

February 18, 2022

SW20604

Mr. Ralph Holmes
Dialog Design
35 John Street, Suite 500
Toronto, ON, M5V 3G6

Re: Noise Impacts from THP M-Site Parking Garage on Bronte College

Dear Mr. Holmes,

TT is pleased to provide this letter of opinion regarding potential noise impacts from the proposed Trillium Health Partners Mississauga Hospital (THP M-Site) 8 storey parking structure (Project) on the nearby Bronte College facility.

TT has previously prepared a noise impact study for the Project: *Trillium Health Partners Mississauga Hospital Parking Structure 100 Queensway West, Mississauga, Ontario Noise Impact Study* dated August 5, 2021. As detailed in the noise impact study, the parking structure will include several ventilation fans, located on the northeast and southwest sides of the parking structure with the evaluation of the Bronte College facility as a sensitive noise receptor for these sources, The noise impacts at the receptor were found to be within applicable regulatory limits.

Further comment on the Project noise impact is provided herein.

1. Project Potential Noise Impacts

Noise from automobile traffic at a private facility is not typically considered as part of a noise assessment conducted in accordance with MECP guidelines (NPC-300 Definition of a Stationary Source):

The following are examples of sources, activities, equipment or facilities that are not considered as stationary sources in the context of Part B and Part C of this guideline: ... parking lots for private passenger vehicles at offices or commercial facilities such as retail stores, plazas or shopping malls, or employee parking lots at industries and commuter parking lots.

However, based on the nature of the concern, further assessment of the potential impacts of vehicle traffic in the Project may be compared to the Leq_{1hr} 50 dBA daytime and 45 dBA nighttime sound level limits.

1.1. Traffic

It is TT's opinion that noise from automobiles driving through the parking structure is unlikely to result in a significant noise impact at Bronte College, for the following reasons:

- Vehicle speed in the parking structure is expected to be low, and traffic volumes are expected to be small throughout most of the day. Higher traffic volumes and associated vehicle noise impacts may occur during limited times of the day, such as during shift changes at the Hospital when many vehicles are expected to enter or leave the Project.
- The parking structure will be constructed in an area already used as a parking lot, therefore there are similar pre-existing noise impacts. However, it is acknowledged that the parking structure will support increased traffic to the area, as well as bring noise sources to a higher elevation than the current at-grade lot.
- The parking structure itself will act as a significant noise barrier to some of the vehicle activity, since each floor of the parking structure will act as a roof for the traffic below it, reducing the ability of sound to travel upwards towards the higher floors of the Bronte College facility. However, as a concrete structure, some of the noise generated by vehicles is expected to be reflected within each of the floors and radiated horizontally out the open sides of the structure.
- The highest noise impact will consist of vehicular traffic driving along the south pathway, closest to the Bronte College facility, with lower impacts expected with traffic along the north side of the parking structure.
- TT understands that the parking structure's south facades, while not closed, will be fitted with partial safety walls and light baffles, further diffusing the noise emissions that would otherwise be toward the Bronte College facility.
- The parking structure will likely break line of sight, and act as a noise barrier, for sources located further to the north, such as traffic in the driveway between the parking structure and THP M-Site, and some stationary equipment (such as HVAC units) located on THP M-Site itself. This is expected to further offset possible noise impacts from the parking structure.

1.2. Project Traffic Calculation

Based on the US Department of Transportation Federal Highway Administration's *Traffic Noise Model Technical Manual, Figure 6: A-Weighted Vehicle Noise Emission Levels Under Cruise Conditions*, as automobile speeds fall below approximately 10 mph (15 kmph), their sound emissions approach approximately 50 dBA sound pressure level at a distance of 15m from the automobile.

Based on a conservative computational model with sources representing traffic in the parking garage at an assumed volume of 30 vehicles per hour, and receivers representing Bronte College at a distance of 30m, the predicted maximum sound pressure level at the Bronte College facility is estimated to be approximately 45 dBA, which is below the sound level limits that would apply to a stationary source overnight.

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2. Concluding Remarks

Based on the expected level of traffic at the parking structure, the orientation of the structure and the typical sound levels from vehicles expected, TT expects the noise emissions associated with the parking structure to be within the limits that would normally apply to a stationary noise source.

Please do not hesitate to contact us if there are any questions.

Yours Truly,
Thornton Tomasetti



Robert Fuller, P.Eng.
Project Engineer

Reviewed by:

Galen Wong, M.A.Sc.
Senior Project Director