

**Witness Statement of
Mark D. Jamieson, P.Eng., M.B.A.**

**In Relation to:
Proposed Redevelopment of the Glen Abbey
Golf Club at 1313 & 1333 Dorval Drive, Oakville**

LPAT File # PL171084

Submitted on Behalf of: ClubLink Corporation ULC and ClubLink Holdings Limited

May 17, 2021

1.0 QUALIFICATIONS

- 1.1 I have a Civil Engineering degree from Ryerson University, which I obtained in 2003. I also have a Master's degree in Business and Administration, which I obtained from the Schulich School of Business in 2015.
- 1.2 I am a registered professional engineer in the Province of Ontario.
- 1.3 I have over 18 years of experience in the field of transportation engineering and transportation planning. I have spent the last 16 years working for BA Consulting Group (herein referred to as "BA Group"). My current position with BA Group is Principal.
- 1.4 I am a member of various transportation industry associations including the Institute for Transportation Engineers ("ITE"), the Canadian Parking Association ("CPA"), and the Association for Commuter Transportation of Canada ("ACT Canada").
- 1.5 I am a past president of the local Toronto chapter of ITE serving the approximately 500 ITE members in the GTA.
- 1.6 I have been recognized as an expert witness by the Ontario Municipal Board / Local Planning Appeal Tribunal on prior occasions to provide expert testimony and opinions with respect to transportation planning and engineering.
- 1.7 A copy of my current curriculum vitae is attached as **Attachment A**.
- 1.8 A signed Acknowledgment of Expert's Duty is attached as **Attachment B**.

2.0 RETAINER

- 2.1 BA Group was retained in April, 2015 by ClubLink Corporation ULC and ClubLink Holdings Limited, (herein referred to as "ClubLink") to provide transportation consulting services, in relation to the proposed redevelopment of the Glen Abbey Golf Club site at 1313 and 1333 Dorval Drive in Oakville (herein referred to as "the site").
- 2.2 BA Group completed a Transportation Considerations Report dated October 24, 2016 (herein referred to as "the 2016 TCR"), which was submitted as part of ClubLink's redevelopment applications. This report included a Transportation Impact Study, a Transit Impact Assessment and a Waste Management Plan.
- 2.3 A Terms of Reference for the 2016 TCR dated December 3, 2015, was prepared by BA Group and was reviewed and discussed with the Town of Oakville (herein referred to as "the Town") and the Region of Halton (herein referred to as "the Region") during a meeting on December 10, 2015. During this meeting, preliminary verbal feedback was provided regarding the Terms of Reference. The verbal feedback provided at this meeting was incorporated into the scope of the study. Written feedback regarding the Terms of Reference was not provided.



- 2.4** Upon receipt of ClubLink’s applications for the redevelopment of the site, initial comments regarding the 2016 TCR were provided by the Town and Region in 2016/2017 and reviewed by BA Group. Additional comments for review regarding the 2016 TCR were provided by the Town and the Region in August and September 2020.
- 2.5** BA Group prepared and submitted an updated Terms of Reference, dated October 14, 2020, to the Town and Region for their review (see 2021 TCR Book 1 – Section 1.1.2). The updated Terms of Reference was developed in response to the various comments received from the Town and Region since the filing of the original 2016 TCR.
- 2.6** Based on the feedback received in regard to the updated Terms of Reference, BA Group prepared and submitted an updated Transportation Considerations Report dated February 2021 (herein referred to as the “2021 TCR”), which consists of three Books. Book 1 includes the main body of the 2021 TCR. Book 2 is entitled “Multi-Resolutional Traffic Modelling and Forecasting Technical Report” and presents information that describes all aspects of the adopted analysis methodology and details the process by which BA Group arrived at the results, conclusions and recommendations contained in the Book 1. Book 3 includes the appendices of supporting documents and data that are referenced in Book 1.
- 2.7** The 2021 TCR considers a site built-out with 3,222 residential units, in addition to 5,840 m² of retail space and 5,430 m² of office space, provided in mixed-use residential and commercial buildings. The residential units include 141 single detached homes, 299 townhouses and 2,782 apartment units.
- 2.8** The proposal incorporates community amenity space and a new park and open space system. It also incorporates the retention of the existing historic stable buildings (“The Paddock”) on the site. The RayDor Estate will also be retained with the current uses as a golf museum and offices and is not part of the application.
- 2.9** The proposed redevelopment features an internal road system comprised of both collector streets and local streets. Of the new streets proposed, Street A is proposed as a new north-south major collector road that connects Upper Middle Road in the north to Dorval Drive in the south. It is intended to function as the primary gateway in and out of the site. It is also proposed (and will be designed) to accommodate a new transit route through the site. This new transit route will include strategically located transit stops within the site.
- 2.10** To encourage active transportation, a continuous off-road trail system is proposed within the site. The proposed trails will form a continuous loop that provides connections to key points of external access such as Dorval Drive to the south, the residential neighbourhood to the west, Upper Middle Road to the north and Sixteen Mile Creek Valley to the east. Cycling lanes will be provided along both sides of the new major collector road (Street A), and sidewalks will be included on both sides of all roads within the site, with the exception of proposed lanes.



- 2.11** It is estimated that the project would develop over a 15-year period. The estimated preliminary phasing concept for the site includes 5 phases, with Phase 1 completion estimated for 2025 and Phase 5 completion (site build-out) estimated for 2040.
- 2.12** Recognizing the estimated site build-out year of 2040, and given that the Region of Halton and Town of Oakville Transportation Master Plans currently assess a 2031 horizon for their analysis, BA Group has adopted the following two horizons for assessing the impacts of the redevelopment site: a 2041 build out horizon and a 2031 interim build-out. The 2031 interim build-out year corresponds to approximately half of site build-out, between Phase 2 and 3, as per the preliminary estimated phasing schedule for the site.



3.0 WITNESS STATEMENT OUTLINE

- 3.1** In providing evidence, I will rely upon the 2021 TCR prepared by BA Group. I will also rely upon the BA Group Supplementary Information document that has been undertaken since the preparation of the 2021 TCR as part of the preparation of this witness statement.
- 3.2** I will first provide an overview of the redevelopment proposal from a transportation perspective and review the conclusions of the 2021 TCR.
- 3.3** I will then provide an overview of the conclusions and findings from the supplementary analysis provided for the purposes of this witness statement.
- 3.4** I will then address the following transportation issues in the Issues List, and provide my opinion on the issues and the reasons for my opinion in Section 5.0 of this witness statement. My evidence and opinion will speak to the following issues:
- Town of Oakville: Issues #25 to #35
 - Region of Halton: Issues #54 to #61



4.0 SUMMARY OF EVIDENCE AND OPINIONS

- 4.1 My evidence and opinions are primarily based on analysis undertaken as part of the 2021 TCR prepared by BA Group, as submitted February 2021. The 2021 TCR is comprised of three individual volumes referred to as Book 1, Book 2 and Book 3.
- 4.2 My evidence and opinion are also informed by supplementary analysis which I supervised in April 2021 and May 2021, to further inform and refine our understanding of the site impacts. This work is summarized in the BA Group Supplementary Information document.
- 4.3 For ease of reading, I have provided a summary of the key conclusions and findings from BA Group's 2021 TCR and BA Group Supplementary Information document below.

Study Area, Study Horizons and Scenarios Assessed

- 4.4 To comprehensively assess the impact of the Glen Abbey redevelopment, BA Group's 2021 TCR adopted two scales of study area: 1) a Primary Study Area for the purposes of establishing transportation impacts in the immediate area, and 2) a Secondary Study Area that was used to forecast and assess the impacts of the redevelopment in the context of a larger study area.
- 4.5 The Primary Study Area (herein referred to as the "Primary Study Area" is bounded by Upper Middle Road to the north, the QEW to the south, Trafalgar Road to the east and Third Line to the west. The Primary Study Area considers the impact of the redevelopment of the Glen Abbey site on 20 intersections, which was evaluated through a detailed intersection capacity analysis.
- 4.6 The Secondary Study Area (herein referred to as the "Secondary Study Area") encompasses much of Oakville and is bounded by the Queen Elizabeth Way in the south to Highway 407 in the north and Bronte Road in the west to Trafalgar Road in the east. The Secondary Study Area was established as the basis for developing a comprehensive mesoscopic travel demand model, which assesses the impacts of the redevelopment of the site, in conjunction with other anticipated background growth and in consideration of planned road network upgrades.
- 4.7 A map of both the Primary and Secondary Study Areas is provided in Figure 17 of the 2021 TCR, Book 1.
- 4.8 The 2021 BA Group analysis assesses future transportation operations for two study horizons. A build-out study horizon of 2041 was adopted based on the latest estimates provided by ClubLink for how long it would take to build out the site. An additional interim build-out horizon year of 2031 was also considered to provide an assessment of site transportation impacts at a partial build-out.
- 4.9 To assist in evaluating the transportation impacts of the proposed development, two future travel demand scenarios were considered in the 2021 TCR. They were a base trip generation (herein referred to as a "Base Scenario") and an enhanced trip generation scenario (herein referred to as an "Enhanced Scenario"). The purpose of the two travel demand scenarios was to establish a conservative trip estimate for the vehicle and active transportation / transit assessments, respectively.



- 4.10** The Base Scenario reflects existing (i.e. current) travel mode share by land use in the Primary Study Area. This scenario was utilized for deriving a forecast for vehicular site traffic that does not reflect the potential increases in transit utilization as called for in Oakville’s Transportation Master Plan. The resultant Base Scenario trip generation for the site is therefore conservative and is appropriate for providing an assessment of the projected traffic impact of the Glen Abbey redevelopment, that does not rely upon any projected change in mode split to be accommodated.
- 4.11** In recognition that the Town of Oakville’s Transportation Master Plan calls for an increased transit mode share across Oakville by the 2031 horizon, an additional trip generation scenario with enhanced transit utilization was also considered. The Enhanced Scenario was utilized to assess the potential peak transit ridership that could be generated by the proposed redevelopment, and provided the basis of the corresponding Transit Impact Assessment.
- 4.12** The Enhanced Scenario residential mode share was derived from the 2031 daily mode share for all trips presented in the latest mode share forecast in the 2018 “Switching Gears” Oakville Transportation Master Plan (TMP) Review for Scenario “E”, which reflected a higher growth in local and inter-regional transit. For office and retail land uses in the Enhanced Scenario, a target of 20% daily transit mode share was adopted, which is consistent with the 2016 TCR.
- 4.13** BA Group’s analysis also considered two future road network scenarios. A “Base Road Network” and a “Sensitivity Road Network” were considered.
- 4.14** The Base Road Network was reviewed as the primary basis for assessing site impacts. It represents the future road network with planned and in delivery capacity improvements, in the Secondary Study Area, such as:
- Construction of William Halton Parkway between Third Line and Trafalgar Road
 - Construction of James Snow Parkway extension from Neyagawa Boulevard to Milton
 - Construction of North Service Road extension west of Bronte Road
 - Widening of Dundas Street to six lanes between Trafalgar Road and Neyagawa Boulevard (recently completed)
 - Widening of Trafalgar Road from four to six lanes from Highway 407 to QEW
 - Widening of Bronte Road from Highway 407 to QEW
- 4.15** The Base Road Network does not include the planned widening of Upper Middle Road. Prior feedback on the 2016 TCR from the Region of Halton and Town of Oakville requested that BA Group’s analysis not rely upon the widening of Upper Middle Road. As a result, the Base Road Network does not consider the planned widening of Upper Middle Road.
- 4.16** Notwithstanding the Base Road Network does not reflect the widening of Upper Middle Road, the most recent Halton Road Capital Works Plan for 2020 through 2029, currently forecasts Upper Middle Road to be widened from four lanes to six lanes with construction commencing in 2026 and the work being completed by 2028 or 2029. Recognizing the widening of Upper Middle Road is



currently planned, BA Group also completed a Sensitivity Road Network scenario which considers the impacts of the redevelopment of the site with the widening of Upper Middle Road.

- 4.17** Figure 9 in the 2021 TCR, Book 1, illustrates the planned future road network changes in the study area.
- 4.18** The Primary and Secondary Study Areas utilized by BA Group meets and significantly exceeds what was requested by the Town and Region to assess the impacts of the site. I am therefore of the opinion that the study area is comprehensive and provides an appropriate basis for assessing the transportation impact of the site.
- 4.19** The study horizon of 2041 for a full build-out represents a reasonable estimate of the time it will take to build out the redevelopment should the redevelopment be approved in 2022. Similarly, the 2031 horizon represents a reasonable horizon to assess a partial phased build-out. I am therefore of the opinion that the study horizon years assessed by BA Group are appropriate.
- 4.20** The two road network scenarios (Base Road Network and Sensitivity Road Network) account for planned and in delivery road infrastructure by the Region of Halton and Town of Oakville. I am therefore of the opinion that, taken together, both scenarios provide a comprehensive and conservative approach for assessing the impacts of the proposed redevelopment, with and without the widening of Upper Middle Road.

Internal Roadway Cross-Sections

- 4.21** The proposed redevelopment plan and Plan of Subdivision application are made up of proposed new public streets, including new collector streets, local roads and laneways.
- 4.22** The Town of Oakville provides several policies that guide how new streets are to be provided. The following are relevant policies from the Town of Oakville Official Plan (i.e. the Livable Oakville Plan).

Policy 8.3.1

Transportation facilities, with the exception of Provincial Highways, should be developed and planned as multi-modal transportation corridors that are designed to safely accommodate a blend of vehicular, transit, cycling, and pedestrian movement. Such facilities shall conform to the classification, function and design criteria outlined in Table 4, Function Classification of Roads.

Policy 8.3.2

The Town shall consider innovative road designs that have environmental considerations and support pedestrians, cycling and transit-supportive land uses.



Policy 8.3.3

The Town shall require the consideration of transit service and operational needs including maximizing transit access and minimizing transit vehicle travel times in the design of arterial roads and collector roads.

Policy 8.4.5

Road rights-of-way shall be developed to take into consideration the needs of vehicular traffic, pedestrians, cyclists, transit, medians, and on-street and lay-by parking, and urban design requirements including streetscape design.

Policy 11.1.9(g)

A proposal to extend the public street network should ensure appropriate connectivity, traffic circulation and extension of the street grid network designed for pedestrian and cyclist access.

4.23 The Livable Oakville Plan further outlines functional criteria for arterial, collector and local streets in Table 4. Table 4 from the Livable Oakville Plan. Relevant content from Table 4 of the Livable Oakville plan is provided below.

EXCERPTS FROM TABLE 4, LIVABLE OAKVILLE PLAN

	Function	Criteria
Arterial Streets / Transit Corridors	<ul style="list-style-type: none">• 20,000 to 40,000 vehicles per day for minor arterials or 40,000 to 60,000 vehicles per day for major arterials.• Accommodate high to intermediate volumes of inter-community and inter-neighbourhood traffic.• 2 to 4 lanes for minor arterials and 4 to 6 lanes for major arterials.	<ul style="list-style-type: none">• 35m to 50m right-of-way protection for major arterials and transit corridors.• 26m right of way protection for minor arterials.• Transit supportive land uses to be encouraged along rights-of-way.
Collector Streets	<ul style="list-style-type: none">• 10,000 vehicles per day as a typical maximum volume for major collectors.• 5000 vehicles per day as a typical maximum volume for minor collectors.• Accommodate intermediate volumes of intra-community.• May act as local transit corridors.• 2 lanes	<ul style="list-style-type: none">• 26 metre right-of-way protection for major collectors.• 20 metre right-of-way protection for minor collectors.
Local Streets	<ul style="list-style-type: none">• 1,500 vehicles per day as a typical maximum volume.• Not to accommodate through traffic.• 2 lanes	<ul style="list-style-type: none">• 18 metre right-of-way protection.



4.24 The Livable Oakville plan also provides guidance in Policy 8.4.6 that indicates that additional right-of-way may be required in certain instances.

Policy 8.4.6

From a streetscape perspective, the Town may require additional road rights-of-way to provide for improvements such as, but not limited to, median, double row planted street trees, on-street or lay-by parking, and urban design considerations.

4.25 The Town of Oakville also maintains engineering guidelines for streets built within the municipality. The guidelines set out the standards for how new streets should be constructed in terms of a required right-of-way, pavement width, sidewalk location, utility location and street trees. The table below summarizes the typical right-of-way widths applied for arterial, collector and local streets, based on the Town of Oakville's engineering guidelines.

TOWN OF OAKVILLE RIGHT-OF-WAY CROSS SECTIONS

	Right-of-Way Ranges	Reference
Arterial Streets / Transit Corridors	30.0 to 35.0 m	Oakville standard 7-4 and 7-5
Collector Streets	22.0 to 26.0 m	Oakville standard 7-3, 3a, 7-23, 7-24, 7-25
Local Streets	17.0 to 20.0 m	Oakville standard 7-1 and 7-22a, 7-22b

4.26 The proposed redevelopment plan includes several different types of road classifications for internal public roads within the site. As summarized in the table below, the Town of Oakville's Standard Engineering Guidelines have been used where reasonable and customized, as required, to create cross-sections that align with the unique character and overall vision of the land use and urban design concept.



Proposed Internal Roadway Cross-Section Standards

Road	Proposed Classification	Right-of-Way Width	Basis of Proposed Cross Section
Street A	Major Collector Road	36.0 m	New Standard
Street B	Minor Collector Road	22.0 m	Oakville Standard 7-24
Street R	Retail Main Street	27.5 m	New Standard
Streets Q,S,T,U,V,X and D to P	Local Road	17.0 m	Oakville Standard 7-22A
Street C-W	Local Parkway Road	26.0 m	New Standard
Street W	Heritage Local Road	17.0 m	
Lane H	Heritage Lane	11.0 m	
Various	Residential Lane	7.5 m	Oakville Standard 7-21A

- 4.27** While the cross-sections proposed for certain streets may vary slightly from the approved Town Standards, the overall right-of-way widths generally align with the standard right-of-way widths contained in the Town’s standards, or have been oversized to accommodate additional flexibility.
- 4.28** Street A within the plan, is the most prominent example of a street that has been oversized to provide an improved public realm and to accommodate flexibility for providing improved pedestrian and cycling facilities.
- 4.29** In the case of Street A, while the typical collector street right-of-way, per Table 4 of the Livable Oakville Plan and the Oakville Engineering guidelines, are 20 metres to 26 metres, the proposed right-of-way within the plan has been oversized to 36 metres. The oversized right-of-way has been provided to provide the flexibility for accommodating improved cross-section elements such as the potential for a wide planted median, a double row of street trees, auxiliary left-turn lanes at key intersections, parking lanes, cycling lanes, wide planted boulevards and sidewalks. Street A is also proposed to serve as the transit route within the site. This is consistent with Table 4 and Policy 8.3.3 and Policy 8.4.5 of the Livable Oakville plan, which requires development to consider the needs of vehicular traffic, pedestrians, cyclists, transit, medians, and on-street and lay-by parking and urban design requirements including streetscape design.
- 4.30** I note that the estimated daily traffic on Street A at its busiest sections is estimated to be in the order of 10,000 vehicles per day. The daily traffic volume for the other collector street (Street B) have been estimated to be approximately 2,200 vehicles per day. Daily traffic volumes have been derived from the peak hour traffic volumes estimated in our 2021 TCR. The estimated daily traffic volumes on collector streets are provided in the BA Group Supplementary Information document (Item 1).



- 4.31** The estimated future daily traffic volumes expected along Street A and Street B are generally in keeping with the thresholds and criteria for collector roads described in the Livable Oakville plan. The mesoscopic and subsequent microscopic analysis (as described below) further conclude that Street A will operate appropriately with a single lane in each direction.
- 4.32** Further to the point above, and per my evidence outlined in Paragraphs 4.107 to 4.109, the capacity analysis undertaken at the 2041 horizon year for the internal intersections determined that all of the major internal intersections will operate acceptably at full build-out as a two-lane roadway, with only auxiliary turn lanes required on Street A at the external intersections (Upper Middle Road and at Dorval Drive). All other internal streets can appropriately accommodate forecasted future traffic based on the single lane operation envisioned. The 2041 traffic analysis therefore confirms that the internal right-of-way provisions contained with the redevelopment plan are sufficient to accommodate forecasted site traffic.
- 4.33** As such, while additional right-of-way width has been allocated to the plan along Street A, functionally, a lesser right-of-way of 26 metres, consistent with the Town's standard section for a collector road, would be sufficient to accommodate the base vehicular volumes from a daily and peak hour traffic perspective.
- 4.34** With respect to the other streets within the plan where a modified cross-section has been proposed, these are the Retail Main Street (Street R), the Heritage Local Road (Street W), the Local Parkway Road (Street C-W), and the Heritage Lane. In all cases, these right-of-way widths have been oversized compared to what is called for in the Town of Oakville Engineering Guidelines. Again this has been done to accommodate improvements to the public realm and to reflect the unique character and history of certain routes within the site, which are being proposed to be retained as part of the heritage conservation and open space strategy.
- 4.35** With respect to providing a wider right-of-way than what is required, I note that Policy 8.4.6 of the Livable Oakville plan specifically indicates that additional right-of-way beyond the base allowances in Table 4, may be required to accommodate improvements. In this case, the proposed oversizing of the right-of-way on various streets within the plan, is in keeping with this approach and is therefore appropriate.
- 4.36** Based on the foregoing, I am of the opinion that the proposed right-of-way protections within the plan are appropriate and consistent with the goals and policies of the Livable Oakville plan.
- 4.37** It is further my evidence that, while provisional concept cross-sections for each street within the plan have been developed, the precise details of what gets constructed within each proposed street can be resolved as a detail that is addressed through the detailed design stage of the Proposed Plan of Subdivision. The precise details of the individual cross-sections of each road are not a matter that is pertinent to the approval of the proposed Plan of Subdivision. In this regard, I have worked on many applications where draft approval has been granted prior to confirming the detailed cross-section and engineering design of a subdivision.



4.38 Therefore, on account that the proposed road network is, in my opinion, consistent with Table 4 of the Livable Oakville plan, and that the development plan protects for sufficient right-of-ways that achieve the intent of the Livable Oakville Plan, it would therefore be appropriate in my opinion to consider a draft approval of a Plan of Subdivision, with appropriate conditions to confirm the detailed cross-section elements through the detailed design process.

Dedication of Right-of-Way for Region's Requirements

- 4.39** As discussed in the 2021 TCR Book 1 Section 2.1.3, in accordance with the requirements of a Corridor 4 urban road, any lands within 47 m, measured from the north side of Upper Middle Road (Regional Road 38) southerly, that are part of the site, shall be dedicated to the Region for the purpose of road right-of-way widening and future road improvements.
- 4.40** The existing right-of-way width on Upper Middle Road, along the site frontage varies, due to the curve in Upper Middle Road. At the west end of the site frontage, the existing right-of-way is less than the 47 metres required by the Region, whereas at the eastern end of the site frontage, the existing right-of-way is greater than the 47m required.
- 4.41** There is also an existing gas easement along the south side of Upper Middle Road that generally parallels the Upper Middle Road right-of-way. The proposed development areas at the north end of the plan, are significantly set back from Upper Middle Road to account for the easement.
- 4.42** Since the easement lands will need to be retained and are not being occupied as part of the redevelopment, the 47 m right-of-way required by the Region of Halton is achievable when the easement lands are included.
- 4.43** In accordance with the requirements of a Corridor 2 urban road, any lands within 35 m measured from the west side of Dorval Drive (Regional Road 17) easterly, that are part of the subject property, shall be dedicated to the Regional Municipality of Halton, for the purpose of road right-of-way widening and future road improvements.
- 4.44** Based on a review of the existing right-of-way width along Dorval Drive, I am of the opinion that no further right-of-way is required to accommodate this width.
- 4.45** I also note that the proposed redevelopment plan includes a daylight triangle measuring 15 m along Upper Middle Road and 15 m along Street A which is proposed to be dedicated to the Region, for the purpose of road right-of-way widening and future road improvements. A daylight triangle measuring 15 m along Dorval Drive and 15 m along Old Abbey Lane (Street A as north leg), as well as at Street B, is also proposed to be dedicated to the Region for the purpose of road right-of-way widening and future road improvements.
- 4.46** I am therefore of the opinion that appropriate land protections have been made within the development plan to accommodate the property daylight triangles required by the Region.



Overview of Transportation Model Types

- 4.47** Owing to the technical nature of the transportation modelling discussed in my witness statement, I have provided a background primer and summary of the key aspects of the transportation models discussed in the context of my witness statement.
- 4.48** In order to develop a comprehensive set of traffic forecasts through the Primary Study Area requested by the Town and Region, BA Group employed a multi-resolution (macro/meso/micro) transportation modelling approach. A multi-resolution modelling approach refers to the use of different types of traffic forecasting models at different geographic scales to forecast future vehicular traffic volumes. There are three types of models considered through a multi-resolution modelling approach:
- a macroscopic model;
 - a mesoscopic model; and
 - a microscopic model.
- 4.49** A macroscopic model is a model that is created to assess transportation demand at a Regional level. Its purpose is to assess broadly, at a network or screenline level, the performance of a road network over a large (typically regional) geographic area, based on projected population and employment growth. Because of its regional level focus, a macroscopic model has a large zone system and considers transportation demands along only major roads, such as highways and arterial roads.
- 4.50** The Region maintains a macroscopic model to assess the long term transportation demands for the Regional road network. To consider long term Regional traffic demand changes, BA Group utilized macroscopic model data (origin/data matrices) provided by the Region.
- 4.51** A key characteristic of a macroscopic model is that travel forecasting is accomplished through an automated software package that provides a demand responsive dynamic route assignment. This process uses a delay-based equilibrium to allocate traffic to different links such that the delays are balanced across a network. The demand responsive nature of macroscopic models is an advantage related to this type of model. The disadvantage of macroscopic models is that due to their large scale, they lack the detail at a corridor and intersection level to assess localized impacts within a smaller geographic area.
- 4.52** A microscopic model refers to a model created to forecast and assess traffic at an intersection level of detail. Microscopic models, which are typically prepared for a Transportation Impact Study for an individual development site, consider a small to intermediate geographic area of several intersections. The purpose of a micro model is to forecast and assess vehicular capacity at an intersection level, to assess the impact of a site on the study area intersections.
- 4.53** Microscopic models are characterized by the use of existing traffic counts to establish an existing traffic volume baseline at intersections. Future traffic from various sites are then assigned to the study area using an estimated trip distribution. Background traffic is estimated by application of a static annual growth rate or through making site specific allowances for other known traffic



generators or background development sites. The advantage of micro models are the high level of detail afforded to assess impacts at an intersection or turning movement level. The disadvantage of micro models is that traffic forecasts are non demand responsive and statically applied. This often leads to very conservative forecasts of traffic to individual movements as a micro model does not take into consideration, that adding demand to certain locations within a study area, does affect the delay and may result in other traffic relocating to other locations to equalize delay.

- 4.54** A mesoscopic model refers to a model created to assess transportation demands over an intermediate scale. A mesoscopic model is typically calibrated at a screenline level like a macroscopic model, but can also be calibrated to the individual corridor level.
- 4.55** A mesoscopic model utilizes an automated dynamic route assignment in the context of an intermediate geographic area. The geographic area can vary depending on the context but is typically a sub-area of an existing macroscopic model. To provide greater detail within a mesoscopic model, additional traffic zones are coded into a mesoscopic model along with a refined road network that includes collector roads within the sub area as those are relevant to the capacity and navigation within a mesoscopic model. The advantage of a mesoscopic model is that it allows for information from a macroscopic model to be incorporated directly into a mesoscopic sub area. Those traffic allowances can then be integrated with additional traffic allowances generated within the mesoscopic model. Assignment of traffic volumes are then undertaken through a dynamic assignment process taking into consideration the capacity available on the different links within the model. The disadvantage of a mesoscopic model is that it does not provide an accurate representation of the detailed traffic operations at individual intersections in terms of projecting queues, delays, and intersection performance. As a result, a mesoscopic analysis is typically coupled with a microscopic analysis to provide this level of detail when required.
- 4.56** A multi-resolution modelling approach incorporates elements of the different modelling scales to achieve the level of detail and complexity needed to model or assess the circumstances required. In the case of an assessment of an individual site or development area, a multi-resolution modelling process typically involves the development of a mesoscopic model based on inputs from a regional macroscopic model. The mesoscopic model is then used to assist in deriving a forecast that employs the benefits of a large scale macroscopic models, such as dynamic route assignment and delay-based equilibrium, while still being able to assess capacity at an intersection level, which is part of a traditional micro-level transportation impact analysis for a redevelopment.

Rationale for Approach Transportation Forecasting Methodology

- 4.57** In order to provide the most comprehensive assessment of impacts associated with the Glen Abbey redevelopment, BA Group utilized a multi-resolution modelling process. BA Group's process involved the following modelling aspects:
- a) Outputs from the Region of Halton's macroscopic model were obtained for the PM peak hour. This information was utilized to extract regional-wide travel forecasts that are



generated outside of the mesoscopic (Secondary Study Area) so they could be incorporated into in BA Group's analysis.

- b) A mesoscopic model was created that was a subset of the Region of Halton's model which included a significant part of Oakville around the Glen Abbey site. The mesoscopic model was used to develop the forecasts for future traffic with and without the Glen Abbey redevelopment, at the 2041 and 2031 horizon years
- c) A microscopic intersection capacity analysis was then undertaken for all intersections in the Primary Study Area, to provide the greater level of detail needed to assess intersection operations at the future horizon years. The microscopic intersection capacity analysis was based on projected changes in traffic volumes estimated by the mesoscopic model for intersections within the Primary Study area for the 2041 and 2031 horizon years

4.58 The multi-resolution modelling approach was utilized because it allowed for the creation of a travel forecasting tool that covered a larger study area; one that utilized an automated traffic assignment process that could dynamically assign and balance traffic through the road network based on the demand and capacity of the system.

Assessment and Development of Existing Conditions

- 4.59** As a result of the unprecedented circumstances surrounding the COVID-19 pandemic (March 2020 onwards), it was not appropriate to undertake traffic count studies after March 2020 for the 2021 TCR. To establish an appropriate existing conditions base for the microscopic analysis, BA Group assembled the most current traffic data available from a combination of sources to obtain traffic counts from 2015, 2019 and 2020. These traffic counts were utilized to develop existing baseline conditions for the 19 existing intersections in the Primary Study Area. The data collection did not include the intersection of Upper Middle Road at Street A since this is a future intersection, hence data was collected at 19 intersections for the existing conditions analysis but the traffic analysis for all future conditions included 20 intersections, inclusive of Upper Middle Road at Street A.
- 4.60** The list of intersections and related traffic counts included in the updated analysis were reviewed and approved by the Town and Region when the Terms of Reference for the 2021 TCR was finalized in October 2020.
- 4.61** I am therefore of the opinion that the data collection is appropriate for the assessment of existing conditions.
- 4.62** Existing conditions for the mesoscopic model for the morning and afternoon peak hour periods were developed by BA Group using floating car distribution data obtained from the Streetlight Data platform, combined with the intersection traffic counts obtained above to create origin-destination matrices representative of existing conditions.



4.63 To provide a well-calibrated model, BA Group defined a series of statistical calibration thresholds. Those thresholds were developed based on BA Group's experience working on various mesoscopic models with transportation agencies in the Greater Toronto Area, including MTO, the Region of Durham, the City of Toronto and the Region of York. The statistical measure of effectiveness used for transportation engineering models is "GEH". GEH, which is measured on a link by link basis, is a representation of how well a specific link or movement in a transportation model replicates an existing condition. BA Group established the following thresholds to be met by the existing conditions model, in order for it to be considered well calibrated and representative of existing (2019) traffic conditions:

- GEH < 5.0 No less than 60% of all link segments in the network
- 10 > GEH > 5.0 No more than 25% of all link segments in the network
- GEH > 10 No more than 15% of all link segments in the network

4.64 As outlined in the 2021 TCR in Book 2, as part of the calibration process, standard automated matrix adjustments through the mesoscopic model software (*referred to as Visum*) were undertaken in order to slightly modify the number of trips associated with certain origin-destination pairs, as derived in the original Streetlight Data travel demand matrix. This process, which is referred to as calibration, makes minor adjustments to the origin-destination data, so that the individual elements of the model better replicate existing conditions.

4.65 BA Group's calibration exercise, which utilizes one application of the automated adjustment process, yielded results that exceeded the above noted criteria. Namely the model achieved between 61 to 64 percent of link segments, with the model achieving a GEH less than 5.0, and approximately 23 percent of link segments achieving a GEH between 5.0 and 10.0. These results are documented in Table 1 of Book 2 of the TCR. On this basis, it is my opinion that the mesoscopic model is well calibrated and is an appropriate tool to forecast future traffic volumes.

4.66 Subsequent to the submission of the 2021 TCR in February 2021, BA Group undertook additional sensitivity analysis to establish what affect further rounds of the automated calibration process would have on the existing conditions model, and on the subsequent future traffic forecasts for the 2041 horizon year. This is because further applications of the automated matrix adjustments could yield improved GEH results. Doing so, however, requires careful consideration as each application of the automated adjustment feature alters the underlying origin-destination information associated with the existing conditions base. Eventually this results in "over-fitting" the model, greatly reducing its predictive capabilities for future conditions.

4.67 The supplementary analysis, as documented in BA Group's Supplementary Information document (Item 2), confirmed that application of the automated adjustment process a total of three times, would increase overall GEH to the point where 75% of the link segments achieved a GEH less than 5.0. If these adjustments were carried through to the 2041 future total volumes, it was determined that the mesoscopic model would produce similar, or improved, results on a corridor and screenline basis. This evidence is further discussed below as part of my summary of the mesoscopic model findings.



- 4.68** The supplementary mesoscopic modelling analysis, as outlined in BA Group's Supplementary Information document (Item 2) provides strong evidence that the 2041 and 2031 forecasts estimated by the model, as part of the 2021 TCR are conservative and appropriate.
- 4.69** I am therefore of the opinion that the base existing conditions mesoscopic model used for forecasting and assessing future traffic growth patterns, including the site, is appropriate.

Summary of Future Traffic Generation Allowances

- 4.70** BA Group's traffic forecasting model considered three sources of traffic growth:
- external inter-regional growth generated from beyond the Secondary Study Area;
 - growth from the 18 other individual background development sites identified for consideration by the Town and Region; and
 - growth associated with the Glen Abbey redevelopment.
- 4.71** BA Group estimated external traffic allowances by extracting origin and destination trip information from the Region's macroscopic model for the 2031 horizon year. This information was obtained from the Region's PM peak hour model by subtracting the Region's 2031 future traffic forecasts from their 2016 model output, which was the closest available year to represent existing conditions..
- 4.72** The background growth information extracted from the Region of Halton model was then conservatively adjusted to remove any origin-destination pairs from the Region's model information, where traffic volumes were estimated to decrease in the future. These negative allowances were conservatively replaced in BA Group's analysis with a positive growth allowance, as represented by an applied growth rate of 0.5 per cent growth per year (relative to existing traffic volumes). The corresponding total estimated growth added to the road network associated with traffic growth from beyond the study area, for the 2041 morning and afternoon peak hours, is approximately 3,100 two-way trips per hour.
- 4.73** The 18 background development sites included in the analysis added a significant number of additional peak hour trips to the road network. In total, the 18 background development sites account for 6,320 and 7,616 two-way trips during the weekday morning and weekday afternoon peak hour periods, respectively, at the 2041 horizon year.
- 4.74** As indicated previously, to estimate vehicular traffic volumes associated with the redevelopment of the site BA Group reviewed two scenarios: A Base Scenario, which represents the site trip generation based on the existing mode split characteristics of the site, and an Enhanced Scenario which represents the site trip generation with an improved transit mode split.
- 4.75** The Base Scenario was undertaken by adopting trip rates from the Institute for Transportation Engineers (ITE) for the low density uses. For the high density uses, BA Group adopted a 'first principles' trip generation methodology that utilizes mode split information to derive an estimate of the number of trips generated by the high density uses. The resultant trip generation rate for the

high density uses were 22% to 38% higher than the comparable trip generation for high density apartment units based on the ITE Trip Generation manual. As a result, the Base Scenario estimates for the redevelopment of the Glen Abbey site can be considered very conservative.

- 4.76** Under the Base Scenario, which assumes existing mode splits in the area will be maintained, the Glen Abbey redevelopment is estimated to generate approximately 1,365 and 1,495 new two-way vehicle trips at the 2041 build-out year, during the weekday morning and weekday afternoon peak hours, respectively. This includes estimates of new site-related vehicle traffic that would be driving to the Oakville GO Station during the peak hours.
- 4.77** As noted previously, BA Group’s analysis also considered an Enhanced Scenario which was utilized to assess transit impacts. This is discussed further in the Transit Impact Assessment discussion further in my evidence.

Summary of Mesoscopic Modelling

- 4.78** The estimated number of trips generated by the Glen Abbey redevelopment is small in comparison to the number of peak hour trips added to the road network by the 18 background development sites considered by BA Group. The number of site trips is also small in comparison to the number of peak hour trips added to the Primary Study Area road network by the external regional growth. This can be seen in the table below.

	2031 Horizon		2041 Horizon	
	AM Peak Hour (two-way trips)	PM Peak Hour (two-way trips)	AM Peak Hour (two-way trips)	PM Peak Hour (two-way trips)
Glen Abbey Redevelopment	515	675	1,365	1,495
Cumulative Trip Generation from Individual Background Sites	4,019	5,306	6,320	7,616
Additional Inter-Regional Growth	2,922	2,922	3,111	3,111

- 4.79** Planned or in-delivery road infrastructure by the Region and Town will add significant new capacity to the Secondary Study Area. Approximately 1,000 to 3,000 vehicles per hour of capacity, will be added in the east-west direction and 2,200 to 5,500 vehicles per hour of new peak hour capacity will be added in the north south direction by the 2031 horizon year. This new capacity will facilitate the accommodation of the anticipated growth in background traffic, and traffic generated by the Glen Abbey redevelopment. These figures do not include further capacity that will be added by the widening of Upper Middle Road.
- 4.80** Further to the point above, the planned capacity increases on Dundas Street and William Halton Parkway will attract a significant amount of the anticipated background traffic growth in the future. As a result under 2041 future background (without site traffic) for the Base Road Scenario (no Upper Middle Road widening), the constrained nature of Upper Middle Road will limit the amount of background growth that can occur along Upper Middle Road. Notwithstanding that growth along



Upper Middle Road will be constrained, it is forecast that peak hour volumes on Upper Middle Road will grow by 100-200 vehicles per direction under 2041 future background traffic.

- 4.81** The addition of forecast Glen Abbey redevelopment traffic volumes to the future total 2041 study area road network, while small in comparison to the forecast background traffic, will still result in the addition of new traffic to the key arterial roads adjacent to the site: Upper Middle Road and Dorval Drive. It is estimated that the Glen Abbey site will generate in the order of 100 to 300 peak hour, peak direction trips to each of these links.
- 4.82** According to the mesoscopic model, the addition of 2041 site traffic to the road network will displace some of the projected background growth allowances on Upper Middle Road and Dorval Drive to other corridors in the Secondary Study Area. This is particularly true in the scenarios where Upper Middle Road is not widened by the 2041 horizon year. In those scenarios, the existing capacity of Upper Middle Road, when combined with the addition of site related traffic to these streets, will serve to push background traffic growth, which is generated further from the site, to other corridors (e.g. Dundas Street and William Halton Parkway). These corridors can accommodate this displaced traffic and all corridors will still operate with improved volume/capacity ratios with site traffic compared to existing conditions.
- 4.83** The planned or in-delivery network capacity will allow the redevelopment site traffic impacts to be accommodated appropriately at a screenline or corridor basis. As evidence of this, as shown in the table below, the volume to capacity (v/c) ratios for the screenlines assessed in the mesoscopic model for the 2041 future total forecasts, with the redevelopment, are projected to *decrease* when compared to existing conditions. These results, as extracted from our 2021 TCR and from our supplementary model analysis the BA Group Supplementary Information document (Item 2), are summarized below.



Existing & 2041 Forecasts, Upper Middle Road at 4 Lanes: Screenline V/C Ratios

Screenline	Direction	Existing Conditions 2021 TCR		2041 Future Base Original Calibration (Single application of automated adjustment process)		2041 Future Base Additional Calibration (Three applications of automated adjustment process)	
		AM	PM	AM	PM	AM	PM
North	NB SB	0.34	0.51	0.33	0.37	0.33	0.40
		0.48	0.33	0.36	0.31	0.36	0.33
South	NB SB	0.54	0.85	0.49	0.84	0.48	0.78
		0.86	0.63	0.79	0.60	0.78	0.61
East	EB WB	1.01	0.81	0.95	0.81	0.86	0.76
		0.68	1.07	0.67	1.04	0.63	0.95
West	EB WB	0.83	0.70	0.87	0.75	0.85	0.75
		0.63	0.91	0.68	0.94	0.67	0.92
Creek	EB WB	0.88	0.75	0.84	0.75	0.86	0.75
		0.61	0.93	0.68	0.94	0.67	0.95

- 4.84** As noted previously in Paragraph 4.67, analysis of the mesoscopic model results, based on the additional calibration scenario provided results that were slightly improved at the screenline and corridor level. This continues to indicate that the analysis within the 2021 TCR is conservative and appropriate. The mesoscopic model was therefore utilized to assess the performance of the road network at the 2041 and 2031 horizon years. The key findings of which are outlined in the following paragraphs.
- 4.85** Without consideration of the planned widening of Upper Middle Road, the arterial road corridors in the Primary Study Area will operate with improved volume to capacity ratios under both 2031 and 2041 future traffic scenarios that are comparable or improved relative to existing conditions. As a result, it can be concluded that the widening of Upper Middle Road to six lanes is not required to accommodate the redevelopment of the site. It is also concluded that widening of other arterial corridors are not required to accommodate redevelopment of the site.
- 4.86** The mesoscopic model forecasts provides strong evidence that the traffic generated by the Glen Abbey redevelopment makes up a relatively small and manageable component of the future traffic projections and that the already planned and funded infrastructure improvements will create sufficient capacity to accommodate the forecast site traffic volumes at a screenline or corridor level.
- 4.87** Moreover, the screenline and corridor volume to capacity ratios for the 2041 horizon year provides strong evidence that corridor operations on key roads surrounding the site (Upper Middle Road and Dorval Drive) will operate in a manner that is comparable to current conditions today. I am



therefore of the opinion that the traffic generated by the Glen Abbey redevelopment can be appropriately accommodated at a corridor or network level.

- 4.88** It is also my opinion that the multi-resolution modelling process followed by BA Group to assess the impacts of the Glen Abbey redevelopment significantly exceeds the scope of analysis typically undertaken for a site specific development application of this size.
- 4.89** As evidence to this point, the Oakville Green development project, which is one of the 18 background development sites that was identified by the Town to be considered in BA Group's analysis, is estimated to generate a comparable number of peak hour trips to the proposed Glen Abbey redevelopment. According to the most recent version of the Transportation Impact Study on the Town's website, the Oakville Green redevelopment is estimated to generate 1,014 to 1,354 two-way peak hour trips during the morning and afternoon peak hours, respectively. This compares to the projected total site traffic generation of the site of 1,365 and 1,495 two-way peak hour trips during the morning and afternoon peak hours.
- 4.90** The Oakville Green transportation study considered a microscopic analysis model that assessed intersection operations at 12 intersections adjacent to that site with a long term build-out horizon of 2031. This compares to the 20 intersections assessed as part of the Primary Study Area and the dozens of intersections considered in the Secondary Study Area as part of the Transportation Study for the Glen Abbey redevelopment.
- 4.91** I further note that after the submission of the most recent Transportation Study update for the Oakville Green project, dated May 2019, the project was subsequently approved at Oakville Council in June 2019.
- 4.92** I am therefore of the opinion that the methodology utilized by BA Group provides a conservative, robust and comprehensive basis for estimating future traffic volumes at the 2041 and 2031 study horizons.

Summary of Microscopic Analysis

- 4.93** A detailed microscopic analysis was completed by BA Group within the Primary Study Area to assess intersection operations at the 2041 and 2031 future horizon years. The Primary Study Area includes 20 intersections in the vicinity of the Glen Abbey site, inclusive of the proposed site access intersections on Upper Middle Road and Street A and at Dorval Drive and Street A/Old Abbey Lane. Like the mesoscopic analysis, the microscopic intersection capacity analysis was conducted as a sensitivity analysis, both with and without the planned widening of Upper Middle Road from 4 to 6 lanes.
- 4.94** The microscopic traffic analysis confirmed that future total traffic volumes at the 2041 horizon year, which includes full build-out of the site, can be appropriately accommodated on the road network, subject to the implementation of the recommended external intersection improvements at one intersection as described below.



Upper Middle Road and Neyagawa Boulevard*

**Neyagawa Boulevard intersects with Upper Middle Road and is the nearest major intersection to the east of the site and is located east of Sixteen Mile Creek.*

- Dual eastbound left-turning lanes for the eastbound left-turning movement by 2031.
- A westbound right-turning lane is recommended by 2031.

- 4.95** Dual eastbound left-turning lanes are being recommended at Upper Middle Road and Neyagawa Boulevard, since the analysis demonstrated that the eastbound left-turning movement operates at or above capacity during the weekday afternoon peak period, under existing and all future scenarios. The westbound right-turn lane is being recommended since future growth pushes the westbound right-turn movement beyond capacity during both peak periods, resulting in long delays. Based on a preliminary review of the road-right-of-way and existing lane configuration, it is most likely that these road improvements are feasible and can be implemented with very minor widenings. This however can be confirmed through the detailed design process that could be a condition of site approval.
- 4.96** In addition to the above noted recommended physical intersection improvements, the microscopic analysis identified the need to make traffic signal timing adjustments to several intersections in the study area at the 2041 and 2031 horizons. They are as follows:
- Dorval Drive and Upper Middle Road/Westoak Trails Blvd* - installation of northbound right-turn overlapping phase. **Westoak Trails Boulevard is located to the northwest of the site and forms the north leg with the intersection of Upper Middle Road and Dorval Drive.*
 - Upper Middle Road & Neyagawa Boulevard - installation of southbound right-turn overlap.
 - Upper Middle Road & Neyagawa Boulevard - installation of fully protected eastbound left-turn phase (required for dual left-turn lanes).
 - Traffic signal timing and phasing changes are recommended at 9 intersections as the only required improvement and no mitigating measures are required at 7 intersections.
- 4.97** In my opinion all traffic signal timing adjustments noted above are feasible and generally considered minor. Where new phases have been recommended, some adjustments to the existing traffic signal hardware at those intersections may be required, such as replacing signal heads. These improvements will not require any property and can be implemented and secured as part of the approval conditions associated with the Plan of Subdivision.
- 4.98** Based on the foregoing, it is also my opinion that the traffic generated by the proposed redevelopment of the site can be appropriately accommodated subject to the implementation of the above-noted traffic signal timing changes and the construction of an eastbound dual left-turn and a westbound right-turn lane at Neyagawa Boulevard and Upper Middle Road. It is further noted that this conclusion is based on a conservative projection of the vehicular traffic generation of the site that does not rely upon travel mode split changes to reduce the impact of the site redevelopment.
- 4.99** Furthermore, the microscopic analysis reconfirms the conclusion from the mesoscopic analysis, namely that the site does not rely on the widening of Upper Middle Road from 4 to 6 lanes.



4.100 In addition to the above conclusions with respect to the external road network, the 2021 TCR included the following recommendations with respect to the proposed intersections of internal Street A within the site to the adjacent arterial streets. The recommended intersection improvements to accommodate the redevelopment access intersection are as follows.

Upper Middle Road and Street A*

- *Upper Middle Road and Street A is the only access along Upper Middle Road proposed for the site. This intersection will be located east of Dorval Drive and west of Sixteen Mile Valley.*
- When Street A connects to Upper Middle Road, a new traffic signal is recommended at this intersection along with a dedicated westbound left-turning lane, a partially protected westbound left-turn phase and a dedicated eastbound right-turning lane.

Dorval Drive and Street A

- When Street A connects to Dorval Drive, the intersection of Dorval Drive and Street A (Old Abbey Lane) will need to be upgraded to a full 4-legged intersection. It is recommended that a northbound right-turning lane from Dorval Drive to the site at Street A be installed.
- Dorval Drive and Street A (Old Abbey Lane) - installation of partially protected southbound left-turn phase (Street A to Dorval).

Internal Road Network

- It is recommended that Street A be fully completed by 2031 and connected to both Upper Middle Road and Dorval Drive.

4.101 The 2021 TCR included a queuing analysis for all existing and proposed signalized intersections in the Primary Study Area. A further summary of the queuing information from our 2021 TCR study, which provides a more direct comparison of existing, future background and future total queue results, was prepared as part of additional analysis undertaken by BA Group in May 2021. The supplementary queue summary information is provided in BA Group's Supplementary Information document (Item 3).

4.102 The queue analysis confirms that the proposed redevelopment of the Glen Abbey site will not cause substantial operational issues in the transportation network. There are some locations in the road network where congestion is expected where queues under 2041 future total conditions are expected to extend past the available storage capacity. Where these conditions exist, the analysis indicates that the extended queues are typically the result of background development growth, or is an existing queuing issue under existing traffic volumes. On this basis, I am of the opinion that the queuing impacts generated by the redevelopment of the site on existing external intersections can be accommodated.

4.103 Of note, the total distance from the future stop bar on the east side of the intersection at Street A, to the beginning of the Sixteen Mile Creek bridge structure is 225 m. The 2021 TCR also reviewed the estimated queues for westbound vehicles turning left from Upper Middle Road to the proposed



Street A, under 2041 build-out volumes. The Region and Town noted in prior comments that there may be a potential concern that the queues generated by the site may result in the need to impact or modify the Upper Middle Road bridge structure west of Street A, that pass over Sixteen Mile Creek. Based on BA Group's queue analysis, the projected 2041 future queues are expected to be as follows:

2041 Westbound Left-Turning Queues (Upper Middle Road & Street A)

AM Peak		PM Peak	
Upper Middle Road at 4 Lanes			
Average Queue	95 th Percentile Queue	Average Queue	95 th Percentile Queue
85 m	146 m	56 m	136 m
Upper Middle Road at 6 Lanes			
Average Queue	95 th Percentile Queue	Average Queue	95 th Percentile Queue
80 m	139 m	95 m	141 m

- 4.104** The queue analysis demonstrates that the future 95th percentile westbound left-turn queues will not extend to the adjacent structure over Sixteen Mile Creek, which is 225 metres from the Street A intersection. To further confirm that an appropriate design for the left-turn lane can be created that can accommodate the site, BA Group also prepared a preliminary functional design for the Street A / Upper Middle Road intersection. The resulting functional design, which was based on guidelines from the Transportation Association of Canada, indicates that there is sufficient space to create a 210 m long westbound left-turning lane at the Street A intersection, inclusive of 150 metres of storage and parallel length and a 60 metre taper. Such a design would not result in any impact or need to adjust the existing Upper Middle Road bridge structure over Sixteen Mile Creek. The preliminary functional design would also appropriately accommodate the projected worst case 95th queue for the westbound left turn movement of 146 metres.
- 4.105** I am therefore of the opinion that the Street A / Upper Middle Road intersection is appropriate and that an adequate westbound left-turn lane design can be created which accommodates forecast site traffic and queues. I am further of the opinion that the design for the westbound left-turn lane at Upper Middle Road/Street A will not impact the bridge structure over Sixteen Mile Creek.
- 4.106** It is my opinion that based on the detailed queuing analysis, the traffic generated by the site is expected to have a relatively minor impact on queuing throughout the transportation network as compared to the queue impacts attributable to overall background growth. In this regard the projected queue impacts can be appropriately accommodated.



2041 Traffic Operations (Internal Intersections)

- 4.107** Analysis for unsignalized intersections reveals that all movements for internal intersections within the site will operate acceptably, during both the morning and afternoon peak periods.
- 4.108** Analysis for proposed roundabout intersections within the site reveals that all movements operate acceptably, during both the morning and afternoon peak periods.
- 4.109** Based on our analysis, it is my opinion that all internal intersections will operate acceptably, inclusive of site traffic and diverted traffic. All details of the internal intersection operations, including any necessary signage and geometric design, can be confirmed through the detailed design process of the Plan of Subdivision, or as a condition of approval.

Proposed External Roadway Improvements Cost and Implementation

- 4.110** The total estimated costs associated with the external road improvements, which includes costs associated with constructing the new Street A / Upper Middle Road intersection, is approximately \$1.5 million as summarized in the table below.



PROPOSED ROAD-RELATED CAPITAL IMPROVEMENTS

Intersection	Proposed Upgrade	Estimated Cost
External Road Network		
Upper Middle Road and Neyagawa Boulevard	Installation of dual eastbound left-turning lanes	\$350,000
Upper Middle Road and Neyagawa Boulevard	Installation of westbound right-turn lane	\$200,000
Site Connections to External Intersections		
Upper Middle Road at Street A	Installation of eastbound right-turn lane ²	\$300,000 ³
Dorval Drive at Street A ¹	Installation of westbound right-turn lane <i>(right-turn from Dorval Drive into site)</i>	\$200,000
Traffic Signal Upgrades		
Upper Middle Road and Street A	Installation of new traffic signal with partially protected westbound left-turn phase.	\$400,000
Dorval Drive and Upper Middle Road/Westoak Trails Blvd	Installation of northbound right-turn overlap	\$5,000
Dorval Drive and Street A (Old Abbey Lane)	Installation of partially protected southbound left-turn phase <i>(Street A to Dorval)</i>	\$25,000
Upper Middle Road & Neyagawa Boulevard	Installation of southbound right-turn overlap	\$5,000
Upper Middle Road & Neyagawa Boulevard	Installation of fully protected eastbound left-turn phase (required for dual left-lanes)	\$25,000
Total Costs		\$1,510,000

Notes:

1. Dorval Drive is considered to run east/west at the intersection of Street A/Old Abbey Lane
2. To be constructed when traffic signal is installed.
3. Cost reflects the potential shift of a retaining wall and sidewalk.

4.111 It is my opinion that these external road improvements will adequately address capacity issues noted in the analysis that are related to site traffic.

4.112 Seeing as all recommended improvements do not require any expropriation or lands to be conveyed (other than from the site), it is also my opinion that these improvements can be reasonably secured as a condition of approval with appropriate provisions related to phasing and timing.

Transit Assessment

4.113 The 2021 TCR recommends the introduction of a new local transit route to service the proposed redevelopment. The proposed route is recommended because the existing transit services along



the adjacent streets would not provide adequate transit coverage to the proposed redevelopment. A Transit Impact Assessment was therefore undertaken as part of the 2021 TCR.

- 4.114** The recommended new transit service is proposed as a new north-south transit route running through the site with a peak hour headway of 30 minutes. Through the site, it would run along the major collector street (Street A).
- 4.115** The proposed Glen Abbey redevelopment concept would result in a net density of 53 units per hectare of developable land. This meets the minimum threshold for a “Very Frequent Bus Service” that runs every five minutes according to the 2015 Provincial Study: *Planning for Health, Prosperity, and Growth in the Greater Golden Horseshoe: 2015-2041* which provides suggested minimum density targets for transit service. The threshold for Very Frequent Bus Service is 45 units per hectare.
- 4.116** Oakville Transit also maintains criteria for consideration of transit service based on the density of an area. Based on Oakville Transit service targets the site could warrant a “Primary Corridor Service” which runs every 3-10 minutes during peak periods. The threshold for this level of service is 45 residents and jobs per hectare, or approximately 20 units per hectare.
- 4.117** To confirm the level of transit service required to accommodate the proposed redevelopment, an estimate of the potential future transit demand was undertaken. The assessment was based on the Enhanced Scenario to provide a basis for what the highest potential transit ridership might be. The Enhanced Scenario was derived from mode share information provided in the 2018 “Switching Gears” Oakville Transportation Master Plan (TMP) document.
- 4.118** Under the Enhanced Scenario with improved transit ridership according to the 2018 Oakville TMP, the projected transit ridership demand generated for local transit is estimated to be 180 and 305 two-way transit trips during the morning and afternoon peak hours, respectively. These trips would utilize either the existing Oakville Transit services operating around the edges of the site, or the proposed new local transit route, to connect to destinations within Oakville other than GO Transit. The site is also estimated to generate 250 and 230 new two-way GO Transit during the weekday morning and weekday afternoon peak hours, respectively. Of this, it is expected that 90 trips and 85 two-way trips, during the respective morning and afternoon peak hours, would need to utilize the proposed new local transit service through the site to connect to GO Transit. The remaining new GO Transit trips were otherwise accounted for as auto trips that drive to the GO Station.
- 4.119** Taking the above into consideration, it is estimated that the site will generate a ridership demand of 101 and 112 peak direction bus riders for the recommended new transit route running through the site during the peak hours. The majority of these transit riders are estimated to be oriented to/from the GO Station during the peak hours. It is noted that this is a conservative estimate of the future transit generation as it is based on the Enhanced Transit ridership trip generation scenario which includes increased transit ridership mode share targets as outlined in the Town of Oakville’s TMP.

- 4.120** Based on the recommended transit route that would be developed to serve the site, the transit assessment in the 2021 TCR confirms that a transit service with a 30 minute headway would be sufficient to accommodate the projected ridership on the recommend new transit route of 101 to 112 peak direction, peak hour transit riders. This level of service would be comparable to a “Local Service” per Oakville Transit’s current headway targets.
- 4.121** Thus, it is my opinion that while the site density may qualify the site for a higher frequency transit service, a basic transit service with a 30 minute peak hour headway would be sufficient to serve the redevelopment.
- 4.122** A detailed route planning exercise was undertaken as part of the 2021 TCR to determine how the recommended new route would integrate into the existing Oakville Transit network. Different route alignments were considered based on connectivity, proximity to existing residential density, and overlap with existing Oakville transit services.
- 4.123** Based on a detailed evaluation, a preferred recommended alignment for the new route was identified which includes a southern terminus at the Oakville GO Transit Station and its northern terminus at the Uptown Oakville transit hub. South of the site, the new transit route would travel south along Dorval Drive to Speers Road where it would travel east to the Oakville GO Station. North of the site the proposed route would travel east to Sixth Line and proceed north to Dundas Street where it would then connect to the Oakville Transit hub at Uptown Core.
- 4.124** Total annual service costs for Route “A” at its ultimate operation have been estimated at \$1,084,300, inclusive of costs for annual operations, new transit buses, bus stops/shelters and maintenance of bus stops/shelters. As the Town’s transit service guidelines provide minimum cost recovery targets for a new transit route, a phased implementation of the transit service will be required including the initial provision of a peak period only route which would assist in developing established commuter patterns. A peak period only route would reduce the annual service costs in the interim.
- 4.125** Prior to the redevelopment meeting minimum service needs for a public transit service, a private shuttle service to/from the GO Station has been recommended as a potential interim measure to accommodate transit connections, and in particular the connection to GO Transit, until such time as the site builds out. The shuttle service would serve to augment transit service and could serve as part of an initial Transportation Demand Management (TDM) strategy for the site. Any such TDM measure is not required however to accommodate the future vehicular impact of the site.
- 4.126** Based on the transit assessment undertaken, it is my opinion that a new transit route is recommended to serve the proposed redevelopment and that proposed Street A within the site will effectively serve to accommodate a north-south transit route through the site.
- 4.127** I am further of the opinion that based on our analysis, a 30 minute headway service would be sufficient to serve even the more conservative potential transit ridership demands estimated. A transit service with a 30 minute headway is consistent with a “Local Service” operation per Oakville Transit’s service standards and this service is comparable to the transit services



operating adjacent to the site today. As such, in my opinion, the recommended new transit service through the site would not constitute a significant new Oakville Transit service, but rather would be comparable to any transit services that serve other residential neighbourhood areas in Oakville.

- 4.128** I am also of the opinion that the cost of delivering the recommended new transit route through the site prior to Oakville Transit's minimum cost recovery targets being met, could be dealt with through a suitable funding agreement or alternative triggering mechanism that could be secured as a condition of approval. This could include either a financial security or a provision to operate a shuttle bus until ridership demand is sufficient to warrant a full transit service.

Pedestrian Assessment

- 4.129** To facilitate pedestrian travel within the site, a comprehensive network of sidewalks and trails will be provided on the site that will support walking trips for both active transportation and recreation. In addition to the network of sidewalks, a continuous off-road trail system is proposed within the site.
- 4.130** Pedestrian volumes generated by the site redevelopment were determined for both the Base Scenario and the Enhanced Scenario. The Enhanced Scenario completed for the Transit Impact Assessment is expected to generate more pedestrian activity related to walking trips to/from transit.
- 4.131** A level of service (LOS) analysis was completed for pedestrians utilizing the sidewalks along Street A which indicated that the sidewalks within the site will function well, under either the Base or Enhanced Scenario.
- 4.132** It is my opinion that based on the detailed pedestrian forecasting that was completed as part of the 2021 TCR, the proposed pedestrian facilities on the site have been appropriately designed and will meet the needs of pedestrians. Total site-generated pedestrian volumes are in keeping with the character of residential neighborhoods such as those in proximity to the site.
- 4.133** It is my opinion that all sidewalk infrastructure required for the site can be reasonably secured through the detailed design process.

Cyclist Assessment

- 4.134** To facilitate cyclist trips, dedicated cycling lanes will be provided along both sides of Street A and a continuous off-road loop system is also proposed within the site. All local roads within the site will operate as shared spaces for bicycles and will provide a convenient access to the formal cycling routes proposed within the site.
- 4.135** The multi-modal analysis completed in the 2021 TCR confirmed a relatively low number of cycling trips predicted to be generated by the site. These cycling trips were included within the micromodel *Synchro* analysis.



- 4.136** It is my opinion that considering the magnitude of forecast future total cycling volumes, it is expected that both future cycling facilities proposed for roadways within the site and existing cycling facilities in the vicinity of the site, will be able to accommodate future cycling demands. Total site-generated cyclist volumes are in keeping with the character of residential neighborhoods such as those in proximity to the site.

Vehicle Parking Considerations

- 4.137** As part of the Zoning By-law Amendment prepared for the site, a series of minimum parking requirements were recommended for the proposed uses within the site. The recommended rates were generally based on parking requirement rates that were already contained in the Town of Oakville Zoning By-law 2014-014. In some cases, parking requirement rates from the Town of Oakville By-law 2009-189 (also known as the “North Oakville Zoning By-law”) were chosen to apply to select uses within the site where the form of development or use within the site was comparable to a use or development form in North Oakville. The proposed minimum parking rates for the site are summarized in the table below and are also included in the 2021 TCR Book 1 - Table 66.



SUMMARY OF PROPOSED PARKING RATES

Land Use	Applicable To	Zoning By-law Minimum Requirements	Proposed Minimum Parking Rates
Townhouse, Stacked Townhouse, Back-to-Back Townhouse, Stacked Back-to-Back Townhouse	Medium and High-Density Residential & Mixed-Use Zones	Zoning By-law 2009-189 Table 5.1A	1.0 parking space per dwelling ¹
		1.0 parking space per dwelling ¹	
		Zoning By-law 2014-014 Table 5.2.2	
		<p style="text-align: center;">Townhouse 1.5 parking spaces/dwelling (inclusive of 0.20 parking spaces/unit for visitor parking)</p> <p style="text-align: center;">Stacked townhouse 1.25 parking spaces/dwelling (inclusive of 0.20 parking spaces/unit for visitor parking)</p> <p style="text-align: center;">Back-to-back townhouse 1.5 parking spaces/dwelling</p>	
Apartment Dwellings	Mixed-Use & Main Street retail area	Zoning By-law 2014-014 Table 5.2.2	<p>a) 1.0 parking space/unit for units <75.0m² NFA (inclusive of 0.20 parking spaces/unit for visitor parking)</p> <p>b) 1.25 parking spaces/unit for all other units (inclusive of 0.20 parking spaces/unit for visitor parking)</p>
		<p>a) 1.0 parking space/unit for units <75.0m² NFA</p> <p>b) 1.25 parking spaces/unit for all other units (inclusive of 0.20 parking spaces/unit for visitor parking)</p>	
Apartment Dwellings	High-Density Residential Zones	Zoning By-law 2014-014 Table 5.2.1	<p>a) 1.0 parking space/unit for units <75.0m² NFA</p> <p>b) 1.5 parking spaces/unit for all other units (inclusive of 0.25 parking spaces/unit for visitor parking)</p>
		<p>a) 1.0 parking space/unit for units <75.0m² NFA</p> <p>b) 1.5 parking spaces/unit for all other units (inclusive of 0.25 parking spaces/unit for visitor parking)</p>	
Non-Residential Uses	Mixed-Use Zone	Zoning By-law 2014-014 Table 5.2.2	1.0 parking space/40 m ² NFA ²
		1.0 parking space/40 m ² NFA ²	
Community Amenity Block	C2 - Community Commercial Zone	Zoning By-law 2014-014 Table 5.2.1	50% of requirement in Zoning By-law 2014-014 Table 5.2.1 for all other C2 uses <i>(proposed ratio to reflect availability of on-street parking)</i>
		1.0 parking space/22 m ² NFA	

Notes:

1. Consistent with minimum standards outlined for Trafalgar Urban Core Zone 1.
2. Rate reflects comparable approach for parking requirements in a mixed use zone.
3. NFA = Net floor area



- 4.138** The proposed minimum parking rate for all townhouses of 1.0 parking space per dwelling is consistent with Zoning By-law 2009-189 (Table 5.1A) which is applicable to townhouses in North Oakville. The parking rate requirement of Zoning By-law 2014-014 (Table 5.2.2) is 1.25 to 1.5 spaces per dwelling, in addition to 0.2 spaces per unit for visitors.
- 4.139** The proposed townhouse parking rate of 1.0 space per dwelling unit is appropriate for this site as it is more in keeping with providing a more compact urban form of development. It also serves to reduce the auto ownership associated with that unit type, which is in my experience, compared to a higher Zoning By-law requirement, could result in an oversupply of parking. Thus the parking requirement rate from By-law 2009-189, which is considered appropriate for a townhouse in North Oakville, is deemed to be more appropriate for townhouses within the proposed development.
- 4.140** Moreover, I note that all townhouse uses are proposed within the interior of the redevelopment plan, away from existing residential neighbourhoods. As a result, even in the event there is some spillover parking demand on-street, there is little or no risk of on-street parking impacts affecting any existing neighbourhood areas. The proposed internal streets have also been designed with on-street parking accommodation to account for this.
- 4.141** The proposed minimum parking rate for apartment dwellings within the mixed-used zones and within the high-density residential zones, meets the requirements of Zoning By-law 2014-014 (Table 5.2.2).
- 4.142** A site specific parking requirement for non-residential uses within the mixed-use zones is proposed at 1 space per 40 square metres of Net Floor Area (“NFA”). A requirement of 1 space per 40 square metres is consistent with the “Mixed Use” parking requirement for non-residential uses in Zoning By-law 2014-014 (Table 5.2.2). This requirement is lower than the base retail parking requirement, outside of mixed-use areas, of 1 space per 18 square metres of NFA.
- 4.143** The site specific parking requirement for non-residential uses in the mixed-use areas would apply to the “Market Village” area in the northeast corner and a block surrounded by Streets A, V, U and W, towards the south end of the site. The proposed parking requirement for the non residential uses in the mixed-use area is intended to support the vision of an urban retail format at the base of mixed-use buildings.
- 4.144** The concept of tailoring a non-residential parking requirement in mixed-use areas of the redevelopment plan could be compared to the provisions in Zoning By-law 2014-014 (Table 5.2.2) where a lower parking requirement is adopted in targeted areas where retail uses are intended to operate as a supporting amenity of the mixed-use buildings. For example, non-residential parking in Palermo Village (Urban Centre mixed-use zone) and the Uptown Core non-residential uses have a minimum requirement of 1.0 space/24.0m² NFA, on the first storey in mixed-use zones. The proposed requirement of 1 space/40m² NFA is consistent with the requirement that applies in the Bronte Village and Kerr Village mixed-use zones.

- 4.145** The vision for the proposed mixed-use zones is consistent with a mixed-use development with good transit service, active transportation facilities and on-street parking to supplement the availability of parking to accommodate visitors/customers. The land use is well-suited to sustainable modes of travel, especially active transportation trips within and surrounding the site.
- 4.146** I also note that both of the mixed-use areas proposed within the plan are located a significant distance from existing adjacent neighbourhoods. This was done intentionally to ensure there was adequate separation between the proposed mixed-use zones and existing neighbourhood areas. As a result, there is minimal risk of any on-street parking impacts to existing residential areas adjacent to the site.
- 4.147** It is therefore my opinion that the proposed parking requirement for non-residential uses in the mixed-use areas of the site is appropriate.
- 4.148** The existing Paddock Building (i.e. the Stables) is proposed to be retained as part of the heritage preservation strategy and is envisioned to become a future community space that also may have some commercial space. The accommodation of the adaptive re-use of the building, requires a parking requirement approach that provides for some flexibility in how parking is required for the Paddock Building. This is because application of the base retail parking requirement, or the proposed mixed-use non residential requirement to the Paddock Building may result in a parking requirement for the building that is not achievable, if the Paddock Building is to be effectively and economically re-utilized. It is therefore proposed that any community commercial uses within the Paddock Building have a reduced parking requirement that reflects the availability of on-street parking to accommodate a portion of the parking demands. Thus, the minimum parking requirement in Zoning By-law 2014-14 (Table 5.2.1) of 1.0 space/22.0 m² NFA, is proposed to be discounted by 50% to a requirement of 1.0 space/11m² NFA, to reflect the availability of on-street parking.
- 4.149** The community zone is adjacent to the Retail Main Street, where the right-of-way of the street has been increased to accommodate parking on both sides of the road. Other local streets adjacent to the community commercial zone will be wide enough to accommodate parking on one side of the road. It is therefore reasonable and appropriate that some of the parking requirement for community commercial uses in the Paddock Building be able to rely upon on-street parking to facilitate the adaptive re-use of this building. In addition, given that the surrounding developments are largely apartment buildings which will include dedicated parking for residents and visitors within the individual buildings, on-street parking on these adjacent streets will be available if required. I am of the opinion that this is appropriate and there is minimal impact to any existing residents.
- 4.150** Based on the foregoing, I am of the opinion that the proposed site specific parking provisions are appropriate and supportive of good compact urban development.



Bicycle Parking Considerations

- 4.151** In order to support cycling as a sustainable mode of travel for the site, bicycle parking will be provided in accordance with the Town of Oakville Zoning By-law.
- 4.152** It is my opinion that the amount of bicycle parking proposed is appropriate and will encourage sustainable travel to/from the site.

Transportation Demand Management Framework

- 4.153** A Transportation Demand Management (TDM) Plan has been developed in order to provide a guideline that supports sustainable transportation options for the site. The strategies included within the TDM Plan are intended to reduce the number of vehicle trips generated by the site and include a range of policies, tools and programs designed to promote and facilitate trips by walking, cycling, public transit and carpooling.
- 4.154** It is my opinion that the TDM Plan is appropriate and will facilitate a shift towards the use of sustainable modes of travel to and from the site.

Waste Management Plan

- 4.155** A preliminary Waste Management Plan has been proposed which addresses the requirements of the Region's Development Design Guidelines for Source Separation of Solid Waste. The proposed redevelopment will feature three types of collection:
- On-street public pick-up for low density residential units with direct street frontage;
 - Off-street public pick-up for multi-residential apartment buildings and townhouses; and
 - Off-street public and private pick-up for mixed residential/commercial developments.
- 4.156** It is my opinion that the proposed Waste Collection Strategy will comply with the Region of Halton's guidelines with respect to geometry, off-street pick up requirements and waste separation. Furthermore, based on a review of the cross-sections proposed for the site, all proposed public and private roadways will meet the geometric standards outlined by Halton Region and satisfy the basic criteria for waste collection services.



5.0 RESPONSES TO ISSUES LIST

- 5.1 Below I have responded to the issues on the Issues List which specifically raise transportation matters, being issues 25-35 and 54-61.
- 5.2 However, my opinions on transportation matters will also inform the opinions of other witnesses concerning the redevelopment applications and their consistency with the Provincial Policy Statement, 2020 and their conformity with the Growth Plan for the Greater Golden Horseshoe, 2019, the Region of Halton Official Plan and the Livable Oakville Plan.

Town of Oakville Issues

Issue 25. Given the scale of proposed development, is the study area of a sufficient size and scope to appropriately determine the impacts of the proposed development?

- 5.3 As referenced in Paragraph 4.4 to 4.6, the study area utilized by BA Group meets and significantly exceeds what was requested by the Town and Region to assess the impacts of the redevelopment.
- 5.4 Moreover, the study area assessed by BA Group significantly exceeds the size and breadth assessed, in relation to other comparable individual developments in Oakville. An example of this is the Oakville Green project, which was approved by the Town of Oakville, as covered in Paragraph 4.89 and 4.90 above.
- 5.5 Based on the foregoing, I am of the opinion that the study area is of sufficient size and scope to appropriately determine the impacts of the proposed redevelopment.

Issue 26. Have the current traffic data collection and analysis been sufficient to properly determine existing, future background traffic and total future traffic volumes including appropriate consideration of horizon years, volume growth rate, area background development traffic and trip generation rates?

Existing Traffic

- 5.6 As covered in Paragraph 4.59 to 4.61 above, existing conditions analysis for the microscopic analysis was derived based on a comprehensive collection of pre-COVID intersection turning movement counts obtained for intersections within the Primary Study area. The counts obtained were predominantly from 2019 and 2018 and obtained from a variety of sources including BA Group's count database, and from the Region and Town.
- 5.7 The approach to confirming existing traffic counts was further confirmed through the Terms of Reference that was provided to the Region and Town in October 2020.

5.8 On this basis, I am of the opinion that the data collection related to existing conditions has been completed sufficiently to assess future traffic volumes in the area.

Horizon Years

5.9 As outlined in my evidence under Paragraph 4.8 above, the 2041 full build-out horizon year adopted in our analysis represents a reasonable estimate of the projected long term build-out of the site. This estimate which was provided by the client provides a long-term planning horizon that is more than 15 years out.

5.10 The 2031 horizon assessed within our work represents a partial build-out of the site. This analysis was undertaken to review phasing considerations.

5.11 Taken together, the study horizons assessed in the 2021 TCR are appropriate.

Background Growth and Growth Rate

5.12 As outlined in my evidence under Paragraph 4.70 through 4.73 above, BA Group has accounted for a significant amount of background development in the analysis that has been undertaken. The analysis includes traffic allowances from 18 individual development applications that were highlighted by the Town and Region as needing to be considered. Additional background growth was then added to the major corridors within BA Group's analysis by deriving information from the Region of Halton's macroscopic traffic mode.

5.13 With respect to a growth rate, rather than a static corridor growth rate applied to estimate future traffic growth from beyond the Primary Study Area, BA Group instead directly incorporated future growth from beyond the Primary Study Area from the Region of Halton's 2031 macroscopic model. The growth projections obtained from the Region of Halton were then conservatively adjusted by eliminating any forecasted origin-destination pairs in the Region's model where there was a forecasted decrease in traffic volumes in the future. In its place, BA Group added further growth through the application of a nominal percentage. Moreover, BA Group added supplementary growth to the area road network to account for growth occurring between the 2031 and 2041 growth forecasts to account for growth that might occur beyond the current 2031 planning horizon of the Region of Halton's traffic model.

5.14 The background growth added to the road network up to the 2041 build-out horizon represents over 9,400 two-way peak hour trips added to the road network during the weekday morning peak hour period, and over 10,700 two-way trips added to the road network during the weekday afternoon peak hour period. This compares to projected peak hour generation of the site at full build-out which is 1,365 and 1,495 two-way peak hour trips during the morning and afternoon peak hours, respectively.

5.15 The application of a comprehensive list of site specific background growth allowances, combined with the application of regional-scale traffic growth allowances directly from the Region of Halton's macroscopic model, provides in my opinion a robust basis for forecasting future traffic demand in the Primary Study Area and is appropriate. Furthermore, the use of the mesoscopic model to



incorporate the site specific background growth allowances and regional growth, is beyond what is normally required in a typical traffic impact analysis, for an individual development application.

Trip Generation

- 5.16** As outlined in my evidence in Paragraph 4.75 above, a conservative trip generation estimate for the proposed Glen Abbey redevelopment was utilized. The total peak hour trip generation for the site exceeds allowances that would be generated by the Institute for Transportation Engineers (ITE) Trip Generation Handbook. Thus the traffic allowances assumed for the purposes of assessing site impacts are more conservative than the ITE methodology.
- 5.17** As outlined in my evidence under Paragraph 4.10 above, the trip generation estimated for the site for the purposes of assessing vehicular impacts was based on the existing mode share of the existing neighbourhood areas surrounding the site. The trip generation therefore does not rely upon any shifts to other modes to accommodate site traffic.
- 5.18** It is therefore my opinion that adequate consideration has been paid to the trip generation for the proposed redevelopment to assess site transportation impacts.

Issue 27. Have the data collection and analysis of the existing and proposed transportation network been sufficient to determine that the total future traffic volumes (including traffic generated by the proposed development) can be accommodated within the network over the appropriate horizon years?

- 5.19** See response to Issue 26 above. I am of the opinion that the data collection of the transportation network is sufficient to determine that future total traffic volumes, including the site, can be accommodated.
- 5.20** With respect to the analysis that has been undertaken and its sufficiency, based on my evidence above set out in Paragraphs 4.59, 4.74 to 4.109, I am of the opinion that BA Group's analysis of the site impacts, through the completion of a mesoscopic and microscopic analysis, provides a comprehensive assessment; and one that significantly exceeds the scale and thoroughness of other comparably sized developments that have been approved in Oakville. The analysis completed by BA Group is therefore appropriate for determining if site traffic impacts can be accommodated.

Issue 28. Does the development rely on future and uncertain road capacity such as the widening of Upper Middle Road to six lanes in the year 2027 and/or improvements to the bridge structure? Has adequate consideration been given to any environmental approvals required to construct road improvements to accommodate development?

- 5.21** Consistent with the direction provided by the Region and Town, BA Group has undertaken significant analysis to assess whether the redevelopment will rely upon the widening of Upper



Middle Road. The analysis for 2031 and 2041 specifically considered two scenarios; Upper Middle Road at 4 lanes and Upper Middle Road widened to 6 lanes.

- 5.22** As outlined in my evidence in Paragraph 4.79 to 4.85 above, our analysis determined that the widening of Upper Middle Road is not required to accommodate the redevelopment of the site. The analysis confirms that other planned road infrastructure upgrades that will be complete by 2031, such as the completion of the William Halton Parkway in north Oakville, will add significant capacity to the road network in this area of Oakville. This will allow the redevelopment traffic to be accommodated appropriately.
- 5.23** As described in my evidence in Paragraph 4.93 to 4.106 above, a detailed microscopic intersection analysis was completed at 20 intersections within the Primary Study Area. This included an assessment of intersection performance (capacity analysis) and future queues. The traffic analysis confirmed that future total traffic volumes at the 2041 horizon year, which includes full build-out of the site, can be appropriately accommodated on the road network, without the widening of Upper Middle Road.
- 5.24** Because the site does not require the widening of Upper Middle Road to accommodate forecast site traffic volumes, I am of the opinion that there is no environmental assessment implication associated with the widening of Upper Middle Road that would be triggered by the proposed redevelopment. BA Group has identified recommended road improvements at one external intersection that would require a geometric change to accommodate the projected 2041 future total traffic volumes; the installation of dual eastbound left-turn lanes and the installation of a westbound right-turn lane at the intersection of Neyagawa Boulevard and Upper Middle Road.
- 5.25** I also note that Environmental Assessment (EA) requirements for potential road improvements were considered in the 2021 TCR study. Through that review it was determined that the recommended intersection improvements would be considered as “localized operational improvements” under the Municipal Class Environmental Assessment (MCEA) process with a value of less than \$2.4 million at each intersection, and as such the projects would most likely be considered a pre-approved class A+ project. A Class A+ process under the MCEA process does not require further Environmental Assessment approvals to proceed with construction.
- 5.26** BA Group has also reviewed the feasibility of constructing dual eastbound left-turn turn lanes and a westbound right-turn lane, at the intersection of Upper Middle Road and Neyagawa Boulevard. The review concluded that the construction of a second eastbound left-turn lane can be accommodated by the large planted median that exists within the centre of Upper Middle Road. It appears that the westbound right-turn lane could be accommodated with a minor widening of existing pavement on the north side of the road, without requiring additional right-of-way. As such, the construction of the additional lanes should not require any additional property or expropriation to implement the recommended improvements. Accordingly, the recommended improvements could be adequately secured by the Region and Town as a condition within the subdivision agreement.

5.27 I am therefore of the opinion that the project does not rely upon uncertain road capacity and as such, the proposed redevelopment will not impact the existing Upper Middle bridge structure over Sixteen Mile Creek, such that changes are required. I am further of the opinion that adequate consideration has been given to the environmental approvals required to construct recommended improvements and I have concluded that no additional Environmental Assessments are required to accommodate the transportation related improvements recommended within the BA Group study.

Issue 29. Have the data collection and analysis related to public right-of-way classifications and cross-sections for roadways and laneways throughout the plan been sufficient to justify deviation from current Town standards and policies? Have the data collection and analysis been sufficient to determine whether the proposed rights-of-way (including turning lanes) are designed appropriately to accommodate the traffic generated by the proposed development and any traffic diverting through the site via Upper Middle Road and Dorval Drive?

Justification of Deviation from Standards

5.28 As referenced in Paragraph 4.26 to 4.29, the proposed redevelopment plan includes several different types of road classifications for internal public roads within the site. The Town of Oakville's Standard Engineering Guidelines have been used where reasonable and customized, as required, to create cross-sections that align with the unique character and overall vision of the land use and urban design concept.

5.29 While the cross-sections proposed for certain streets may vary slightly from the approved Town Standards, the overall right-of-way widths generally align with the standard right-of-way widths contained in the Town's standards, or have been oversized to achieve the following goals:

- provide upgraded urban design elements;
- accommodate cycling, transit, and pedestrians; and
- accommodate on-street parking.

5.30 In the case of Street A, an oversized right-of-way has been designed to provide additional space to accommodate upgraded urban design elements such as a planted centre median and wider boulevards to accommodate more planting and sidewalk space. Increasing the right-of-way to accommodate improvements to various cross section elements is expressly noted as being possible in Policy 8.4.6 of the Town of Oakville Official Plan.

5.31 According to the 2021 TCR and the BA Group Supplementary Information document (Item 1), future total 2041 traffic volumes on Street A are projected to be 7,200 vehicles per day on the south end of the street (near Dorval Drive), to 10,300 vehicles per day on the north end of the street (near Upper Middle Road). Future total 2041 traffic volumes on Street B are projected to be 2,200 vehicles per day. It is noted that these projections include both projected site traffic volumes



and non-site traffic that are expected to divert through the site which the mesoscopic modelling process directly accounts for through its dynamic traffic assignment capabilities.

- 5.32** The 2009 Livable Oakville Plan (Map 4) shows that typical maximum daily traffic volumes for Major Collector roads are 10,000 vehicles per day. The typical maximum daily traffic for Minor Collector roads are 5,000 vehicles per day. The future daily traffic volumes expected along Street A are therefore generally in keeping with, if nominally beyond, the Town of Oakville's threshold for a Major Collector Road. The future daily traffic volumes on Street B are consistent with the Town of Oakville's threshold for a Minor Collector Road.
- 5.33** Furthermore, as referenced in Section 4.107 to 4.109, the capacity analysis undertaken within the 2021 TCR at the 2041 horizon year for the internal intersections, determined that all of the internal intersections will operate acceptably at full build-out, with only auxiliary turn lanes required on Street A at the external intersections (Upper Middle Road and Dorval Drive). All other internal streets can appropriately accommodate forecast future traffic based on the single lane operation envisioned. The internal right-of-way proposed for Street A is sufficient to accommodate forecast site traffic in terms of number of lanes and operation.
- 5.34** Therefore, based on the analysis undertaken as part of the 2021 TCR, Street A will operate appropriately with a single lane in each direction and will have a projected daily traffic volume that is consistent with the Livable Oakville Plan for a Major Collector Road. As such, while additional right-of-way width has been allocated to the plan along Street A to provide flexibility for improved public realm elements and on-street parking, a lesser right-of-way of 26 metres, consistent with the Town's standard section for a collector road, would be sufficient to accommodate the projected vehicular volumes.
- 5.35** It is therefore my opinion that the oversizing of the Street A right-of-way, and other right-of-ways within the plan, is consistent with the Livable Oakville Plan and is appropriate.
- 5.36** I am further of the opinion that sufficient analysis has been provided to justify minor deviations from the Town's standard engineering cross-sections in certain situations, to accommodate the unique character and road function anticipated in the redevelopment vision.
- 5.37** Furthermore, on account that the proposed road network is, in my opinion, consistent with Table 4 of the Livable Oakville plan, and that the development plan protects for sufficient right-of-ways that achieve the intent of the Livable Oakville Plan, it would therefore be appropriate, to consider draft approval of a Plan of Subdivision, with appropriate conditions to confirm the detailed cross-section elements through the detailed design process.

Issue 30. Have the data collection and analysis of the proposed diversion of traffic along Street A been sufficient to justify the diversion?

- 5.38** As noted in my evidence above, BA Group undertook an extensive mesoscopic traffic forecasting exercise to estimate the cumulative future total travel demands of both projected background

growth and site traffic, and taking into consideration planned in-delivery road improvements for both 2031 and 2041 along with traffic diversion. The assessment also considered a sensitivity analysis with respect to the planned widening of Upper Middle Road from 4 to 6 lanes for both 2031 and 2041 horizon years.

- 5.39** The mesoscopic model included an automated path assignment process, which allowed for the appropriate consideration of corridor traffic growth and diversion. As part of this process the mesoscopic model predicted the existing and future background traffic expected to use the new direct connection (Street A) between Upper Middle Road and Dorval Drive. This future diversion of traffic to Street A was therefore accounted for and computed by the mesoscopic model's user equilibrium path assignment feature.
- 5.40** The 2041 mesoscopic model assigned and diverted 23% (200 vehicles) and 22% (365 vehicles) in the morning and afternoon peak periods, respectively, to Street A from both Upper Middle Road and Dorval Drive. The 2031 mesoscopic model assigned and diverted 25% (200 vehicles) and 28% (509 vehicles) in the morning and afternoon peak periods, respectively, to Street A from both Upper Middle Road and Dorval Drive.
- 5.41** Under the 2041 scenario, the number of external vehicles diverted from Dorval Drive to Street A by the mesoscopic model is lower than compared to the 2031 horizon. This is because the Glen Abbey site is only partially built-out by the 2031 horizon year which leaves more capacity available to be utilized by external users cutting through the site by the 2031 horizon year. This compares to the 2041 horizon year when the Glen Abbey site is built-out, resulting in more internal traffic on Street A, which limits the amount of external diversion possible on Street A.
- 5.42** It is my opinion that the data collection and analysis (i.e. the mesoscopic modelling process) of the anticipated diversion of traffic along Street A that has been completed is appropriate to justify the number of trips diverted trips on Street A for both the 2031 and 2041 horizon years.

Issue 31. Do the rights-of-way and configuration proposed for the three roundabouts safely accommodate all modes of transportation?

- 5.43** To facilitate the efficient flow of traffic and provide effective traffic calming that supports the vision of a livable neighbourhood, three single-lane roundabouts are proposed as part of the internal road system. Along the major collector Street A, a roundabout is proposed at the intersection of Street B/Street S and at the intersection of Street C/Street W. Along the minor collector Street B, a roundabout is proposed at the intersection of Street J/Street C.
- 5.44** As part of the redevelopment plans for the site, sufficient property has been allocated for a 40 m diameter design at each of the roundabouts that could accommodate a WB-20.5 tractor trailer which is the most conservative design vehicle that would need to be accommodated. The design will also provide a minimum 15 m x 15 m sight triangle at each leg of the roundabouts. More detailed information regarding the design of the roundabouts will be provided in the future engineering design process. The detailed design will ensure that all modes of transportation

(pedestrians, cyclists, transit, motor vehicles and trucks) can be appropriately accommodated at each roundabout.

- 5.45** It is my opinion that the rights-of-way and configuration proposed for the three roundabouts will safely accommodate all modes of transportation.

Issue 32. Is the proposed location of the intersection of Street A and Upper Middle Road appropriately separated from the existing Upper Middle Road structure which crosses the Sixteen Mile Creek?

- 5.46** The 2021 TCR scenarios included a queuing analysis for all existing and proposed signalized intersections in the Primary Study Area, for 2041 and 2031 scenarios with and without the widening of Upper Middle Road. A summary has been provided in the 2021 TCR in Book 1, for both the 2041 and 2031 queuing analysis, in Paragraph 6.2.2 and Paragraph 7.3.2, respectively.
- 5.47** As outlined in Paragraph 4.104, BA Group also prepared a preliminary functional design for the Street A / Upper Middle Road intersection including designing a westbound left-turn lane. The resulting functional design, which was based on guidelines from the Transportation Association of Canada, indicates that there is sufficient space to create a 210 m long westbound left-turning lane at the Street A intersection, inclusive of 150 metres of storage and parallel length and a 60 metre taper. Such a design will accommodate the projected worst case 95th queue for the westbound left-turn movement of 146 metres, compared with a distance of 225 metres from the future stop bar on the east side of the intersection at Street A, to the beginning of the Sixteen Mile Creek bridge structure.
- 5.48** I am therefore of the opinion that the Street A / Upper Middle Road intersection location is appropriate and that an appropriate westbound left-turn lane design can be created which accommodates forecast site traffic without requiring upgrades or changes to the existing bridge structure over Sixteen Mile Creek.

Issue 33. Are the driveway access locations and frontage orientation appropriate having regard to the densities proposed and the design of the proposed roads?

- 5.49** The proposed redevelopment plan features three connections to the external road network; Street A at Upper Middle Road, Street A at Dorval Drive and Street B at Dorval Drive. Both Street A and Street B are proposed collector roads, which from a transportation planning hierarchy perspective, are the streets that should connect to arterial streets. The proposed redevelopment plan therefore achieves this intent.
- 5.50** Also, further to my evidence outlined in Paragraph 4.30 to 4.33, and per my response to Issue 29, BA Group has projected the future daily traffic volumes on internal streets (and specifically Streets A and B which connect to the external road network) and determined that the Streets A and B will

carry traffic volumes consistent with Table 4 of the Livable Oakville plan, with appropriate right-of-way protections.

- 5.51** Furthermore, and as outlined in my response to Issue 29 above, and as referenced in Paragraph 4.107 to 4.109, the capacity analysis undertaken at the 2041 horizon year for the internal intersections determined that all of the major internal intersections will operate acceptably at full build-out, with only auxiliary turn lanes required on Street A at the external intersections (Upper Middle Road and Dorval Drive). All other internal streets can appropriately accommodate forecast future traffic based on the single lane operation envisioned. The 2041 traffic analysis therefore confirms that the internal right-of-way provisions contained with the redevelopment plan, are sufficient to accommodate forecast site traffic.
- 5.52** Moreover, and per my response to Issue 32 above, the traffic analysis undertaken in the 2021 TCR confirms that the proposed Street A intersection location on Upper Middle Road, will not result in queues that have an impact on the adjacent bridge structure crossing Sixteen Mile Creek.
- 5.53** Therefore it is my opinion that the proposed driveway access locations are appropriate. In addition, based on BA Group's analysis, the internal road network will operate acceptably and the proposed classifications for internal roads are consistent with the criterial set out within the Livable Oakville plan. As a result, I am also of the opinion that the proposed design of the internal roads within the site have appropriate regard to the proposed densities within the plan.

Issue 34. Have the data collection and analysis related to parking requirements been sufficient to justify deviation of the parking standards contained in the Town's zoning by-law?

- 5.54** As referenced in Paragraph 4.137 to 4.150 as part of the Zoning By-law Amendment prepared for the site, the minimum parking requirements recommended for the proposed uses generally adhere to the requirements of the Town of Oakville Zoning By-law 2014-014 or the North Oakville Zoning By-law 2009-189. Where appropriate, alternative standards from Zoning By-law 2014-014 that pertain to mixed-use zones, or standards from North Oakville Zoning By-law 2009-189, have been proposed for specific areas within the site. These site-specific provisions have been adopted where the alternative parking standards are more suited to the built-form and more compact urban design vision for the site.
- 5.55** The proposed rate for all townhouses of 1.0 parking space per dwelling unit is consistent with Zoning By-law 2009-189 (Table 5.1A) and the requirements for Trafalgar Urban Core Zone 1. The proposed requirement rate, which in my opinion implicitly acknowledges that on-street parking will accommodate some visitor parking demand, was proposed because it supported the goal of minimizing vehicle ownership to the extent practical for these uses. The proposed rate was also therefore most likely to achieve the compact and urban design vision for the townhouses.
- 5.56** The proposed parking requirement rates for the townhouse units was carefully assessed for appropriateness in the context of the proposed development plan. Specifically the proposed townhouse uses were located interior to the site to ensure there was a buffer to any existing



residential uses. All local streets have also been proposed to feature on-street parking on at least one side of the road to ensure there is available on-street parking to support the townhouse uses. As a result, it is my opinion that the proposed parking requirement rate for townhouses is appropriate and in keeping with providing transit supportive development that minimizes automobile demand. I am also of the opinion that there is minimal risk that the proposed parking requirement for townhouse units will have a negative impact on existing residential areas.

- 5.57** The Zoning By-law 2014-014 (Table 5.2.2 in the By-law) minimum parking rates is being complied with for the apartment dwellings proposed within the mixed-use zones. The Zoning By-law 2014-014 (Table 5.2.1) minimum parking rates is being complied with for apartment dwellings proposed for high-density residential zones outside of the mixed-use zones.
- 5.58** A site specific parking requirement for non residential uses of 1.0 parking space/40 m² net floor area (“NFA”) is proposed. This requirement is comparable to the requirement for non-residential uses in a mixed use zone as per Zoning By-law 2014-014 (Table 5.2.2) for the Bronte Village and Kerr Village areas.
- 5.59** The proposed site specific requirement for non residential uses in mixed-use zones is consistent with the intent and approach taken in the Town of Oakville’s Zoning By-law 2014-014 where area specific standards for non residential uses have been adopted. The proposed standard is therefore intended to support the creation of supportive non residential uses in the ground floor of mixed-use buildings consistent with the vision of the development plan. Moreover the proposed development includes the use of on-street parking to supplement the non-residential parking requirements.
- 5.60** The 2021 TCR also recommends that the site specific By-law make provisions for allowing off-site parking for non-residential uses within the mixed-use areas. This will allow for the flexibility for projects in the mixed-use areas to pool the non-residential supply into one or two single locations where publicly available and non-residential parking could be provided. Any off-site parking provisions would be confirmed and secured through the Site Plan application process.
- 5.61** I also note that the proposed mixed-use areas are located far from existing residential neighbourhood areas and will therefore not impact any existing residents. Based on the foregoing, I am therefore of the opinion that the proposed site specific parking requirements for non-residential uses in the mixed use zones are appropriate.
- 5.62** Per my evidence above in Paragraph 4.148 above, the existing Paddock Building (i.e. the Stables) is proposed to be retained as part of the heritage preservation strategy of the site and adaptively re-used to accommodate a variety of uses under the proposed community commercial zoning. To support the adaptive re-use of this building, a site specific parking requirement of 1 space per 11 m² is proposed which is 50% of the standard community use parking requirement set out in Zoning By-law 2014-14 (Table 5.2.1) of 1.0 space/22.0 m² NFA. The proposed site specific rate has been discounted by 50% to reduce the number of spaces that would be required to be provided on-site as part of a future adaptive re-use, and in reflection of the increased availability of on-street parking in the area.

- 5.63 Per my evidence above in Paragraph 4.149, the community commercial zone (Paddock Building) is adjacent to the Retail Main Street, where the right-of-way width has been increased to allow for on-street parking on both sides of the road, and the design for the adjacent local streets includes parking on one side of the road. It is therefore appropriate to rely upon on-street parking to accommodate a portion of the parking requirement related to the community commercial uses proposed within the Paddock Building which will support the viability of this structure being adaptively re-used.
- 5.64 I note that there are examples in the Town of Oakville where the Town has deemed it appropriate to reduce or eliminate a parking requirement to support an intended use. By way of example in Downtown Oakville, where there is a supply of on-street and off-street parking available, there is no minimum requirement for non residential uses to supply parking (Town of Oakville Zoning By-law 2014-014, Table 5.2.2).
- 5.65 Based on the foregoing it is my opinion that the data collection and analysis related to parking requirements have been sufficient to justify deviation of the parking standards contained in the Town's zoning by-law.

Issue 35. Have the data collection and analysis been sufficient to determine the impacts of the proposed development on the Queen Elizabeth Way ramps at Dorval Drive?

- 5.66 The 2021 TCR includes a capacity and queueing analysis at the intersection of Dorval Drive / Queen Elizabeth Way (QEW) Westbound On/Off Ramp and Dorval Drive / Queen Elizabeth Way (QEW) Eastbound On/Off Ramp. Detailed queueing results for these two ramps have been provided in the 2021 TCR.
- 5.67 As shown in the 2021 TCR study, the Dorval Drive and QEW westbound off-ramp is expected to operate with heavy westbound right-turning volumes during the weekday afternoon peak period resulting in this intersection operating at capacity in 2041 horizon year. Future traffic from area growth and the addition of the site traffic has only a modest impact on traffic operations as traffic diverts to alternative routes due to congestion. For this reason, the queueing analysis shows similar queues for both the existing and 2041 scenarios. As the westbound off-ramp has more than 600 metres of storage, the analysis confirms that even under the worst-case scenario, with an estimated queue of 250 metres, there is minimal risk that future traffic queues would reach the travel lanes of the QEW. I am therefore of the opinion that the proposed site impact to the QEW westbound off ramp can be appropriately accommodated.
- 5.68 As summarized in the 2021 TCR Book 1 - Table 30, Dorval Drive at the QEW eastbound off-ramp operates under capacity in all future scenarios. It is therefore also my opinion that the site traffic impact to the QEW eastbound off-ramp can be appropriately accommodated.
- 5.69 Therefore it is my opinion the data collection and analysis are sufficient to determine the impacts of the proposed redevelopment on the QEW ramps at Dorval Drive and that the proposed redevelopment impact can be accommodated at these two off-ramp intersections.

Regional Municipality of Halton Issues

Issue 54. Has there been sufficient information and analysis prepared in the transportation and noise reports provided by the applicant to fully and accurately assess the development impacts and proposed mitigation measures as, among other things,

- (a) the traffic counts are not consistent with the Region's traffic counts;**
- (b) a sensitivity analysis was not completed to include background development traffic;**
- (c) traffic diversions have been assumed but details have not been provided;**
- (d) the study is premised on inappropriate horizon years and unclear growth rates;**
- (e) queuing analysis and intersection spacing has not been completed or designed appropriately; and**
- (f) there is missing or inaccurate noise analysis and/or discussion of mitigation/barriers?**

- 5.70** In response to (a), and as referenced in Paragraph 4.59 above, the BA Group analysis relied upon the most recent traffic counts available in the study area prior to COVID-19 impacts. These counts were obtained from a variety of sources including from the Town and Region, as well as counts from BA Group's database. A list of intersections and related traffic counts proposed to be used were also set out and approved by the Town and Region when the Terms of Reference was finalized in October 2020. It therefore my opinion that the updated traffic counts utilized as the basis for the 2021 TCR are appropriate, and they were reviewed and approved by both the Town and Region.
- 5.71** In response to (b), as referenced in Paragraph 4.70 to 4.73, BA Group has completed a comprehensive assessment that includes robust and significant allowances for background development. This includes extracting background traffic information from the Region of Halton's 2031 PM model and further supplementing those allowances to be conservative. It is therefore my opinion that a sensitivity analysis for background growth allowances is not required, nor appropriate.
- 5.72** In response to (c), as referenced in Paragraph 5.39 to 5.41, BA Group has utilized a mesoscopic model to estimate and predict the number of trips that would be diverted to the new Street A. The model, which will balance the delay between the various route choices including Street A once open, accounts for this diversion through a user equilibrium path assignment feature. It is therefore my opinion that there has been sufficient information and analysis in the 2021 TCR in regard to horizon years and diverted traffic, with a particular focus on traffic diverted to Street A.
- 5.73** In response to (d), it is noted that a revised build-out timing estimate has been developed by ClubLink since the original 2016 TCR was prepared. The estimated schedule, which is preliminary,



estimates that with a potential draft plan approval in 2022, that the project would develop over a 15-year period, subject to market demand, with full build-out estimated by 2040. The horizon year of 2041 was therefore selected as reasonable for the analysis.

- 5.74** In order to evaluate the impact of the redevelopment during the earlier phases, the 2031 horizon year was also evaluated as it represents completion of approximately half of the redevelopment proposal. The 2031 horizon for the analysis also aligns with the Region's macroscopic transportation model's 2031 origin-destination matrices as well as the long-term plans within Oakville's Transportation Master Plan. The 2031 horizon year is therefore appropriate and consistent with current Region of Halton and Town of Oakville planning horizons.
- 5.75** With respect to alleged unclear growth rates, as has been outlined above, background growth has been accounted for through the incorporation of 18 individual background sites. The traffic allowances for these developments have been incorporated directly from the individual Transportation Impact Studies filed for those projects. With respect to traffic growth from beyond the Primary Study Area, this growth was accounted for by incorporating growth directly from the Region of Halton's 2031 macroscopic model. All growth was subsequently assigned to individual corridors in the Primary Study Area by BA Group's mesoscopic model based on the demand and capacity across the system.
- 5.76** It is therefore my opinion that there has been sufficient information and analysis in the 2021 TCR to confirm how growth was allocated to the individual corridors in the Primary Study Area.
- 5.77** **In response to (e)**, I note the 2021 TCR scenarios included a queuing analysis for all existing and proposed signalized intersections in the Primary Study Area, for 2041 and 2031 scenarios, with and without the widening of Upper Middle Road. A summary has been provided in the 2021 TCR in Book 1 at Section 6.2.2 and 7.3.2.
- 5.78** I am therefore of the opinion that there has been sufficient information and analysis in the 2021 TCR in regard to a detailed queuing analysis to confirm that future queues can be reasonably accommodated with appropriate intersection spacing.
- 5.79** **In response to (f)** I note that the issue of missing or inaccurate noise analysis and/or discussion of mitigation/barriers is addressed in the Witness Statement of Sheeba Paul of HGC Engineering.

Issue 55. Are the inputs and assumptions for existing and background development traffic accurate, as the traffic counts are not consistent with the Region's traffic counts and a sensitivity analysis was not completed to include background development traffic?

- 5.80** See responses to Issue 54 (a) and (b) above.

Issue 56. Are the inputs and assumptions for future traffic appropriate given the analysis with respect to existing and background development traffic, the need to identify appropriate horizon years to capture traffic demands of the total build out and interim periods, and the need for clarifications on the appropriate growth rate used to calculate background development traffic?

5.81 See responses to Issue 54 (b) and (d) above.

Issue 57. Do the Applications have appropriate regard for the Region's Transportation Impact Study Guidelines and Highway Dedication Guidelines?

5.82 The 2021 TCR adheres to the Region's Transportation Impact Study (TIS) Guidelines. Moreover, as noted in my evidence above, the scale and breadth of analysis undertaken in the 2021 TCR significantly exceeds that of a typical TIS for an individual development site. I am therefore of the opinion that the Glen Abbey application has appropriate regard for the Region's Transportation Impact Study Guidelines.

5.83 As referenced in Paragraph 4.39 to 4.45, for the purpose of road right-of-way widening and future road improvements, the Region requires a 47 m right-of-way along Upper Middle Road and a 35 m right-of-way along Dorval Drive. The lands that are part of the site, that are within the required right-of-ways, shall be dedicated to the Region.

5.84 The existing right-of-way width on Upper Middle Road is variable along the site frontage, with parts of it less than 47 m. The width varies due to the curve on Upper Middle Road in the vicinity of the site. There is also a significant easement along the south side of Upper Middle Road in the site vicinity associated with a pipeline. The existing easement will be retained as part of the development application and as such, all new development has been set back significantly from the south property limit of Upper Middle Road to accommodate the easement.

5.85 Since the easement lands will need to be retained and are not being occupied as part of the redevelopment, the 47 m right-of-way required by the Region can be accommodated, if the right-of-way is expanded to include the easement lands. Therefore, sufficient protection has been made within the redevelopment plan, to accommodate the 47m right-of-way requirement.

5.86 I have also been advised during the redevelopment application process, that the Region of Halton was contacted to coordinate how the existing easement could be incorporated into the regional right-of-way.

5.87 Recognizing that does not affect the easement, the expansion of the right-of-way and the associated coordination with the pipeline, can be undertaken by the Region of Halton in the future, when the Region moves forward with the widening of Upper Middle Road to six lanes.

5.88 With respect to Dorval Drive, which is also a Regional road, based on a review of the existing right-of-way width along Dorval Drive, I am of the opinion that no further right-of-way is required to accommodate the 35 metre right-of-way width, required by the Region of Halton.

- 5.89** I also note that the proposed redevelopment plan includes a daylight triangle measuring 15 m along Upper Middle Road and 15 m along Street A, which is proposed to be dedicated to the Region for the purpose of road right-of-way widening and future road improvements. A daylight triangle measuring 15 m along Dorval Drive and 15 m along Old Abbey Lane (Street A as north leg), as well as at Street B, is also proposed to be dedicated to the Region, for the purpose of road right-of-way widening and future road improvements. Appropriate property protections at the proposed site access intersections have therefore been provided consistent with the Region's guidelines and requirements.
- 5.90** Based on the foregoing, it is my opinion that the 2021 TCR has appropriate regard for the Region's Transportation Impact Study Guidelines and the Highway Dedication Guidelines.

Issue 58. Is the study area for the transportation study sufficient to assess the impacts of the development and proposed mitigation measures to contain all municipal, regional and provincial roadways that will be noticeably affected by the trips generated by the proposed development, including:

- (a) Upper Middle Road at Third Line;**
 - (b) Upper Middle Road at Sixth Line;**
 - (c) Trafalgar Road at McCraney Road/White Oaks; and**
 - (d) Trafalgar Road at Leighland Avenue/Iroquois Shore?**
- 5.91** See my response to Issue 26. I am of the opinion that the study area of the Transportation Study provides a comprehensive assessment of the impacts of future traffic growth, including site impacts. Where impacts are identified, either due to background growth or site traffic, mitigating measures have been recommended for all roads within a wide study area including the intersections noted above. The study area is therefore appropriate.
- 5.92** Also see my response to Issue 30. Specifically, BA Group undertook a mesoscopic modelling and forecasting process, which determined the expected diversion along Street A.
- 5.93** It is my opinion that the use of the *Visum* mesoscopic model methodology over a wider study area, and the addition of intersections to the Primary Study Area, inform a study area of sufficient size and scope to appropriately determine the traffic impacts of the proposed redevelopment.

Issue 59. Should a sensitivity analysis be undertaken to assess the diversion percentages assumed for Street 'A'?

- 5.94** My response to this issue is the same as my responses to Issue 30. Specifically, as part of the 2021 TCR, BA Group undertook a detailed mesoscopic modelling and forecasting process, which estimates the expected diversion along Street A, as an output of the model.

- 5.95** This compares to BA Group's 2016 TCR, which assessed a static diversion percentage for Street A. The diversion percentages were assumed, based on my estimate of how much traffic I thought would divert, which I made, based on my review of the capacity analysis at the time and based on engineering judgement. For reference, the 2016 TCR estimated a static diversion percentage of 25% for the build-out scenario at the time.
- 5.96** I note that Issue 59, which was drafted prior to the 2021 TCR being completed, was written to determine if a sensitivity analysis was required to evaluate potential impacts, if a greater or lesser diversion occurred, compared to what was estimated in the 2016 TCR.
- 5.97** The methodology adopted in the 2021 TCR, to forecast future traffic volumes is significantly different than what was used in the 2016 TCR. As discussed previously, a comprehensive mesoscopic model was developed for the 2021 TCR. This model, which is significantly more advanced and comprehensive in scope, allows the diversion of Street A to be calculated as an output of the model, based on the demands and capacity of the overall road network. This approach is the most comprehensive and appropriate way for estimating how many trips might divert from Dorval Drive to Street A. I am therefore of the opinion that a sensitivity analysis to assess diversion percentages is not required and that the methodology used to estimate the diversion is appropriate.

Issue 60. Should a sensitivity analysis be undertaken to assess impacts of the development if Upper Middle Road will not be widened in 2027?

- 5.98** Per my response to Issue 28 above, the 2021 TCR determined that the widening of Upper Middle Road is not required to accommodate the redevelopment of the site. Notwithstanding a sensitivity analysis with and without Upper Middle Road was undertaken to further understand the additional benefit that would accrue if Upper Middle Road was widened.

Issue 61. Does the Traffic Impact Study adequately evaluate and where applicable provide mitigation for the following:

- (a) Impacts on the Regional Roads, including Upper Middle Road and Dorval Drive;**
 - (b) Impacts to the QEW ramps at Dorval Drive;**
 - (c) Impacts from the development traffic and the potential for impeding onto the 16 Mile Creek structure;**
 - (d) Land dedications or protection for the future widening of Regional Roads, including but not limited to Upper Middle Road?**
- 5.99** **In response to (a)**, as stated in my responses to Issues 27 and 28, I am of the opinion that the Transportation Impact Study appropriately evaluates the impacts to Regional Roads, including Upper Middle Road and Dorval Drive. The 2021 TCR also identifies recommended intersection improvements to mitigate the impacts associated with background traffic growth and traffic from

the redevelopment of the site. Moreover, the 2021 TCR also assesses the operation at a corridor level of several other Regional Roads such as Trafalgar Road, Bronte Road, Dundas Street and William Halton Parkway. It is therefore my opinion that the 2021 TCR adequately evaluates the transportation impacts of the redevelopment and considers appropriate mitigation where required, for the Regional Roads, including Upper Middle Road and Dorval Drive.

- 5.100** **In response to (b)** similar to my response to Issue 27 and Issue 35 above, I am of the opinion that the data collection and analysis are sufficient to determine the impacts of the proposed redevelopment on the QEW ramps at Dorval Drive and that the impact of the proposed redevelopment can be appropriately accommodated.
- 5.101** **In response to (c)**, see Paragraph 4.101 to 4.104 and my response to Issue 32. I am of the opinion that development related traffic will not result in an impact to the Sixteen Mile Creek bridge structure.
- 5.102** **In response to (d)**, as discussed in my response to Issue 57 above, I am of the opinion that the redevelopment plan provides adequate protection for any required widening of Upper Middle Road. In the case of Dorval Drive, the existing right-of-way already provides the 35-metre minimum required width and a property conveyance is not required. On Upper Middle Road, there is a significant Enbridge easement on the south side of the road through the development lands, which sets the future development significantly back from the street. The presence of the easement will therefore accommodate any future lands necessary for a widening of Upper Middle Road. Moreover, a daylight triangle measuring 15 m x 15 m has been provided at all intersections with Regional Roads, consistent with Regional requirements. It is therefore my opinion that the 2021 TCR has adequately considered land dedications or protection for the future widening of Regional Roads, including both Upper Middle Road and Dorval Drive.



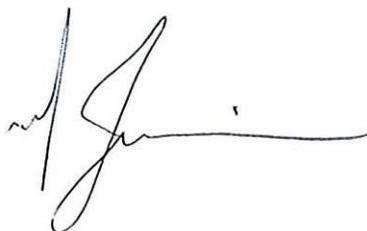
6.0 LIST OF DOCUMENTS REFERRED TO

- BA Group Glen Abbey Golf Club Proposed Redevelopment Transportations Considerations Report, February 2021, (Book 1, Book 2 and Book 3)
- Original Terms of Reference for 2016 TCR and Updated Terms of Reference for 2021 TCR
- BA Group Supplementary Information
 1. Daily Traffic Volume Calculations (Street A and Street B)
 2. Supplementary Mesoscopic Model Calibration
 3. Supplementary Queueing Summary
- Livable Oakville Plan (Town of Oakville OP – 2009)
- Switching Gears, Oakville Transportation Master Plan (2012 and 2018 Review)
- Oakville Capital Forecast: 2018-2027 (February 26, 2018)
- Town of Oakville Transit Strategy (January 2010)
- Town of Oakville Standard Drawings (2013)
- Town of Oakville Active Transportation Master Plan (2017)
- Halton Region Official Plan (2015 Consolidation)
- Halton Region Transportation Master Plan (2011)
- Halton Region Active Transportation Master Plan (2015)
- Region of Halton's Highway Dedication Guidelines / Right-of-Way Guidelines
- Halton Region 2020-2029 Capital Budget (2021)
- Metrolinx – 2041 Regional Transportation Plan
- Provincial Policy Statement
- Growth Plan for the Greater Golden Horseshoe
- Ministry of Transportation Ontario, Transit-Supportive Guidelines (2012)

7.0 ATTACHMENTS

Attachment A: Curriculum Vitae for Mark D. Jamieson

Attachment B: Acknowledgement of Experts Duty



Date...May 17th 2021.....

Signature

APPENDIX A:

Curriculum Vitae for Mark D. Jamieson



**APPENDIX B:
Acknowledgement of Experts Duty**

