Noise Feasibility Study
Proposed Residential Development
(Graydon Banning and Martillac Estates)
Town of Oakville, Ontario

Prepared for:
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1 Introduction & Summary

HGC Engineering was retained by Graydon Banning Ltd. and Martillac Estates Inc. to conduct a noise feasibility study for a proposed residential development which includes two properties (Graydon Banning and Martillac) located north of Dundas Street West, east of the future Proudfoot extension and on either side of the future William Halton Parkway in the Town of Oakville, Ontario. Lands surrounding the subject site are a mixture of existing, proposed and future residential lands. The study is required by the Municipality as part of the planning and approvals process.

This report reflects the latest version of the composite lotted plan prepared by Korsiak Urban Planning dated December 17, 2018; updates the noise predictions from the previous study dated April 25, 2018, and provides responses to comments from the Region of Halton in Appendix C.

The primary noise sources impacting the site are road traffic on Dundas Street West and road traffic on the future William Halton Parkway. Relevant road traffic data was obtained from HGC project files and the Region of Halton to predict future traffic sound levels at the locations of the proposed residential dwelling facades and in the outdoor living areas. The predicted sound levels were compared to the guidelines of the Ministry of the Environment, Conservation and Parks (MECP) and the Municipality.

The sound level predictions indicate that the future road traffic sound levels will exceed MECP guidelines at the dwelling units with exposure to the Dundas Street West and adjacent to William Halton Parkway. The predicted sound levels at the lots towards the interior of the subdivision are within the MECP guidelines and do not require noise mitigation measures.

Physical mitigation in the form of acoustic barriers are required to shield the outdoor living areas for flanking rear yard closest to William Halton Parkway. Central air-conditioning systems will be required for the proposed dwellings adjacent to William Halton Parkway. Forced air ventilation systems with ducts sized to accommodate the future installation of central air conditioning by the occupant are required for dwellings with some exposure to William Halton Parkway or Dundas Street West. Upgraded glazing constructions will be required for proposed dwellings adjacent to...
William Halton Parkway. Any building construction meeting the minimum requirements of the Ontario Building Code will provide sufficient acoustical insulation for the remaining dwelling units. Associated acoustical requirements are specified in this report. Warning clauses are recommended to inform future residents of the road traffic noise impacts, to address sound level excesses and inform of future commercial uses. A detailed noise study should be performed for the development when lotting and grading information is available to refine the acoustic recommendations.

2 Site Description & Noise Sources

The proposed residential development is located north of Dundas Street West, east of the future Proudfoot extension and on either side of the future William Halton Parkway in the Town of Oakville, Ontario. Figure 1 shows a key plan of the site. A composite lotted plan prepared by Korsik Urban Planning dated December 17, 2018 is shown in Figure 2. Figure 2 also indicates prediction locations and a Project North for reference purposes. The proposed development will consist of detached, high density residential, rear lane townhouse blocks, an urban core, storm water management ponds, employment areas, a village square along with associated roadways.

HGC Engineering personnel visited the site during June 2015. The acoustical environment surrounding the site is urban in nature. The primary source of sound impacting the site is vehicular traffic on Dundas Street West and the future William Halton Parkway. Dundas Street West is currently four lanes (two lanes in each direction) but is being widened to six lanes in the future, as indicated by the traffic data provided in Appendix A. William Halton Parkway is a future collector roadway to be 4 lanes (two lanes in each direction). The smaller internal roads within the development were not included in the analysis, since these roads were considered to have relatively low traffic volumes.

Lands immediately to the south are existing and future residential lands. Oakville-Trafalgar Memorial Hospital, is located to the west of the site at the northwest corner of Third Line and Dundas Street West. At the southeast corner of Third Line and Dundas Street is a commercial plaza. There are no significant sources of stationary noise within 500 m of the subject site.
3 Noise Level Criteria

3.1 Road Traffic Noise

Guidelines for acceptable levels of road traffic noise impacting residential developments are given in the MECP publication NPC-300, “Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning”, release date October 21, 2013, and are listed in Table I below. The values in Table I are energy equivalent (average) sound levels [LEQ] in units of A-weighted decibels [dBA].

<table>
<thead>
<tr>
<th>Area</th>
<th>Daytime $L_{EQ}$ (16 hour) Road</th>
<th>Nighttime $L_{EQ}$ (8 hour) Road</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor Living Area</td>
<td>55 dBA</td>
<td>--</td>
</tr>
<tr>
<td>Inside Living/Dining Room</td>
<td>45 dBA</td>
<td>45 dBA</td>
</tr>
<tr>
<td>Inside Bedroom</td>
<td>45 dBA</td>
<td>40 dBA</td>
</tr>
</tbody>
</table>

Daytime refers to the period between 07:00 and 23:00, while nighttime refers to the period between 23:00 and 07:00. The term "Outdoor Living Area" (OLA) is used in reference to an outdoor patio, a backyard, a terrace or other area where passive recreation is expected to occur. Balconies that are less than 4 m in depth are not considered to be outdoor living areas under MECP guidelines.

The MECP guidelines allow the daytime sound levels in an OLA to be exceeded by up to 5 dBA, without mitigation, if warning clauses are placed in the purchase and rental agreements to the property. Where OLA sound levels exceed 60 dBA, physical mitigation is recommended to reduce the OLA sound level to below 60 dBA and as close to 55 dBA as technically, economically and administratively feasible. The Region of Halton’s minimum noise barrier height is 2.4 m.

A central air conditioning system as an alternative means of ventilation to open windows is required for dwellings where nighttime sound levels outside bedroom or living/dining room windows exceed 60 dBA or daytime sound levels outside bedroom or living/dining room windows exceed 65 dBA. Forced-air ventilation with ducts sized to accommodate the future installation of
air conditioning by the occupant is required when nighttime sound levels at bedroom or living/dining room windows are in the range of 51 to 60 dBA or when daytime sound levels at bedroom or living/dining room windows are in the range of 56 to 65 dBA.

Building components such as walls, windows and doors must be designed to achieve indoor sound level criteria when the plane of window nighttime sound level is greater than 60 dBA or the daytime sound level is greater than 65 dBA due to road traffic noise.

Warning clauses to notify future residents of possible excesses are also required when nighttime sound levels exceed 50 dBA at the plane of the bedroom or living/dining room window and daytime sound levels exceed 55 dBA in the outdoor living area and at the plane of the bedroom or living/dining room window due to road traffic.

4 Traffic Noise Predictions

4.1 Road Traffic

Road traffic volumes for Dundas Street West, were originally obtained from HGC Engineering project files for other projects in the area, in the form of ultimate Average Annual Daily Traffic (AADT) values. The data was verified by the Region of Halton, and is provided in Appendix A. An ultimate AADT of 55 000 vehicles per day was applied along with a speed limit of 60 km/h. A commercial vehicle percentage of 13% was used in the analysis and was further split into 8% medium trucks and 5% and heavy trucks.

Projected 2031 peak hour volume for the future William Halton Parkway were obtained from comments dated July 30, 2018 from the Region of Halton. A commercial vehicle percentage of 6% was used in the analysis and split into 4% medium trucks and 2% heavy trucks. A speed limit of 60 km/h as indicted in the Environmental Study Report was used. Table II summarizes the traffic volume data used in this study. The internal roadways in the subdivision are low volume roadways and therefore were not considered in the analysis.
Table II: Ultimate and Projected Road Traffic Data

<table>
<thead>
<tr>
<th>Road Name</th>
<th>Cars</th>
<th>Medium Trucks</th>
<th>Heavy Trucks</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dundas Street West</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ultimate</strong></td>
<td>Daytime</td>
<td>43 065</td>
<td>3 960</td>
<td>2 475</td>
</tr>
<tr>
<td></td>
<td>Nighttime</td>
<td>4 785</td>
<td>440</td>
<td>275</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>47 850</td>
<td>4 400</td>
<td>2 750</td>
</tr>
<tr>
<td><strong>William Halton Pkwy</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2031 Projected</strong></td>
<td>Daytime</td>
<td>27 664</td>
<td>1 178</td>
<td>588</td>
</tr>
<tr>
<td></td>
<td>Nighttime</td>
<td>3 074</td>
<td>130</td>
<td>66</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>30 738</td>
<td>1 308</td>
<td>654</td>
</tr>
</tbody>
</table>

4.2 Road Traffic Noise Prediction

To assess the levels of road traffic noise which will impact the site in the future, predictions were made using STAMSON version 5.04, a computer algorithm developed by the MECP. Sample STAMSON output is included in Appendix B.

Future daytime sound levels were predicted at 1.5 m above ground level in outdoor living areas to determine whether noise barriers will be necessary. A 6 m front yard setback, a 7 m rear yard setback, a 4.5 m exterior side yard setback for lots flanking major roadways and a 1.5 m setback for interior side yards were used in the analysis. Sound levels were also predicted at the plane of the top storey bedroom/living room windows during daytime and nighttime hours to investigate ventilation requirements.

Prediction locations were chosen around the residential site, as shown in Figure 2, to obtain a good representation of the future sound levels at various blocks with exposure to the roadways. The results of these predictions are summarized in Table III. The acoustic requirements may be subject to modifications if the plan is changed significantly and when lotting and detailed grading information becomes available.
Table III: Predicted Future Sound Levels [dBA], Without Mitigation

<table>
<thead>
<tr>
<th>Prediction Location</th>
<th>Description</th>
<th>Daytime - in OLA $L_{eq}(16)$</th>
<th>Daytime - at Façade $L_{eq}(16)$</th>
<th>Nighttime - at Façade $L_{eq}(8)$</th>
</tr>
</thead>
<tbody>
<tr>
<td>[A]</td>
<td>Townhouses fronting onto Street M</td>
<td>&lt;55</td>
<td>58</td>
<td>51</td>
</tr>
<tr>
<td>[B]</td>
<td>Freehold lane based townhouses flanking onto Street M</td>
<td>--</td>
<td>58</td>
<td>51</td>
</tr>
<tr>
<td>[C]</td>
<td>Freehold lane based townhouses fronting onto William Halton Parkway</td>
<td>--</td>
<td>68</td>
<td>61</td>
</tr>
<tr>
<td>[D]</td>
<td>Second row of townhouses from William Halton Parkway</td>
<td>--</td>
<td>&lt;55</td>
<td>&lt;50</td>
</tr>
<tr>
<td>[E]</td>
<td>Dwellings flanking onto William Halton Parkway</td>
<td>65</td>
<td>68</td>
<td>61</td>
</tr>
<tr>
<td>[F]</td>
<td>Townhouses flanking onto Street C</td>
<td>--</td>
<td>56</td>
<td>&lt;50</td>
</tr>
<tr>
<td>[G]</td>
<td>Freehold lane-based townhouses with some exposure to William Halton Parkway</td>
<td>--</td>
<td>66</td>
<td>59</td>
</tr>
<tr>
<td>[H]</td>
<td>Freehold lane-based townhouses with some exposure to William Halton Parkway</td>
<td>--</td>
<td>57</td>
<td>50</td>
</tr>
<tr>
<td>[I]</td>
<td>Freehold lane-based townhouses with some exposure to William Halton Parkway</td>
<td>--</td>
<td>55</td>
<td>&lt;50</td>
</tr>
</tbody>
</table>

5 Traffic Noise Recommendations

The sound levels at all lots in the interior of the subdivision along internal roadways are within the MECP guidelines. With no mitigation, there will be sound level excesses at the future residential dwellings along and in close proximity to Dundas Street West and William Halton Parkway. The following discussion outlines recommendations for acoustic barriers, ventilation requirements, upgraded building façade constructions, and warning clauses to achieve the noise criteria stated in Table I.

5.1 Outdoor Living Areas

a) Lots with exposure to William Halton Parkway

*Lots flanking onto William Halton Parkway*

The predicted daytime sound levels in the OLAs of the flanking lots on to William Halton Parkway will be 65 dBA (prediction location [E]), 10 dBA in excess of the MECP’s limit of 55 dBA. Physical mitigation in the form of an acoustic barrier is required. An acoustic barrier 3.2 m in height will reduce sound levels in the OLA to 55 dBA. The barrier heights required to meet 55 to 59 dBA for the rear yards at all prediction locations are summarized in Table IV.
Lane based townhouses may have balconies less than 4 m in depth on the shielded side of the buildings. Physical mitigation is not required.

**Table IV: Summary of Barrier Heights (m) Required to Meet Various Sound Levels**

<table>
<thead>
<tr>
<th>Prediction Location</th>
<th>Desired Sound Level (dBA)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>55</td>
</tr>
<tr>
<td>A - D</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>3.2</td>
</tr>
<tr>
<td>F - I</td>
<td></td>
</tr>
</tbody>
</table>

When detailed grading information and lotting is available, the acoustic barrier heights should be refined. Figure 3 shows the approximate location and extent of the acoustic barriers. Acoustic barriers can be any combination of an earth berm with an acoustic wall on top. All noise barriers must return back to the dwelling units so that the rear yards are entirely shielded from the roadway. The wall component of the barrier should be of a solid construction with a surface density of no less than 20 kg/m². The walls may be constructed from a variety of materials such as wood, brick, pre-cast concrete or other concrete/wood composite systems provided that it is free of gaps or cracks within or below its extent.

Noise warning clauses are required for the lots and blocks with minor excesses and with acoustic barrier requirements.

**b) Remainder of the Lots**

The predicted daytime sound levels in the OLA’s of the remainder of the lots are less than 55 dBA, thus physical mitigation will not be required.

**c) Dundas Urban Core, Neighbourhood Centre, Residential High Density**

The Dundas Urban Core block with direct exposure to Dundas Street (Dundas Urban Core); Neighbourhood Centre and High Density Block (Residential High Density Block) with direct exposure to William Halton Parkway have not been considered in this analysis, because the land use has not been specified. A detailed noise study should be conducted to determine the acoustic requirements such as acoustic barriers, ventilation requirements and to specify building components when the siting, grading and potential land use has been finalized. If large commercial establishments such as grocery stores or large hardware stores, car washes or auto maintenance
garages are proposed, particularly those involving significant trucking activity or mechanical
equipment such as refrigeration condensing units or rooftop cooling towers, individual noise
studies should be required to ensure that the noise emissions from these facilities complies with
MECP guideline limits contained in NPC-300.

5.2 Indoor Living Areas and Ventilation Requirements

Central Air Conditioning
The predicted sound levels outside the townhouses fronting or flanking directly onto William
Halton Parkway (prediction locations [C], [E], and [G]) will be greater than 65 dBA during the
daytime. To address these excesses, the MECP guidelines recommend that the building be
equipped with central air conditioning systems, so that the windows can be closed.

Provision for the Future Installation of Air Conditioning
The predicted sound levels at the plane of the top storey bedroom windows of the future dwellings
with exposure to Dundas Street West or William Halton Parkway, will be between 56 and 65 dBA
during the daytime hours and between 51 and 60 dBA during the nighttime hours. To address these
excesses, the MECP guidelines recommend that these dwelling units be equipped with forced air
ventilation systems with ducts sized to accommodate the future installation of air conditioning by
the occupant.

Figure 3 shows the ventilation requirements for the development. Window or through-the-wall air
conditioning units are not recommended for any commercial or residential units because of the
noise they produce and because the units penetrate through the exterior wall which degrades the
overall noise insulating properties of the envelope. The location, installation and sound ratings of
the outdoor air conditioning devices should minimize noise impacts and comply with criteria of
MECP publication NPC-300, as applicable. The guidelines also recommend warning clauses for all
units with ventilation requirements.

For the remainder of lots further into the subdivision, there are no specific ventilation
requirements.
5.3 Building Facade Constructions

Future sound levels at the dwellings fronting/flanking onto William Halton Parkway will exceed 65 dBA during daytime hours. MECP guidelines recommend that the windows, walls and doors be designed so that the indoor sound levels comply with MECP noise criteria.

The required building components are selected based on the Acoustical Insulation Factor (AIF) value for road traffic. To do so, calculations were performed to determine the acoustical insulation factors to maintain indoor sound levels within MECP guidelines. The calculation methods were developed by the National Research Council (NRC). They are based on the predicted future sound levels at the building facades, and the anticipated area ratios of the facade components (windows and walls) and the floor area of the adjacent room.

The minimum necessary specification for the building envelope is AIF-28 for living/dining/family rooms and AIF-26 for bedrooms, based on the possibility of sound entering the buildings through windows and walls.

Floor plans and building elevations were not available at the time of this study. Any well sealed thermopane unit having a Sound Transmission Class (STC) rating of 30 will provide sufficient noise insulation, as long as the window to floor area ratio is less than 40% for living/dining and family rooms and less than 63% for bedrooms.

Any exterior wall construction meeting the Ontario Building Code (OBC) will be acceptable for the dwellings adjacent to William Halton Parkway. Any insulated metal exterior door meeting OBC requirements will be sufficient to provide noise insulation. If sliding patio doors are to be used in the dwellings, they must be included in the window area.

When detailed floor plans and elevations are available for the townhouses flanking or fronting directly onto William Halton Parkway, a detailed noise study should be performed to specify wall and window requirements with sufficient acoustical insulation for the dwelling units based on actual window to floor area ratios.
The remaining units within the development will have daytime and nighttime sound levels at the top storey façade that are less than 65 and 60 dBA respectively. For these units, any exterior wall, and double glazed window construction meeting the minimum requirements of the Ontario Building Code (OBC) will provide adequate sound insulation for the dwelling units.

### 5.4 Warning Clauses

The MECP guidelines recommend that warning clauses be included in the property and tenancy agreements for all blocks with anticipated traffic sound level excesses. The following noise warning clauses are required for specific units as indicated in Table V.

Suggested wording for future dwellings with sound level excesses of the MECP criteria but do not require physical mitigation measures is given below.

**Type A:**

Purchasers/tenants are advised that sound levels due to increasing road traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment, Conservation and Parks.

Suggested wording for future dwelling units with daytime OLA sound levels exceeding the MECP criteria by 6 dB or more, for which physical mitigation has been provided is given below.

**Type B:**

Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the City’s and the Ministry of the Environment, Conservation and Parks’ noise criteria. The acoustical barrier as installed shall be maintained, repaired or replaced by the owner. Any maintenance, repair or replacement shall be with the same material, to the same standards and having the same colour and appearance of the original.

Suggested wording for future dwellings requiring forced air ventilation systems is given below.

**Type C:**

This dwelling unit has been designed with the provision for adding central air conditioning at the occupant’s discretion. Installation of central air conditioning by the occupant in low
and medium density developments will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment, Conservation and Parks.

Suggested wording for future dwellings requiring central air conditioning systems is given below.

Type D:

This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment, Conservation and Parks.

Suitable wording for future dwellings near the future commercial facilities is given below.

Type E:

Purchasers are advised that due to the proximity of future commercial facilities, sound levels from the facilities may at time be audible.

These sample clauses are provided by the MECP as examples and can be modified by the Municipality as required.

6 Impact of the Development on the Environment

Sound levels from noise sources such as rooftop air-conditioners, cooling towers, exhaust fans, etc. should not exceed the minimum one-hour $L_{eq}$ ambient (background) sound level from road traffic, at any potentially impacted residential point of reception, to comply with MECP guidelines. Based on the levels observed during our site visit, the typical minimum ambient sound levels in the area are expected to be in the range of 50 dBA or more during the day and 45 dBA or more at night. Thus any electro-mechanical equipment associated with this development (e.g. emergency generator testing, fresh-air handling equipment, etc.) should be designed such that they do not result in noise impact beyond these ranges.

7 Impact of the Development on Itself

Section 5.9.1 of the Ontario Building Code (OBC) specifies the minimum required sound insulation characteristics for demising partitions, in terms of Sound Transmission Class (STC) values. In order to maintain adequate acoustical privacy between separate suites in a multi-tenant
building, inter-suite walls should meet or exceed STC-50. Walls separating a suite from a noisy space such as a refuse chute, or elevator shaft, should meet or exceed STC-55. In addition, it is recommended that the floor/ceiling constructions separating suites from any amenity or commercial spaces also meet or exceed STC-55. Tables 1 and 2 in Section SB-3 of the Supplementary Guideline to the OBC provide a comprehensive list of constructions that will meet the above requirements.

Tarion’s Builder Bulletin B19R requires the internal design of condominium projects to integrate suitable acoustic features to insulate the suites from noise from each other and amenities in accordance with the OBC, and limit the potential intrusions of mechanical and electrical services of the buildings on its residents. If B19R certification is needed, an acoustical consultant is required to review the mechanical and electrical drawings and details of demising constructions and mechanical/electrical equipment, when available, to help ensure that the noise impact of the development on itself is maintained within acceptable levels.

8 Summary of Recommendations

The following list as well as Table V summarize the recommendations made in this report. The reader is referred to the Figure 3 and previous sections of the report where these recommendations are applied and discussed in more detail.

1. Acoustic barriers are required for the rear yards of flanking lots adjacent to William Halton Parkway.

2. Central air conditioning is required for the proposed townhouses fronting or flanking onto William Halton Parkway. Forced air ventilation systems with ductwork sized for the future installation of central air conditioning by the occupant are required for the future dwellings for dwellings with some exposure to William Halton Parkway and some exposure to Dundas Street West.

3. Upgraded building constructions are required for the proposed townhouses fronting or flanking onto William Halton Parkway. OBC building constructions are sufficient for the
remaining dwellings. When detailed floor plans and building elevations are available, the drawings should be reviewed to refine window glazing requirements.

4. Noise warning clauses to inform the occupants of the sound level excesses should be placed in the property and tenancy agreements and offers of purchase and sale. The affected lots and appropriate warning clauses are shown in Table V.

5. The final grading plans should be reviewed to refine recommendations on acoustic barriers, ventilation requirements and building façade constructions.

6. When a future site plan is available for the Dundas Urban Core, Neighbourhood Centre, and Residential High Density Block, a detailed noise study should be performed to determine the acoustic recommendations.

7. Tarion Builder’s Bulletin B19R requires that the internal design of condominium projects integrates suitable acoustic features to insulate the suites from noise from each other and amenities in accordance with the OBC, and limit the potential intrusions of mechanical and electrical services of the buildings on its residents. If B19R certification is needed, an acoustical consultant is required to review the mechanical and electrical drawings and details of demising constructions and mechanical/electrical equipment, when available, to help ensure that the noise impact of the development on itself are maintained within acceptable levels. Outdoor sound emissions should also be checked to ensure compliance with the City of Oakville noise by-law.
### Table V: Summary of Noise Control Requirements and Warning Clauses

<table>
<thead>
<tr>
<th>Prediction Location</th>
<th>Description</th>
<th>Acoustic Barrier</th>
<th>Ventilation Requirements*</th>
<th>Type of Warning Clause</th>
<th>Required AIF for Glazing</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Townhouses fronting onto Street M</td>
<td>--</td>
<td>Forced Air</td>
<td>A, C, E</td>
<td>OBC</td>
</tr>
<tr>
<td>B</td>
<td>Freehold lane based townhouses flanking onto Street M</td>
<td>--</td>
<td>Forced Air</td>
<td>A, C, E</td>
<td>OBC</td>
</tr>
<tr>
<td>D</td>
<td>Second row of townhouses from William Halton Parkway</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>OBC</td>
</tr>
<tr>
<td>E</td>
<td>Dwellings flanking onto William Halton Parkway</td>
<td>3.2 m</td>
<td>Central A/C</td>
<td>B, D</td>
<td>LRDR: AIF-28 BR: AIF-26</td>
</tr>
<tr>
<td>F</td>
<td>Townhouses fronting onto Street C</td>
<td>--</td>
<td>Forced Air</td>
<td>A, C, E</td>
<td>OBC</td>
</tr>
<tr>
<td>H</td>
<td>Freehold lane-based townhouses with some exposure to William Halton Parkway</td>
<td>--</td>
<td>Forced Air</td>
<td>A, C</td>
<td>OBC</td>
</tr>
<tr>
<td>I</td>
<td>Freehold lane-based townhouses with some exposure to William Halton Parkway</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>OBC</td>
</tr>
<tr>
<td>DUC, NC, HDR</td>
<td>Dundas Urban Core, Neighbourhood Centre, Residential High Density Block</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Notes:**
- -- no specific requirement
- * The location, installation and sound rating of the air conditioning condensers must be compliant with MECP Guideline NPC-300, as applicable.
- ✔ Outdoor living areas require acoustic barriers
- LRDR – Living Room/Dining Room
- BR – Bedroom
- OBC – Ontario Building Code
- o – When lotting information is available, a detailed noise study should be performed to refine the acoustic recommendations
8.1 Implementation

To ensure that the noise control recommendations outlined above are fully implemented, it is recommended that:

1. A drawing review should be conducted of final grading information to refine the barrier heights, ventilation requirements and the building constructions.

2. When a future site plan is available for the Dundas Urban Core, Neighbourhood Centre, and Residential High Density Block, a detailed noise study should be performed to determine the acoustic requirements for the site and to determine their impact on the proposed residences.

3. When architectural plans are available for dwellings adjacent to William Halton Parkway, an acoustical consultant should review the plans to determine appropriate glazing constructions.

4. Prior to the issuance of building permits for this development, the Municipality’s building inspector or a Professional Engineer qualified to perform acoustical engineering services in the Province of Ontario should certify that the noise control measures have been properly incorporated.

5. Prior to assumption of the subdivision, the Municipality’s building inspector or a Professional Engineer qualified to perform acoustical engineering services in the Province of Ontario should certify that the noise control measures have been properly installed and constructed.
APPENDIX A

Road Traffic Information
Dale is the contact who sent us ultimate data for Burnhamthorpe and Sixth Line. He may have the new roadway. Check with Matt Krusto also.

dlipnicky@oakville.ca

Data for Dundas Street from Region of Halton. This data is from Matt Krusto Matt.Krusto@halton.ca

For Dundas Street:
- AADT (ultimate) = 55,000
- Medium Trucks = 8%
- Heavy Trucks = 5%
- Number of Lanes = 6
- Posted Speed Limit = 80 km/h
- Day/Night split = 90%/10%
APPENDIX B

Sample STAMSON 5.04 Output
A
STAMSON 5.0 NORMAL REPORT Date: 12-12-2018 09:39:51
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: a.te Time Period: Day/Night 16/8 hours

Description: Townhouses fronting onto Street M

Road data, segment # 1: Dundas St W (day/night)
------------------------------------------------------------------
Car traffic volume : 21533/2393 veh/TimePeriod *
Medium truck volume : 1980/220 veh/TimePeriod *
Heavy truck volume : 1238/138 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 27500
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 8.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Dundas St W (day/night)
------------------------------------------------------------------
Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 164.10 / 164.10 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Dundas St W (day/night)
------------------------------------------------------------------
Car traffic volume : 21533/2393 veh/TimePeriod *
Medium truck volume : 1980/220 veh/TimePeriod *
Heavy truck volume : 1238/138 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:
24 hr Traffic Volume (AADT or SADT): 27500
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 8.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: Dundas St W (day/night)

Angle1   Angle2 : -90.00 deg  90.00 deg
Wood depth : 0  (No woods.)
No of house rows : 0 / 0
Surface : 1  (Absorptive ground surface)
Receiver source distance : 181.40 / 181.40 m
Receiver height : 4.50 / 4.50 m
Topography : 1  (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Dundas St W (day)

Source height = 1.50 m

ROAD (0.00 + 55.04 + 0.00) = 55.04 dBA

\[
\begin{array}{ccccccccccc}
\text{Angle1} & \text{Angle2} & \text{Alpha} & \text{RefLeq} & \text{P.Adj} & \text{D.Adj} & \text{F.Adj} & \text{W.Adj} & \text{H.Adj} & \text{B.Adj} & \text{SubLeq} \\
-90 & 90 & 0.57 & 72.66 & 0.00 & -16.31 & -1.30 & 0.00 & 0.00 & 0.00 & 55.04 \\
\end{array}
\]

Segment Leq : 55.04 dBA

Results segment # 2: Dundas St W (day)

Source height = 1.50 m

ROAD (0.00 + 54.36 + 0.00) = 54.36 dBA

\[
\begin{array}{ccccccccccc}
\text{Angle1} & \text{Angle2} & \text{Alpha} & \text{RefLeq} & \text{P.Adj} & \text{D.Adj} & \text{F.Adj} & \text{W.Adj} & \text{H.Adj} & \text{B.Adj} & \text{SubLeq} \\
-90 & 90 & 0.57 & 72.66 & 0.00 & -17.00 & -1.30 & 0.00 & 0.00 & 0.00 & 54.36 \\
\end{array}
\]

Segment Leq : 54.36 dBA

Total Leq All Segments: 57.72 dBA

Results segment # 1: Dundas St W (night)

Page 2
Source height = 1.50 m

ROAD (0.00 + 48.52 + 0.00) = 48.52 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-90  90  0.57  66.14  0.00  -16.31  -1.30  0.00  0.00  0.00  48.52

Segment Leq : 48.52 dBA

Results segment # 2: Dundas St W (night)

Source height = 1.50 m

ROAD (0.00 + 47.84 + 0.00) = 47.84 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-90  90  0.57  66.14  0.00  -17.00  -1.30  0.00  0.00  0.00  47.84

Segment Leq : 47.84 dBA

Total Leq All Segments: 51.20 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 57.72 dBA
(NIGHT): 51.20 dBA
Date: 12-12-2018 09:43:11

MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: e.te Time Period: Day/Night 16/8 hours

Description: Dwellings flanking onto William Halton Parkway

Road data, segment # 1: WHPkwy (day/night)

Car traffic volume : 13832/1537 veh/TimePeriod *
Medium truck volume : 589/65 veh/TimePeriod *
Heavy truck volume : 294/33 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

  24 hr Traffic Volume (AADT or SADT): 16350
  Percentage of Annual Growth : 0.00
  Number of Years of Growth : 0.00
  Medium Truck % of Total Volume : 4.00
  Heavy Truck % of Total Volume : 2.00
  Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: WHPkwy (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 / 15.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: WHPkwy (day/night)

Car traffic volume : 13832/1537 veh/TimePeriod *
Medium truck volume : 589/65 veh/TimePeriod *
Heavy truck volume : 294/33 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:
24 hr Traffic Volume (AADT or SADT): 16350
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 4.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: WHPkwy (day/night)

<table>
<thead>
<tr>
<th>Angle1</th>
<th>Angle2</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>-90.00 deg</td>
<td>90.00 deg</td>
<td>Wood depth</td>
<td>: 0 (No woods.)</td>
<td>No of house rows</td>
<td>: 0 / 0</td>
<td>Surface</td>
<td>: 1 (Absorptive ground surface)</td>
<td>Receiver source distance</td>
<td>: 30.00 / 30.00 m</td>
<td>Receiver height</td>
<td>: 4.50 / 4.50 m</td>
<td>Topography</td>
<td>: 1 (Flat/gentle slope; no barrier)</td>
<td>Reference angle</td>
<td>: 0.00</td>
</tr>
</tbody>
</table>

Results segment # 1: WHPkwy (day)

Source height = 1.19 m

ROAD (0.00 + 66.56 + 0.00) = 66.56 dBA

<table>
<thead>
<tr>
<th>Angle1</th>
<th>Angle2</th>
<th>Alpha</th>
<th>RefLeq</th>
<th>P.Adj</th>
<th>D.Adj</th>
<th>F.Adj</th>
<th>W.Adj</th>
<th>H.Adj</th>
<th>B.Adj</th>
<th>SubLeq</th>
</tr>
</thead>
<tbody>
<tr>
<td>-90</td>
<td>90</td>
<td>0.58</td>
<td>67.88</td>
<td>0.00</td>
<td>0.00</td>
<td>-1.32</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>66.56</td>
</tr>
</tbody>
</table>

Segment Leq : 66.56 dBA

Results segment # 2: WHPkwy (day)

Source height = 1.19 m

ROAD (0.00 + 61.80 + 0.00) = 61.80 dBA

<table>
<thead>
<tr>
<th>Angle1</th>
<th>Angle2</th>
<th>Alpha</th>
<th>RefLeq</th>
<th>P.Adj</th>
<th>D.Adj</th>
<th>F.Adj</th>
<th>W.Adj</th>
<th>H.Adj</th>
<th>B.Adj</th>
<th>SubLeq</th>
</tr>
</thead>
<tbody>
<tr>
<td>-90</td>
<td>90</td>
<td>0.58</td>
<td>67.88</td>
<td>0.00</td>
<td>-4.75</td>
<td>-1.32</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>61.80</td>
</tr>
</tbody>
</table>

Segment Leq : 61.80 dBA

Total Leq All Segments: 67.81 dBA

Results segment # 1: WHPkwy (night)
Source height = 1.19 m

ROAD (0.00 + 60.04 + 0.00) = 60.04 dBA

<table>
<thead>
<tr>
<th>Angle1</th>
<th>Angle2</th>
<th>Alpha</th>
<th>RefLeq</th>
<th>P.Adj</th>
<th>D.Adj</th>
<th>F.Adj</th>
<th>W.Adj</th>
<th>H.Adj</th>
<th>B.Adj</th>
<th>SubLeq</th>
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<tbody>
<tr>
<td>-90</td>
<td>90</td>
<td>0.58</td>
<td>61.35</td>
<td>0.00</td>
<td>0.00</td>
<td>-1.32</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>60.04</td>
</tr>
</tbody>
</table>

Segment Leq : 60.04 dBA

Results segment # 2: WHPkwy (night)

Source height = 1.19 m

ROAD (0.00 + 55.28 + 0.00) = 55.28 dBA

<table>
<thead>
<tr>
<th>Angle1</th>
<th>Angle2</th>
<th>Alpha</th>
<th>RefLeq</th>
<th>P.Adj</th>
<th>D.Adj</th>
<th>F.Adj</th>
<th>W.Adj</th>
<th>H.Adj</th>
<th>B.Adj</th>
<th>SubLeq</th>
</tr>
</thead>
<tbody>
<tr>
<td>-90</td>
<td>90</td>
<td>0.58</td>
<td>61.35</td>
<td>0.00</td>
<td>0.00</td>
<td>-4.75</td>
<td>-1.32</td>
<td>0.00</td>
<td>0.00</td>
<td>55.28</td>
</tr>
</tbody>
</table>

Segment Leq : 55.28 dBA

Total Leq All Segments: 61.29 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 67.81 dBA
(NIGHT): 61.29 dBA
Description: OLA of dwellings flanking onto William Halton Parkway with 3.2 m acoustic barrier

Road data, segment # 1: WHPkwy
----------------------------------------
Car traffic volume : 13832 veh/TimePeriod *
Medium truck volume : 589 veh/TimePeriod *
Heavy truck volume : 294 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: WHPkwy
-------------------------------
Angle1  Angle2 : -90.00 deg  -45.00 deg
Wood depth : 0  (No woods.)
No of house rows : 0
Surface : 1  (Absorptive ground surface)
Receiver source distance : 20.00 m
Receiver height : 1.50 m
Topography : 2  (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg  Angle2 : -45.00 deg
Barrier height : 7.00 m
Barrier receiver distance : 3.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 2: WHPkwy
----------------------------------------
Car traffic volume : 13832 veh/TimePeriod *
Medium truck volume : 589 veh/TimePeriod *
Heavy truck volume : 294 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: WHPkwy
-------------------------------
Angle1  Angle2 : -90.00 deg  -45.00 deg
Wood depth : 0  (No woods.)
No of house rows : 0
EOLA

Surface : 1  (Absorptive ground surface)
Receiver source distance : 35.00 m
Receiver height : 1.50 m
Topography : 2  (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg  Angle2 : -45.00 deg
Barrier height : 7.00 m
Barrier receiver distance : 3.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 3: WHPkwy
----------------------------------------
Car traffic volume : 13832 veh/TimePeriod  *
Medium truck volume : 589 veh/TimePeriod  *
Heavy truck volume : 294 veh/TimePeriod  *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: WHPkwy
----------------------------------------
Angle1  Angle2 : -45.00 deg  90.00 deg
Wood depth : 0  (No woods.)
No of house rows : 0
Surface : 1  (Absorptive ground surface)
Receiver source distance : 20.00 m
Receiver height : 1.50 m
Topography : 2  (Flat/gentle slope; with barrier)
Barrier angle1 : -45.00 deg  Angle2 : 90.00 deg
Barrier height : 3.20 m
Barrier receiver distance : 13.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 4: WHPkwy
----------------------------------------
Car traffic volume : 13832 veh/TimePeriod  *
Medium truck volume : 589 veh/TimePeriod  *
Heavy truck volume : 294 veh/TimePeriod  *
Posted speed limit : 60 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 4: WHPkwy
Angle1  Angle2 : -45.00 deg  90.00 deg 
Wood depth : 0  (No woods.) 
No of house rows : 0 
Surface : 1  (Absorptive ground surface) 
Receiver source distance : 35.00 m 
Receiver height : 1.50 m 
Topography : 2  (Flat/gentle slope; with barrier) 
Barrier angle1 : -45.00 deg  Angle2 : 90.00 deg 
Barrier height : 3.20 m 
Barrier receiver distance : 13.00 m 
Source elevation : 0.00 m 
Receiver elevation : 0.00 m 
Barrier elevation : 0.00 m 
Reference angle : 0.00 

Results segment # 1: WHPkwy

Source height = 1.19 m

Barrier height for grazing incidence

<table>
<thead>
<tr>
<th>Source</th>
<th>Receiver</th>
<th>Barrier</th>
<th>Elevation of</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height (m)</td>
<td>Height (m)</td>
<td>Height (m)</td>
<td>Barrier Top (m)</td>
</tr>
<tr>
<td>1.19</td>
<td>1.50</td>
<td>1.45</td>
<td>1.45</td>
</tr>
</tbody>
</table>

ROAD (0.00 + 43.00 + 0.00) = 43.00 dBA

<table>
<thead>
<tr>
<th>Angle1</th>
<th>Angle2</th>
<th>Alpha</th>
<th>RefLeq</th>
<th>P. Adj</th>
<th>D. Adj</th>
<th>F. Adj</th>
<th>W. Adj</th>
<th>H. Adj</th>
<th>B. Adj</th>
<th>SubLeq</th>
</tr>
</thead>
<tbody>
<tr>
<td>-90</td>
<td>-45</td>
<td>0.25</td>
<td>67.88</td>
<td>0.00</td>
<td>-1.56</td>
<td>-7.29</td>
<td>0.00</td>
<td>0.00</td>
<td>-16.02</td>
<td>43.00</td>
</tr>
</tbody>
</table>

Segment Leq : 43.00 dBA

Results segment # 2: WHPkwy

Source height = 1.19 m

Barrier height for grazing incidence

<table>
<thead>
<tr>
<th>Source</th>
<th>Receiver</th>
<th>Barrier</th>
<th>Elevation of</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height (m)</td>
<td>Height (m)</td>
<td>Height (m)</td>
<td>Barrier Top (m)</td>
</tr>
<tr>
<td>1.19</td>
<td>1.50</td>
<td>1.47</td>
<td>1.47</td>
</tr>
</tbody>
</table>
EOLA
ROAD (0.00 + 40.26 + 0.00) = 40.26 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-90 -45 0.25 67.88 0.00 -4.60 -7.29 0.00 0.00 -15.73 40.26

Segment Leq : 40.26 dBA

Results segment # 3: WHPkwy

Source height = 1.19 m

Barrier height for grazing incidence

<table>
<thead>
<tr>
<th>Source ! Receiver ! Barrier ! Elevation of Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.19 ! 1.50 ! 1.30 ! 1.30</td>
</tr>
</tbody>
</table>

ROAD (0.00 + 52.62 + 0.00) = 52.62 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-45 90 0.48 67.88 0.00 -1.85 -2.06 0.00 0.00 -11.35 52.62

Segment Leq : 52.62 dBA

Results segment # 4: WHPkwy

Source height = 1.19 m

Barrier height for grazing incidence

<table>
<thead>
<tr>
<th>Source ! Receiver ! Barrier ! Elevation of Height (m) ! Height (m) ! Height (m) ! Barrier Top (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.19 ! 1.50 ! 1.38 ! 1.38</td>
</tr>
</tbody>
</table>

ROAD (0.00 + 50.98 + 0.00) = 50.98 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-45 90 0.48 67.88 0.00 -5.44 -2.06 0.00 0.00 -9.40 50.98

Segment Leq : 50.98 dBA
Total Leq All Segments: 55.30 dBA

TOTAL Leq FROM ALL SOURCES: 55.30 dBA
APPENDIX C

Region of Halton Comments
to centreline) between Streets D/I and G/J. In the alternative of meeting the Region’s standard, the TIS should be updated to discuss the proposed intersection spacing, and provide any justification or rationale for the proposed spacing.

- Additionally, intersection G/J cannot be relocated further east to achieve the 300m (minimum) intersection spacing, due to the proximity of the bridge and available westbound left-turn lane storage required without impeding onto the bridge platform (see TIS comments).

**Intersection Spacing on Dundas Street:**
The Dundas Street intersection connection will be via the existing Proudfoot Trail T-intersection (south side). As the development is located on the north side of Dundas Street, the developer is responsible for all intersection works required to complete the intersection to 4-legs. All required intersections works are outlined below, and will require a Servicing Agreement and Detail Design drawing submission to the Development Project Manager.

**Noise Study:**
Section 143(12) of the ROP requires the proponent of any sensitive land use in proximity to transportation and utility source to undertake appropriate analysis of any impacts (e.g. noise, vibration, air quality) associated with the source, and implement any recommendations contained within the analysis. To this end, a Noise Study was completed for the proposed development by HGC Engineering dated April 2018. In considering this noise study, Regional Staff have the following comments:

- Dundas Street 2031 traffic assumptions are accurate and acceptable. William Halton Parkway 2031 traffic assumptions in the Study were lower than has previously been used, therefore, the Study must be resubmitted. The following assumptions must be used:
- William Halton Parkway 2031 transportation assumptions:
  - Ultimate (2031) AADT - 32,700
  - Number of Lanes - 4
  - Posted Speed - 60km/h
  - Truck Percentage - Medium = 4%, Heavy = 2%
  - Day/Night Split = 90%/10%
- Block 40 is a residential Block at the intersection of William Halton Parkway and Street G/J, and the only location on the development plan warranting a noise barrier. This barrier is adjacent to the Regional right-of-way along William Halton Parkway, and upon Subdivision assumption.
- The Study recommends a 2.0m noise barrier to achieve 57 dBA. This recommendation does not meet Halton’s minimum noise barrier heights of 2.4m and does not mitigate future noise levels to as close to 55 dBA as feasibly possible. A noise barrier height if 2.9m to achieve future noise levels to 55 dBA is acceptable to Halton Region. This height and future noise level is dependent on the re-analysis based on the acceptable 2031 William Halton Parkway AADT of 32,700.
- The Dundas Urban Core, Neighbourhood Centre and Residential High Density Block will require a detailed noise study submission when lotting is available to review/assess noise recommendations & mitigation.
- Additional Lots/Blocks with exposure to William Halton Parkway must have central air conditioning. These are currently shown in purple on Figure 3 in the Noise Study and are located at the corners of William Halton Parkway at Streets D, I, G and J. The report only recommends “forced air ventilation with ducts sized for the future installation of air conditioning by the occupant.”
- All lane based townhomes with exposure to William Halton Parkway will have air conditioning and balconies of less than 4m, not requiring noise mitigation.
- The recommended noise barrier must be 2.9m, which will achieve 55 dBA noise levels (report states 2m height to achieve 57 dBA).
For noise studies to be reviewed and approved by Halton, every effort must be made to mitigate noise levels to as close to 55dBA as technically, economically and administratively feasible.

**Land Dedication:**
In accordance with ROP policy (Section 173(5)), Regional Staff recommend that the DPS provide protection for the following required land dedications. Further, any implementing ZBA schedule should provide protection for all required land dedications:

- The existing right-of-way along the development frontage for Dundas Street is sufficient and meets the Official Plan & TMP requirements, and no additional right-of-way is required.
- A daylight triangle measuring 15m along Dundas Street (Regional Road 5) and 15m along Street B shall be dedicated to the Regional Municipality of Halton for the purpose of road right-of-way widening and future road improvements.
- Any lands (right-of-way and daylight triangles) identified as part of the William Halton Parkway Detail Design Study for William Halton Parkway (Regional Road 40) Capital Works project 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.
- Any proposed signage, plantings etc., for the site must be placed outside of the new Regional right-of-way (on private property).

**Intersection Works:**
The developer is responsible for the following road works at Dundas Street at Proudfoot Trail:

- Dundas Street eastbound left-turn lane pavement markings;
- Dundas Street westbound right-turn lane pavement markings;
- closure and restoration of the existing construction access to Dundas Street;
- intersection traffic signal hardware modifications (to accommodate an eastbound left-turn phase);
- intersection south leg traffic signalization completion
- south leg intersection works (widening) for the addition of an exclusive northbound through lane in order to maintain the existing exclusive northbound right-turn lane
- additional illumination for the length of the westbound right-turn lane on Dundas Street at Proudfoot Trail.

**Finance**
The required payments and contributions for water, wastewater and roads are payable in accordance with the terms and conditions set out in an applicable allocation program agreement in which the single detached equivalents units (SDEs) are being reserved for the Owner.

The Owner will be also be required to pay all other applicable Regional development charges and front-ending recovery payments prior to the issuance of any building permits, unless a subdivision (or other form of development) agreement is required in which case the road portion and front-ending recovery payment of the Regional development charges are payable upon execution of the agreement. Please visit our website at [www.halton.ca](http://www.halton.ca) to obtain the most current development charge and front-ending recovery payment information, which is subject to change.

**Disclaimer:** It is the Owner's responsibility to ensure that all applicable payments and development charges for the single detached equivalents units (SDEs) being requested are paid for as required by the terms and conditions of the applicable allocation program agreement.