation was undertaken with Prince Edward County staff to establish the scope of the study for traffic forecasting and analyses. The study area included six public road intersections, namely, Bridge Street/Church Street, Bridge Street/Union Street-Business Centre Driveway, Union Street/Church Street, York Street/Church Street, County Road 22 (Church Street)/London Avenue, and London Avenue/Inkerman Avenue
  - The consultant estimated weekday AM and PM peak hour traffic forecasts for a 2020 base year (combination of pre and intra-pandemic counts), a 2025 horizon year (includes 50% build-out of the subject development, partial completion of two other developments within or near the study area, and a general growth factor), and a 2030 horizon year (2025 forecasts plus the remaining 50% of the subject development, completion of the other developments within or near the study area, and a general growth factor)
- Existing Conditions:
  - The consultant established 2020 base year traffic conditions based on three summer 2019 intersection traffic counts (pre-pandemic) that were part of another development's traffic impact study and three spring 2020 intersection traffic counts (intra-pandemic) arranged by the consultant with a data collection contractor. The 2019 traffic counts were for the three higher volume study area intersections along Bridge Street and Union Street and the consultant applied a reasonable 1% growth factor to conservatively estimate a 2020 condition. The 2020 traffic counts at the Church Street intersections with York Street-Heritage House Driveway and London Avenue were found to show Church Street traffic volumes that are similar to the factored 2019 traffic data, and therefore, should reasonably represent a typical condition despite the current pandemic. The 2020 traffic count for the remaining study area intersection of London Avenue/Inkerman Avenue showed that it is a relatively low volume intersection, which would not likely be significantly affected by pandemic conditions. In summary, the 2020 base year traffic volumes as presented are acceptable
  - The consultant conducted field observations of traffic operations on Thursday, June 4, 2020, and reports that no significant problems or concerns were noted. Based on the order-of-magnitude of the 2020 base year traffic volumes for the weekday AM and PM peak hours, this appears to be a reasonable conclusion for this level of traffic

- As shown in Table 5 (AM peak hour) and Table 6 (PM peak hour), the results of the analysis of study area intersection traffic operations for the weekday AM and PM peak hours are consistent with the field observations. In general, the study area intersections are shown to operate with little delay as characterized by levels of service in the A to C range (measured on a scale from A best to F worst) and well within capacity
- The consultant provides a summary of the current transit services operating in the community of Picton, which can be characterized as very modest. While several County transit service enhancement strategies are outlined later in the report, it can be expected that new development within the study area will be primarily auto oriented for the foreseeable future

- Background Traffic Forecasts
  - The consultant properly accounted for the traffic that will be generated by two other new developments that would also impact the study area intersections. It is understood that the Tulip Estates Residential Development (approved, 387 residential units of various types) is assumed to be fully developed by the 2025 horizon year, and the Port Picton Condominium Development (under construction, 261 residential units of various types and a restaurant) was assumed to have its first four phases being completed by 2025 and its fifth (final) phase being completed by 2030
  - The consultant also properly estimated general growth in background traffic for the 2025 and 2030 horizon years based on a one per cent per annum growth rate
- Site Traffic Forecasts
  - The site trip generation has been estimated using the appropriate reference material and land uses, i.e. 10th Edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual, “Multifamily Housing (Mid-Rise)”
  - The site trip distribution is based on reasonable methods and assumptions. As shown in Table 4, the site trip distribution can be generalized as approximately 90% oriented to the west, northwest, and south (representing travel via several main roads serving the community of Picton as well as the other larger, nearby urban centres) and 10% oriented to the northeast and east and representing travel via the main roads serving the more rural areas of the County
  - Similarly, the routing indicated in the site trip assignment is reasonable and the resultant site peak hour trip assignments are illustrated correctly in Figure 8 (Phase 1, 2025) and Figure 9 (Phase 1 and 2, 2030)
- Total Traffic Forecasts
  - The total AM and PM peak hour traffic forecasts illustrated in Figure 10 (2025) and Figure 11 (2030) represent the sum of the base year (2020) traffic, trip assignments for other new local area developments, the estimated background growth rate factor, and the subject site trip assignment. A spot check of several of the traffic movements confirms that the forecasts are correctly presented

- Operational Analysis of Future Conditions
  - The analysis of the 2025 and 2030 AM and PM peak hour background traffic forecasts (Table 5 and 6) shows that there is little change in study area intersection traffic operations compared with the base year (2020) analysis with the exception of the northbound left turn movement at the Bridge Street/Union Street-Business Centre Driveway intersection experiencing longer delays (level of service E-F) and approaching capacity
  - Similarly, the analysis of the 2025 and 2030 AM and PM peak hour total traffic forecasts (also Table 5 and 6) shows that there is little change in study area intersection traffic operations compared with the background traffic conditions. Once again, the one critical movement identified is the northbound left turn movement at the Bridge Street/Union Street-Business Centre Driveway intersection, which would essentially be at capacity in the 2030 PM peak hour
  - The consultant's description of the analysis results includes a discussion of queue lengths at the study area intersections, and it is stated that the analysis shows that all queues would be within either storage lane lengths for exclusive turn lanes or link distances (i.e. the distance between adjacent intersections). This is not quite accurate in that the consultant goes on to state that the northbound left turn movement at the Bridge Street/Union Street-Business Centre Driveway intersection would have a queue length that would extend south of the Union Street/Elks Street intersection, which would also mean that the left turn lane storage length would be exceeded. This is the finding for several of the future AM and PM peak hour operations under both background and total traffic conditions. For ease of review, the commentary on queuing should have been supported within the report by a tabulation of available storage lane lengths and link distances compared with the estimated queue lengths; however, the raw queue information is contained in operational software reports in various appendices. The report commentary should also have clarified that it is the 95th percentile queue that is being discussed, which means that the northbound left turn queue at the Bridge Street/Union Street-Business Centre Driveway intersection would only occasionally and temporarily exceed the available storage lane length and/or link distance. In the field, there would be an ebb and flow of queue lengths depending on arrival patterns and gaps in the traffic flow at the Bridge Street/Union Street-Business Centre Driveway intersection
  - The consultant does not recommend a specific improvement to the Bridge Street/Union Street-Business Centre Driveway intersection to address the operational concerns outlined above. Rather, the consultant recommends that the County monitor operations for possible future improvements and adds *"such as an all-way stop"*. In this case, monitoring is a reasonable recommendation in that most of the increase in the northbound left turn forecast (approximately two-thirds) is attributable to general traffic growth and the traffic assignments associated with the two background developments, both of which could have considerable variability. The feasibility of all-way stop control is somewhat questionable since the subject intersection has multi-lane approaches for the northbound and eastbound

approaches and a private driveway forms the north leg of the intersection. This type of configuration is generally not desirable for all-way stop control since it can become difficult to determine who has the right-of-way during busy times. Therefore, signalization would likely be the preferred method of intersection traffic control but the existing traffic volumes as well as the traffic forecasts are unlikely to meet the provincial criteria for justifying signalization. In addition to monitoring future changes in traffic volumes and operations, the intersection's safety performance would have to be assessed, which may become more critical in terms of necessitating a higher form of traffic control if the northbound traffic on Union Street increases as shown in the forecasts

- As part of the study scope, the consultant was asked to examine the potential need for all-way stop control at the Union Street/Church Street intersection, which currently operates with stop control on the Church Street approaches. We agree with the consultant's analysis and conclusion that all-way stop control is not warranted under either existing or future traffic conditions. This is due to the relatively low intersection approach volumes relative to the provincial criteria for all-way stop control and the pronounced split in traffic between the major street (Union Street, approximately 75% of approach traffic) and minor street (Church Street, approximately 25% of approach traffic) approaches whereas the relevant criteria indicates no more than a 65/35 split
- While the consultant has not explicitly considered the need for auxiliary left turn lanes, such as the potential for a southbound left turn lane at the County Road 22 (Church Street)/London Avenue intersection, we find that the relatively low through volumes that would oppose left turn movements at the study area intersections are not at the levels where auxiliary left turn lanes would typically be warranted. Similarly, the right turn volume forecasts are not at the levels where an auxiliary right turn lane would be considered (excepting the eastbound right turn movement at the Bridge Street/Union Street-Business Centre Driveway intersection where a right turn lane already exists)
- In summary, the consultant concludes that no road or traffic control improvements would be required to accommodate either the background or total traffic forecasts, which essentially means that the proposed development would have a negligible impact on the study area intersections. We agree with this conclusion with the qualifier that the Bridge Street/Union Street-Business Centre Driveway intersection should be monitored for the potential need for a higher form of traffic control (likely traffic signals at some time in the future)

- Site Transportation Considerations
  - The consultant states that the site is well designed to accommodate all modes of travel with sidewalks and internal laneways. These details should be reviewed further once a Site Plan Application is submitted
  - The consultant has provided a vehicle maneuvering diagram (Appendix H) to illustrate how a private front-end loader refuse truck could travel through the site and access waste pick-up areas. The consultant states that this is the largest design

vehicle expected to be accommodated on-site. This should be confirmed at the time that a Site Plan Application is submitted to ensure that any potential changes in the site plan are addressed. As well, other vehicle types should be considered including emergency vehicles (fire truck) and any larger vehicle that may be a type used for moving (unless it is confirmed that access to the site by larger vehicles will be managed or prohibited)

- In addition to the above, there are some site-related transportation issues that the consultant has not considered in the study, which include:
    - London Avenue is reported to be classified as a local road. Currently, the traffic volume on London Avenue between County Road 22 (Church Street) and Inkerman Avenue is approximately 100 to 130 two-way in the PM peak hour, and therefore, can be considered to be at the upper end of the range for a local road[2]. With the proposed development, the consultant's forecasts show that this volume could increase to approximately 330 to 360 vehicles two-way in the PM peak hour by 2030. While this volume is well within the operating capacity of a two-lane road, it is approximately three times higher than the existing traffic volume. The forecasts as presented would be typical for the next higher type of road in the standard functional classification hierarchy, i.e. a collector road. Given the limitations on site access opportunities and the intensity of the proposed development, the change in the traffic volume character of London Avenue should be acknowledged in the overall evaluation of the proposed development from a planning and local community perspective
    - With the existing and proposed uses in Macauley Village having only the London Avenue access to County Road 22 (Church Street), it effectively represents a development on a cul-de-sac of approximately one kilometre in length (i.e. the distance between County Road 22 and the furthest point of development shown on the proposed site plan concept). Based on information published by the Institute of Transportation Engineers[3], a typical design guideline for a cul-de-sac would be a maximum length of a 215 to 305 m. The range reflects an inverse relationship with the density of development. With low density development, a cul-de-sac of 305 m in length would accommodate approximately 40 residential units (development on both sides of the road and 15 m lots). The suggested maximum length of a cul-de-sac relates primarily to ensuring reasonable provision of emergency services, and since the proposed development would have approximately 15 times more residential units than the existing development (i.e. 38 increasing to 560), emergency access and other

[2] Reference: Typical volume thresholds for urban road functional classifications as presented in the Transportation Association of Canada (TAC) publication, "Geometric Design Guide for Canadian Roads". The TAC typical threshold guideline for a local road is 1,000 vehicles per day, and with the PM peak hour typically representing 10% of the daily volume, this translates into a peak hour volume of 100 vehicles two-way.
[3] "Residential Street Design and Traffic Control Manual", Table 2.1, pg. 23, Institute of Transportation Engineers, 1989.

related design considerations (e.g. fire suppression) should be addressed in the agency review of the proposed rezoning initially and again later in the review of the Site Plan Application

- Transportation Demand Management (TDM)
  - The consultant identifies features of the site that can be considered as TDM measures that may reduce reliance on the private automobile and single-occupant vehicle trips. These include the transit service that runs along County Road 22 and has a stop at the London Avenue/Inkerman Avenue intersection, which would be within an approximate five-minute walk for most of the subject site. This represents a typical design guideline for transit planning. As well, the site plan concept is intended to be bicycle and pedestrian-supportive, which provides additional transportation alternatives
  - The consultant has not relied on transit or travel by non-auto modes to reduce the site vehicle trip generation, which is a reasonable approach given the relatively low frequency of transit service available as well as the distance and topography challenges for cycling and walking between the site and major destinations beyond the community of Picton
  - A TDM plan has not been submitted as part of this study. There should be an opportunity to provide one as part of the Site Plan Application submission where appropriate TDM measures such as bicycle parking, walkways, provision of transit information to new residents, car pooling, trail maps, etc. could be detailed along with the proponent's commitment to implementing and funding a TDM plan

Conclusions

A summary of the conclusions of the technical review is presented in the following table:

TECHNICAL REVIEW OF TRANSPORTATION STUDY VINERIDGE BOUTIQUE TOWNS, TRANSPORTATION STUDY, PICTON			
Proposed Development	**Key Points**	**Actions Required**	**Overall Summary**
Redevelopment of a site that is currently occupied by 38 rental housing units and two vacant churches. The proposed use is 560 townhouses (462 stacked and 98 street) on a site along a private portion of Inkerman Avenue, east of Caen Court, in the community of Picton, Prince Edward County The site has a direct access to London Avenue via Inkerman Avenue and an indirect access to London Avenue via Fishcreek Drive and Diver Belt Drive. London Avenue provides the site's sole vehicular access to the County Road network at its intersection with County Road 22 (Church Street)	Traffic forecasting and operational analyses are acceptable The northbound left turn movement at the Bridge Street/Union Street-Business Centre Driveway intersection was identified to operate near capacity and with longer delays during 2025 and 2030 AM and/or PM peak hour conditions. No recommendation for improvements is made, but it is recommended that the County monitor future traffic conditions to confirm the need for and type of improvement that may be required (possibly traffic signals) Changing the traffic control at the Union Street/Church Street intersection from the existing stop control on Church Street to all-way stop control was analyzed and it was determined that it is not warranted under either existing or future traffic conditions At full development, there will be a significant increase in traffic on London Avenue between County Road 22 (Church Street) and Inkerman Avenue but the forecasts are within the capacity of a two lane residential street The study finds that the proposed development can be accommodated on the study area road network with no road or traffic control improvements	No additional transportation study reporting is required as related to the rezoning application; however, the following items should be addressed prior to or as part of the Site Plan Application review process: Details related to sidewalks and laneways Confirmation of on-site vehicle maneuvering requirements as related to trucks and emergency vehicles Establishment of emergency access requirements and building design measures related to emergency situations Preparation of a Transportation Demand Management plan, including the proponent's commitment to implementing and funding the plan	The information presented in the Transportation Study follows a typical technical approach and is acceptable regarding supporting a rezoning application From a traffic operations perspective, the development could be accommodated by the study area road network with no road or traffic control improvements With the proposed intensification of development, emergency access requirements should be addressed to the satisfaction of Prince Edward County's emergency service providers

If you have any questions or comments, please contact the undersigned.

Yours very truly,

PARADIGM TRANSPORTATION SOLUTIONS LIMITED

Garry Pappin
LEL
Senior Project Manager