

9 May 2022
Project: 220129

Aquisha Khan, P. Eng.
Transportation Engineer
Transportation and Engineering Department, Town of Oakville
1225 Trafalgar Road
Oakville, ON L6H 0H3

Dear Ms. Khan:

**RE: TECHNICAL REVIEW – 560 WINSTON CHURCHILL BOULEVARD
TRANSPORTATION IMPACT STUDY (NOVEMBER 2021), TOWN OF OAKVILLE**

Blackwood Partners Inc. (the Proponent) is proposing to develop a warehouse facility at 560 Winston Churchill Boulevard in the Town of Oakville. The Proponent retained C.F. Crozier & Associates Inc (Crozier) to conduct a TIS to support the Site Plan Application (SPA). Crozier prepared an initial study in July of 2019. An updated version of the study was submitted in November of 2021. The purpose of this letter is to provide a technical review of the contents of the updated report for the Town of Oakville, highlighting critical areas, and providing context and support where further information may be required.

Based on the review, an addendum to the report could be provided that addresses the following:

- ▶ Explore opportunities to improve TDM efforts, including the installation or protection of right-of-way for sidewalk, MUP and/or bus stop needs as well as strong site connections;
- ▶ Clarify site trip assignment details, including turn and vehicle restrictions at both site accesses; and
- ▶ Confirm site access sightlines in accordance with TAC guidance.

Development Summary

The Proponent is proposing to build a warehouse facility consisting of three industrial buildings with a combined gross floor area (GFA) of 59,078 m² and 417 surface parking spaces. Site access is proposed to be through two driveway connections. The north access is proposed to be full moves, while the south is proposed to be right-in/right-out. The proposed development is expected to generate approximately 86 and 96 total two-way passenger car trips during the weekday AM and PM peak hours, respectively and approximately 22 and 25 total two-way heavy vehicle trips during the weekday AM and PM peak hours, respectively. The net generated trips are 108 and 121 during the AM and PM peak hours, respectively.

The following items are key features of the study:

- ▶ **Traffic Operations.** Traffic impacts have been analyzed and modelled using Synchro 11 software. Minor modifications can be applied to the analysis to gain a more accurate representation of existing and projected conditions. However, in total, the analysis fairly depicts existing and proposed traffic conditions.

Analysis results indicates that generally, traffic operations will not be a significant issue under the proposed development conditions. The following movements are critical:

- The eastbound left turn movement at the intersection of Winston Churchill Boulevard and Royal Windsor Drive operates with a poor V/C during the PM peak hour for all analyzed scenarios.
- The southbound left turn movement at the intersection of Ford Drive and Cornwall Road operates with a poor V/C during the AM peak hour for all analyzed scenarios as well as during the PM peak hour for the 2027 and 2032 horizon years.
- The southbound left turn movement at the intersection of Ford Drive and Royal Windsor Drive operates with a poor V/C during the PM peak hour for the 2027 and 2032 horizon years.

The poor conditions for these movements are primarily attributable to background traffic conditions, not site trips. Mitigation efforts, including traffic signal timing optimization, have been recommended.

- ▶ **Signal Timings.** Signal timings were programmed in accordance with provided timing cards from the applicable road authorities. Two key issues have been identified:
 - The lost time adjustment was updated to 3.0 seconds for the eastbound left turn movement at the intersection of Winston Churchill Boulevard and Royal Windsor Drive during the PM peak period for all horizon years. This is not typical and should be supported by site-specific evidence.
 - The pedestrian walk time was reduced from 7.0 seconds to 4.0 seconds for a number of intersections, peak periods and horizon years. This modification is not typical.



It is likely that updates to these parameters will not impact study conclusions to a significant extent.

▶ **Transportation Demand Management.** Transportation demand management (TDM) was assessed to reduce single-occupant auto dependency generated by the site. The following TDM measures have been identified:

- Pedestrian network improvements;
- Preferential parking for carpooling;
- Emergency ride home; and
- Promotion and marketing.

These measures project to reduce single-occupant vehicle dependency by an estimated 2-5 trips. The efficacy and impact of these efforts could be examined in further detail, including, but not limited to installation or protection of the right-of-way for future sidewalk, MUP and/or bus stop needs. Strong connections (i.e. sidewalks) from the right-of-way to the site may be beneficial as well.

▶ **Site Access.** The site is planned to front on to Winston Churchill Boulevard with two accesses to the public right-of-way.

- The north access is located approximately 620 metres south of the rail crossings and approximately 285 metres from the future Orr Road extension north of the site. The access is proposed be unsignalized and full moves for heavy vehicles.
- The south access is located at the south end of the site, approximately 75 metres north of Deer Run Avenue. The access is proposed to be unsignalized and right-in/right-out only for vehicles.

There are no apparent significant issues with the accesses as proposed. An analysis of motorist sightlines at the site accesses has not been provided.

The study and designs contain conflicting information on site access use, including vehicle type and turn restrictions.

▶ **Site Plan and Functional Design.** The development plans include a functional design for Winston Churchill Boulevard. The storage lengths for the proposed auxiliary lanes are sufficient for the queue lengths developed through the traffic analysis. There are minor adjustments that can be incorporated into future detailed design efforts.

▶ **Parking.** The supply of 417 parking spaces exceeds the minimum requirement of 410 spaces for warehouses, as per the Town of Oakville By-law 2014-014. As such, a parking study has not been provided and not required.

▶ **Site Circulation.** Site circulation is analyzed through a swept path analysis of the following design vehicles using AutoTURN:

- WB-20
- Halton Pumper Fire Truck



- Heavy Single Unit (HSU)

No vehicle movement conflicts were identified through the analysis.

Detailed Commentary

The following section provides detailed commentary on the contents of the study. The intention of the commentary is to be reference where required. Most of the identified items are not significant, with updates not impacting study results to a significant degree. Critical items are identified following the commentary in the conclusions section, with recommendations suggested as needed.

General

1. The page numbering is inconsistent as pages 9-11 repeat twice. It is recommended that the report be updated to have consistent page numbering.
2. As per Town of Oakville Terms of Reference for Transportation Impact Studies and Transportation Functional Design Studies (Town of Oakville TIS guidelines) Section 3.1, the description of the development proposal should include the following:
 - a. A summary of each type of floor space. For this site, the GFA of office space should be detailed;
 - b. Approximate hours of operation. For this site, shift work could lead to varying peak hour factors (PHFs) or queuing; and
 - c. Planned phasing of the development. It should be confirmed if both buildings are being constructed at the same time or sequentially.

Introduction

3. Page 4 – A build-out year of 2021 is not possible as it is currently 2022. If further updates are made to the study, it is advised that a realistic build-out year be applied. Subsequent changes to horizon years would be required as well.

Existing Conditions

4. Pages 5-7 – Sections 3.2 and 3.3 contain varying details for the subject roads and transit facilities, some of which do not appear consistent.
5. Page 5 – The report states that there are shared cycling facilities on Cornwall Road. A site visit confirmed that there is an MUP within the boulevard.
6. Page 6 – Google Maps is referenced as the source for existing site conditions. It is typical to confirm site conditions through a site visit.



7. Page 7 – Given the planned Winston Churchill Boulevard road works and ten-year planning horizon, reference to municipal cycling plans is beneficial. Planned cycling infrastructure may need to be incorporated into study and/or design considerations.
8. Page 7 – The report states that the PHFs provided in Table 1 are used for the analysis. The appended Synchro reports indicate different PHFs than shown in Table 1. Furthermore, the report notes that PHFs of 1.0 were applied in accordance with Peel Region guidelines, but these PHFs are not found in the Synchro reports as well. The application of PHFs should be consistent through the analysis and follow all required guidelines, most notably, those of Peel Region.
9. Pages 7-9 – Region of Peel TIS guidelines indicate that V/Cs of 0.9 or greater must be identified for overall intersections, through movements and shared through/turning movements. For exclusive turn movements, the threshold increases to a V/C of 1.0. Region of Halton guidelines have a V/C threshold of 0.85 for total intersections and 1.0 for individual movements. The critical intersections and individual movements that are identified could be updated in accordance with these guidelines.
10. Page 8 – The lost time adjustment parameter is typically calibrated based on site conditions. If the parameter is adjusted simply to allow for improved MOEs, without the consideration for site conditions, the results may not be entirely validated. It is recommended that the lost time adjustment be set to 0 seconds for the eastbound left turn movement during the PM Peak Period for the intersection of Winston Churchill Boulevard and Royal Windsor Drive in accordance with Peel Region TIS guidelines.

Future Background Conditions

11. Page 10 – Region of Peel staff highlighted potential plans to develop the lands located at 805 Winston Churchill Road. There may be another background development at 2175 Winston Churchill Boulevard as well. The report may need to contain information on these background developments and assess trip generation rates accordingly.
12. Page 10 – Town of Oakville staff identified the planned Moldenhauer development on the east side of Winston Churchill Boulevard as a potential impact to be considered in the traffic analysis. Based on previous agency review comments that are publicly available, it appears this development has been considered in the 2% background growth rate. The report could explicitly identify the consideration of this development to ensure Town staff that it has been considered.

Site Generated Traffic

13. Page 12 – The report notes that 10th Edition of the ITE Trip Generation Manual was used to develop site trip estimates. There is then a subsequent reference to the 8th Edition of the same Manual. A consistent edition of the manual should be applied to the analysis. Since September 2021, the 11th Edition has been available to determine site trips.



14. Page 13 – The trip assignment detailed in Figure 7 includes passenger vehicle movements at the north site access, which is proposed to be restricted to only heavy vehicles as per Section 7.2 of the report. It could be clarified if passenger vehicles are recommended to use the north site access. Potential updates to the traffic and swept path analyses may be required based on clarification details.
15. Pages 13 – There is a heavy vehicle prohibition on Lakeshore Road West, west of Winston Churchill Boulevard. The trip assignment could be updated or clarified to reflect this prohibition.

Site Access Review

16. Page 13 – The report recommends that the south access be full moves, but the site plan shows a right-in/right-out configuration. The text could be updated to match the proposed design.
17. Page 14 – The report references a northbound right turn lane at the north site access. It is likely that this is a reference to the southbound right turn taper at the north site access as there is no northbound right turn lane. The report could clarify details.
18. As per Peel Region TIS guidelines, confirmation of sight distances for both site accesses should be confirmed if not done so already. Confirmation of no other safety issues (i.e. merging, weaving, etc.) as detailed in Peel Region and Town of Oakville TIS guidelines is recommended as well. These guidelines are similar to those of Halton Region.

Recommendations

19. Page 18 – The report recommends optimizing the signal timings at the intersection of Ford Drive and Cornwall Road by reducing the walk time from 7.0 seconds to 4.0 seconds. The Synchro reports indicate that this approach was only applied to the eastbound through movement for this intersection. Synchro reports indicate that similar adjustments were made for other signalized intersections as well. Given the need for safe pedestrian crossing facilities, the recommendation to reduce the time to less than the OTM Book 12 recommended amount should be reconsidered for all instances.

Transportation Demand Management

20. Page 23-25 – It may be in the interest of the project team and review agency to confirm specific actions and stakeholders for the TDM strategy.
21. Page 25 – The proposed TDM strategies do not appear to have significant impacts on balancing trip mode share. In total, 2-5 trips and 2-4 trips during the AM and PM Peak Periods, respectively, are proposed to be reduced depending on which measures are executed. The project team and review agencies may wish to encourage further efforts where possible. This could be accomplished through strong pedestrian and/or cycling facilities along the frontage and connecting to the site.



Synchro Reports

22. The traffic signal at Lakeshore Road East and Winston Churchill Boulevard is likely operating in a coordinated mode. The Synchro parameters could be updated to actuated-coordinated.
23. Vehicle minimums for the traffic signal at the intersection of Winston Churchill Boulevard and Beryl Road are 12 s and 8 s, respectively, as per the timing cards, but are programmed at 5 s in the Synchro reports. These minimums could be updated.
24. Some of the vehicle volumes and heavy vehicle percentages contained in the Synchro reports vary from TMC data found in Appendix C. Context could be added to the report to support what is likely volume balancing.
25. Queuing information cannot be confirmed as the Synchro or SimTraffic queuing reports have not been provided except for the two site accesses. The queues calculated for these two accesses are significantly less than the storage lengths provided in the functional design.

Site Plan

26. As per review agency comments, there may be interest in protecting the property frontage for an increased shoulder width or sidewalk as well as connections to the site. The road design and site plan may need to consider these impacts.
27. The north access curb radii differ between the site plan and road design. Future updates to the drawings should include similar curb radii for both drawings. Town of Oakville guidelines recommend 15 m.
28. The east-west road alignment shown in the site plan is different than the road design. Future updates to the drawings should include contain a consistent alignment.
29. The report may wish to consider the need for a bus stop at either site access given the potential for warehouse employees to use public transit. As per Town of Oakville TIS guidelines, a new transit stop is required if the development is located more than 400 m walking distances away from an existing transit stop.

Functional Design

30. As per Peel Region Public Works Standard Drawing 5-1-4, the right-in/right-out channel width should be 4.0 m at the public right-of-way (east) side of the channel.
31. The southbound right turn lane for the south access should be line marking type 5 for the taper portion of the lane.



32. The raised centre median island length at the north and south approaches of the north access could be updated to 30.0 m as per Peel Region Public Works Standard Drawing 5-1-6.
33. The alignment of the southbound right turn taper at the north access could be updated to be consistent along its entire length and not deflect at the beginning of the storage portion. See TAC Geometric Design Guide, Figure 9.14.2 for further details.
34. As per OTM Book 11, Figure 28, the southbound right turn taper line marking could be consistent 3-3-3 (line type 6).
35. The southbound left turn hatch lines at the north access should be angled toward the southbound through lane (rotated 90 degrees). Further guidance on line type and spacing can be found in OTM Book 11.
36. If desired, the northbound recovery taper at the north access should be 30 m in length and 1.5 m in width at the end of the curb radius.
37. Potential site impacts and design requirements of the 700-750 Winston Churchill Boulevard development should be considered with the subject design works.
38. Guide rail is provided along the south access driveway. It should be clarified if this guide rail is provided on the west side of Winston Churchill Boulevard, along the site stormwater pond as it may be required. Guide rail specifications (OPSDs) may be required.
39. Fencing along the west side of Winston Churchill Boulevard should be identified with an OPSD. Fencing with a top rail may not be desirable, especially if the fence is within the clear zone and not behind guide rail.
40. A design speed should be confirmed.



Conclusions and Recommendations

The reviewed traffic impact study follows a typical technical approach and does well to address the key concern of traffic operations on the road network surrounding the subject site. The following conclusions have been identified:

- ▶ **Traffic Operations.** A number of vehicle movements and study intersections have been identified to have poor measures of effectiveness (MOEs) during the AM and/or PM peak hour over various study scenarios. The cause of the critical conditions is largely attributable to background conditions, not site trips. Recommendations for traffic signal timing optimization and monitoring of operations have been recommended in the study.
- ▶ **Signal Timings.** Some signal timings could be adjusted to reflect study conditions. Updates or clarification on reduced pedestrian walk times and lost time adjustment factors could help confirm study details, but may not impact study results to a significant extent.
- ▶ **Transportation Demand Management (TDM).** A review of TDM aspects indicates single-occupant vehicle trips generated by the site could be decreased through a number of initiatives. Further efforts could be investigated to reduce single-occupant vehicle trips generated by the site. Efforts could include the installation or protection of right-of-way for future sidewalk, MUP and/or bus stop needs. Strong connections (i.e. sidewalks) from the right-of-way to the site may be beneficial as well.
- ▶ **Site Access.** There are no significant issues with the site accesses as proposed. A review of sight distances and other potential safety issues at the access could be provided in the study.
- ▶ **Site Plan and Functional Design.** The site plan and functional design contain minor discrepancies related to transportation operations. It is likely that these minor issues will not impact future detailed design efforts to a significant extent.
- ▶ **Parking.** The proposed parking supply is adequate to serve site operations.
- ▶ **Site Circulation.** No vehicle movement conflicts were identified through the swept path analysis.

Updates to the identified issues can be made to better reflect existing and projected conditions. However, such updates would likely not impact the conclusions of the report to a significant extent. The following recommendations are suggested to ensure that project stakeholders can accommodate development plans:

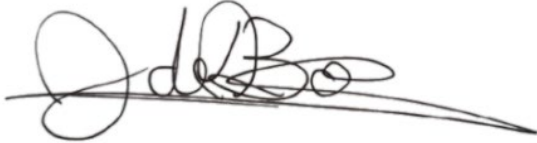
- ▶ Monitor traffic signals for future signal timing optimization needs;
- ▶ Explore opportunities to improve TDM efforts;
- ▶ Provide an analysis of site access sightlines;
- ▶ Clarify site trip assignment details;
- ▶ Consider design aspects in future detailed design; and



- ▶ Update other study details as needed.

Yours very truly,

Paradigm Transportation Solutions Limited

A handwritten signature in black ink, appearing to read "J de Boer". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Josh de Boer
M. Eng., P. Eng., PTOE
Project Manager, Associate

