

Noise Feasibility Study

Proposed Mixed-Use Development

Argo Trafalgar

Town of Oakville, Ontario

Prepared for:

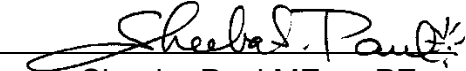
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1 Introduction and Summary

HGC Engineering was retained by Argo Trafalgar Corporation to perform a noise feasibility study for a proposed mixed-use development located on the east side of Trafalgar Road, to the north and south of the future William Halton Parkway, and north of Burnhamthorpe Road West in the Town of Oakville, Ontario. The proposed development will consist of a variety of townhouses, and several mid to high-rise buildings, along with associated roadways. The analysis includes an assessment of road traffic noise at various conceptual residential buildings in accordance with Ministry of the Environment, Conservation and Parks (MECP) guidelines. The study is required by the Town of Oakville and the Region of Halton as part of the planning and approvals process.

Road traffic data for William Halton Parkway and Trafalgar Road was obtained from the Region of Halton. Road traffic data for Highway 407 was obtained from HGC Engineering past project files in the area. Road traffic data for Burnhamthorpe Road East was requested from the Town of Oakville and were informed they do not currently have data available for this portion of Burnhamthorpe Road East. Data from HGC Engineering project files were used. The predicted sound levels were compared to the guidelines of the MECP and the Region of Halton.

The sound level predictions indicate that feasible means exist to reduce sound levels to ensure MECP guidelines are satisfied at the proposed residential development. Central air conditioning is required for dwellings closest to the Trafalgar Road and William Halton Parkway. For dwellings further from the roadways, forced air ventilation with ducts sized for the future installation of air conditioning by the occupant is required. Upgraded building and glazing constructions are required for dwellings closest Trafalgar Road and William Halton Parkway. Any exterior wall and double-glazed window construction meeting the minimum requirements of the OBC will provide sufficient mitigation for dwellings further from the roadways. Warning clauses are also recommended to inform future occupants of the traffic noise impacts and the presence of the nearby commercial plazas. This report should be updated when road traffic data for Burnhamthorpe Road East is available to refine mitigation requirements for dwellings along Burnhamthorpe Road East.

As this project is at an early stage of development, an acoustical consultant should review the mechanical drawings and details of demising constructions, when available, to help ensure that the



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noise impact of the development on the environment, and of the development on itself, are maintained within acceptable levels.

2 Site Description and Sources of Sound

Figure 1 shows a key plan which identifies the location of the proposed development. The residential development is located to the east of Trafalgar Road, to the north and south of William Halton Parkway, and north of Burnhamthorpe Road East in the Town of Oakville, Ontario. The preliminary concept plan prepared by Gerrard Design dated March 29, 2022 is included as Figure 2, also showing prediction locations. The proposed development may include a variety of townhouses, mid-rise buildings and several high-rise buildings, along with associated roadways.

HGC Engineering personnel visited the site in the month of March 2022. The primary sources of noise are road traffic noise from Trafalgar Road, William Halton Parkway, Burnhamthorpe Road East, and Highway 407. Trafalgar Road is a 4-lane roadway (2 lanes in each direction) in this area; Burnhamthorpe Road East is a 2-lane roadway (1 lane in each direction); and Highway 407 is a 6-lane roadway (3 lanes in each direction). The surrounding lands are primarily vacant/agricultural lands. At the northwest corner of the intersection of Trafalgar Road and Burnhamthorpe Road East there is an existing Ren's Pet Depot; to the east of the site is the Onofre Garden Centre; and to the southeast of the Trafalgar Road and Burnhamthorpe Road East intersection is the Vic Hadfield Golf & Learning Centre which includes a driving range. The North Oakville Master Plan is included in Appendix A, which indicates that lands to the west of Trafalgar Road and south of Burnhamthorpe Road East are designated as Trafalgar Road Urban Core Area. Lands to the east of the site are designated as employment lands and transitional areas. To the northeast of Trafalgar Road and William Halton Parkway is the 407 GO Oakville Carpool Lot which includes a small bus terminal. Sounds from these uses were not audible at the subject site over road traffic sounds, nevertheless, a noise warning clause is recommended in Section 5.4 to inform the future occupants of the presence of the existing commercial plaza and GO Transit parking lots and bus terminal. The Al Falah Islamic School is located to the east of the subject lands. There are no significant sources of stationary noise within 500 m of the subject site.



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3 Criteria for Acceptable Sound Levels

3.1 Road Traffic Noise Criteria

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”, Part C release date October 21, 2013 and are listed in Table 1 below. The values in Table 1 are energy equivalent (average) sound levels [L_{EQ}] in units of A weighted decibels [dBA].

Table 1: Road Traffic Noise Criteria

	Daytime L _{EQ} (16 hour)	Nighttime L _{EQ} (8 hour)
Outdoor Living Areas	55 dBA	--
Inside Living/Dining Rooms	45 dBA	45 dBA
Inside Bedrooms	45 dBA	40 dBA

Daytime refers to the period between 07:00 and 23:00. Nighttime refers to the time period between 23:00 and 07:00. The term "Outdoor Living Area" (OLA) is used in reference to an outdoor patio, backyard, terrace, children's playground or other area where passive recreation is expected to occur.

The guidelines in the MECP publication allow the sound level limit in an OLA to be exceeded by up to 5 dBA, without mitigation, if warning clauses are placed in the property agreements, offers of purchase and sale and rental agreements to the properties. Where future OLA sound levels exceed 60 dBA, physical mitigation is required 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 and maximum noise barrier is 3.5 m.

A central air conditioning system as an alternative means of ventilation to open windows is required for dwellings where future nighttime sound levels at the façade will exceed 60 dBA or future daytime sound levels at the façade will exceed 65 dBA. Forced-air ventilation with ducts sized to accommodate the future installation of air conditioning is required when nighttime sound levels at the façade will be in the range of 51 to 60 dBA or when daytime sound levels at the façade will be 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 nighttime plane of window sound level will be greater than 60 dBA or the daytime plane of window sound level will be greater than 65 dBA. The use of warning clauses to notify future residents of possible excesses is also required.

4 Traffic Sound Level Assessment

4.1 Road Traffic Data

Ultimate road traffic information for Trafalgar Road was obtained from Region of Halton personnel and is provided in Appendix B. A speed limit of 60 km/h was used for Trafalgar Road. An existing commercial vehicle percentage of 5% was obtained from the Region of Halton, split into 3.5% medium trucks and 1.5% heavy trucks, along with a day-night split of 90%/10%.

Ultimate road traffic information for William Halton Parkway was obtained from Region of Halton personnel and is provided in Appendix B. A speed limit of 60 km/h was used for William Halton Parkway. A commercial vehicle percentage of 6% was obtained from the Region of Halton, split into 2% medium trucks and 4% heavy trucks, along with a day-night split of 90%/10%.

Traffic data for Highway 407 was not available; hence ultimate traffic volumes for an 8-lane highway were used. 20% commercial vehicles were assumed as per typical Ministry of Transportation (MTO) guidelines for freeways, as stated in the current MTO Environmental Office Manual, although this estimate is likely conservative given the nature of this toll highway. A day/night split of 85% and 15% was used, as this is representative of the typical usage of Highway 407, as reflected by the sound measurements described above. As these volumes are representative of ultimate traffic data, they were not projected into the future.

Road traffic data was requested for Burnhamthorpe Road East from the Town of Oakville but were informed that they do not currently have traffic data available. Data from past HGC Engineering projects were used in the analysis.

Table 2 summarizes the traffic data used in this study.



Table 2: Ultimate and Projected Road Traffic Data

Road Name		Cars	Medium Trucks	Heavy Trucks	Total
Trafalgar Road <i>Ultimate</i>	Daytime	47 025	1 733	742	49 500
	Nighttime	5 225	192	83	5 500
	Total	52 250	1 925	825	55 000
William Halton Parkway <i>Ultimate</i>	Daytime	30 456	1 296	648	32 400
	Nighttime	3 384	144	72	3 600
	Total	33 840	1 440	720	36 000
Highway No. 407 <i>Ultimate</i>	Daytime	117 867	7 367	22 100	147 333
	Nighttime	20 800	1 300	3 900	26 000
	Total	138 667	8 667	26 000	173 333
Burnhamthorpe Road East <i>Projected to 2032</i>	Daytime	12 079	135	37	12 251
	Nighttime	1 342	15	4	1 361
	Total	13 421	150	41	13 612

4.2 Road Traffic Noise Predictions

Future traffic sound levels were predicted using STAMSON version 5.04, a computer algorithm developed by the MECP. Sample STAMSON output is included in Appendix C.

Sound levels were predicted at the upper storey windows during the daytime and during nighttime hours to investigate ventilation requirements. Since heights of buildings are not indicated on the concept plan, the maximum allowable heights as indicated in the NOESP OPA 321, that amends the NOESP plan policies related to the Trafalgar Urban Core, as well as the NOESP OPA 272, were assumed. Reflective surfaces have been used where facades are directly adjacent to a major roadway. The results of these predictions, without mitigation, are summarized in Table 3.

Table 3: Predicted Sound Levels, Without Mitigation, [dBA]

Prediction Location	Description	Daytime – at the Façade L _{EQ-16 hr}	Night-time – at the Façade L _{EQ-8 hr}
[A]	3-storey building with exposure to William Halton Parkway	70	64
[B]	3-storey building with some exposure to William Halton Parkway	60	54
[C]	South façade of 3-storey building with exposure to William Halton Parkway	69	62
[D]	Southwest façade of 30-storey building with exposure to William Halton Parkway and Trafalgar Road	70	63
[E]	North façade of 30-storey building with exposure to Trafalgar Road and Hwy 407	72	67
[F]	North façade of 30-storey building with exposure to William Halton Parkway, Hwy 407, and Trafalgar Road	73	68
[G]	North façade of 20-storey building, with exposure to William Halton Parkway, Hwy 407, and Trafalgar Road	73	68
[H]	West façade of 30-storey building with exposure to Trafalgar Road	71	68
[I]	West façade of 30-storey building with exposure to Trafalgar Road	71	68
[J]	South façade of 10-storey building with exposure to Burnhamthorpe Road East	65	59

5 Traffic Noise Recommendations

The predictions indicate that the future traffic sound levels will exceed MECP guidelines at the proposed residential buildings. Recommendations to address these excesses are discussed below.

5.1 Outdoor Living Areas

Balconies may be provided for each dwelling unit in the proposed buildings. Balconies that are less than 4 m in depth and are not considered to be OLAs. An additional warning clause is required for any ground level dwelling units with patios facing Trafalgar Road, as required by the Region of Halton, provided in Section 5.4. Any back-to-back and lane-based townhouses also do not include rear yards.

As the drawings are preliminary, the concept plan does not identify large outdoor common amenity areas associated with the buildings. As the drawings progress, a detailed noise study should be completed addressing acoustic requirements for identified outdoor amenity areas. Outdoor amenity areas should be placed at a sufficient distance from the major roadways to reduce the need for high acoustic barriers.

5.2 Indoor Living Areas

Air Conditioning

The predicted future nighttime sound levels of residential buildings closest to William Halton Parkway, Trafalgar Road, and Highway 407 (prediction locations [A], and [C] – [I]) are greater than 60 dBA during the nighttime and greater than 65 dBA during the day. Central air conditioning systems are required so that windows may remain closed.

Provision for the Future Installation of Air Conditioning

The predicted sound levels at the plane of the bedroom windows of residential buildings further from the roadways (prediction location [B], and [J]) will be between 51 and 60 dBA during the nighttime hours and between 56 to 65 dBA during the daytime 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. It is understood that central air conditioning will be provided for the proposed buildings in any case and will exceed this requirement.

Window or through-the-wall air conditioning units are not recommended for any 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. Acceptable units are those housed in their own closet with an access door for maintenance. The location, installation and sound ratings of the outdoor air conditioning devices should minimize noise impacts and comply with the criteria of MECP publication NPC-300, as applicable. Ventilation requirements are shown in Figure 3.



5.3 Building Façade Constructions

Predicted sound levels at the building facades were used to determine sound insulation requirements of the building envelope. The required acoustic insulation of the wall and window components was determined using methods developed by the National Research Council (NRC).

Exterior Wall Constructions

The exterior walls of the proposed high rise buildings may include precast/masonry panel portions, as well as spandrel glass panels within an aluminum window system. In this analysis, it has been assumed that sound transmitted through elements other than the glazing elements is negligible in comparison. For this assumption to be true, spandrel or metal panel sections must have an insulated drywall partition on separate framing behind.

Exterior Doors

There may be swing doors and some glazed sliding patio doors for entry onto the balconies from living/dining/bedrooms and some bedrooms. The glazing areas on the doors are to be counted as part of the total window glazing area. If exterior swing doors are to be used, they shall be insulated metal doors equipped with head, jamb and threshold weather seals.

Acoustical Requirements for Glazing

At the time of this report, detailed floor plans and elevations are not available. Assuming a typical window to floor area of 60% (40% fixed and 20% operable) for the living/dining rooms and bedrooms, the minimum acoustical requirement for the basic window glazing, including glass in fixed sections, swing or sliding doors, and operable windows, is provided in Table 4.



Table 4: Required Minimum Glazing STC for Specific Facades

Prediction Locations	Description	Glazing STC ^{1, 2}
[A]	3-storey building with exposure to William Halton Parkway	+STC-35
[B]	3-storey building with some exposure to William Halton Parkway	+OBC
[C]	South façade of 3-storey building with exposure to William Halton Parkway	+STC-34
[D]	Southwest façade of 30-storey building with exposure to William Halton Parkway and Trafalgar Road	*STC-32
[E]	North façade of 30-storey building with exposure to Trafalgar Road and Hwy 407	*STC-34
[F]	North façade of 30-storey building with exposure to William Halton Parkway, Hwy 407, and Trafalgar Road	*STC-35
[G]	North façade of 20-storey building, with exposure to William Halton Parkway, Hwy 407, and Trafalgar Road	*STC-35
[H]	West façade of 30-storey building with exposure to Trafalgar Road	*STC-35
[I]	West façade of 30-storey building with exposure to Trafalgar Road	*STC-35
[J]	South façade of 10-storey building with exposure to William Halton Parkway	+OBC

Note:

¹ Based on assumed window to floor area ratios of 60% (40% fixed and 20% operable).

² STC requirement refers to fixed glazing. Small leaks through operable doors and windows are assumed, however, tight weather seals should be provided to reduce such leakage to the extent feasible.
+ Sound entering through windows and walls

* Sound entering through windows and walls comprised of precast/masonry panels, and spandrel glass panels

OBC – Ontario Building Code

Note that acoustic performance varies with manufacturer’s construction details, and these are only guidelines to provide some indication of the type of glazing likely to be required. Acoustical test data for the selected assemblies should be requested from the suppliers, to ensure that the stated acoustic performance levels will be achieved by their assemblies.

Further Review

When detailed floor plans and building elevations are available for the buildings, the glazing requirements should be refined based on actual window to floor area ratios.

5.4 Warning Clauses

The MECP guidelines recommend that warning clauses be included in the property and tenancy agreements and offers of purchase and sale for all units with anticipated traffic sound level excesses. Examples are provided below.

As required by the Region of Halton:

Type A:

Purchasers/tenants shall be advised that ground floor units with balconies with direct unobstructed access to the Regional road system and/or the Active Transportation Network will not be eligible under the retrofit provisions of the Region's Noise Attenuation Technical Policy in the future.

Suggested wording for buildings with sound level excesses the MECP criteria 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 noise criteria of the Municipality and the Ministry of the Environment, Conservation and Parks.

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

Type C:

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

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

Type D:

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.



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The suggested wording for future dwellings adjacent to commercial facilities is given below.

Type E:

Purchasers are advised that due to the proximity of the adjacent commercial facilities including parking lots and a bus terminal, sound levels from the facilities may at times be audible.

This sample clause is provided by the MECP as examples and can be modified by the Municipality as required.

Suggested wording by the Region of Halton for the proposed site is given below:

Type F:

Purchasers/tenants are advised that this development and associated blocks/units are directed adjacent/in close proximity to a Regional road. Halton's Regional roads are classified as major arterial roadways and as such: Serve mainly inter-regional and regional travel demands; May serve an intensification Corridor; Accommodate all truck traffic; Accommodate higher order transit services and high occupancy vehicle lanes; Connect Urban Areas in different municipalities; Carry high volumes of traffic; Distribute traffic to and from Provincial Freeways and Highways; Accommodate active transportation. Truck traffic is permitted on all Regional roads, and is one of the functions of the Regional road network. Therefore, despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road traffic will interfere with some activities of the dwelling occupants, including any raised patio and/or balcony, as sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment, Conservation and Parks.

6 Impact of the Development on Itself

Section 5.8.1.1 of the Ontario Building Code (OBC), released on January 1, 2020, specifies the minimum required sound insulation characteristics for demising partitions, in terms of Sound Transmission Class (STC) or Apparent Sound Transmission Class (ASTC) values. In order to maintain adequate acoustical privacy between separate suites in a multi-tenant building, inter-suite walls must meet or exceed STC-50 or ASTC-47. Suite separation from a refuse chute or elevator shaft must 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.



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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 construction and mechanical/electrical equipment, when available, to help ensure that the noise impact of the redevelopment on itself is maintained within acceptable levels.

7 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. 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.

8 Summary and Recommendations

In summary, HGC Engineering has reviewed the conceptual development plan and performed calculations to determine the potential road traffic noise impact on the proposed mixed-use residential development with respect to MECP guidelines. The sound level predictions indicate that feasible means exist to reduce sound levels to ensure MECP guidelines are satisfied inside the proposed residential dwellings. The following are the recommendations.

1. When road traffic data is available for Burnhamthorpe Road East from the Town of Oakville, sound level predictions and mitigation requirements should be refined for dwellings adjacent to the Burnhamthorpe Road East. This data is expected to be available at the detailed noise study stage.
2. Central air conditioning is required for dwellings closest to the roadways. Forced air ventilation with ducts sized for the future installation of air conditioning by the occupant is required for



dwellings further from the roadways. The location, installation and sound ratings of the air conditioning devices should comply with NPC-300.

3. Upgraded exterior building façade and glazing constructions are required for buildings closest to the roadways. Exterior building façade and any double-glazed window constructions meeting the minimum requirements of the OBC will provide sufficient acoustical insulation for the indoor spaces for dwellings further from the major roadways.
4. Warning clauses should be used to inform future residents of the traffic noise issues and the presence of the existing commercial plaza, institutional facility to the east, and GO Transit Parking lot and bus terminal.
5. When detailed drawings are available for the high-rise buildings and dwellings closest to the roadways, at SPA or as a condition, a detailed noise study should be conducted to refine the glazing constructions based on actual window to floor area ratios.
6. Tarion Builders 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 to be sought, 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.

The following table summarizes the noise control recommendations and noise warning clauses for the dwellings in the proposed development.



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Table 5: Summary of Noise Control Requirements and Noise Warning Clauses

Prediction Locations	Acoustic Barrier	Ventilation Requirements*	Type of Warning Clause	Preliminary Recommended STC
[A]	--	Air Conditioning	A, B, C, F	+STC-35
[B]	--	Forced Air	B, D	+OBC
[C]	--	Air Conditioning	A, B, C, F	+STC-34
[D]	--	Air Conditioning	A, B, C, F	#STC-32
[E]	--	Air Conditioning	B, C, E	#STC-34
[F]	--	Air Conditioning	A, B, C, F	#STC-35
[G]	--	Air Conditioning	A, B, C, F	#STC-35
[H]	--	Air Conditioning	A, B, C, E, F	#STC-35
[I]	--	Air Conditioning	A, B, C, E, F	#STC-35
[J]	--	Forced Air	B, D, E	+OBC

Notes:

-- no specific requirement

OBC – meeting the minimum requirements of the Ontario Building Code

* The location, installation and sound rating of the air conditioning condensers must be compliant with MECP Guideline NPC-300, as applicable.

+ Sound entering through windows and walls

Sound entering through windows and walls comprised of precast/masonry panels, and spandrel glass panels

8.1 Implementation

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

1. Prior to the issuance of building permits for this development, a Professional Engineer qualified to perform acoustical engineer services in the Province of Ontario should review the exterior wall constructions, architectural plans and building elevations to ensure the building façade and glazing constructions will provide sufficient sound insulation for the indoor spaces and provide additional recommendations, as required.
2. Prior to the issuance of occupancy permits for this development, the Town’s building inspector or a Professional Engineer qualified to perform acoustical engineer services in the province of Ontario should certify that the noise control measures have been properly incorporated, installed and constructed.

Limitations

This document was prepared solely for the addressed party and titled project or named part thereof, and should not be relied upon or used for any other project without obtaining prior written authorization from HGC Engineering. HGC Engineering accepts no responsibility or liability for any consequence of this document being used for a purpose other than for which it was commissioned. Any person or party using or relying on the document for such other purpose agrees, and will by such use or reliance be taken to confirm their agreement to indemnify HGC Engineering for all loss or damage resulting therefrom. HGC Engineering accepts no responsibility or liability for this document to any person or party other than the party by whom it was commissioned.

Any conclusions and/or recommendations herein reflect the judgment of HGC Engineering based on information available at the time of preparation, and were developed in good faith on information provided by others, as noted in the report, which has been assumed to be factual and accurate. Changed conditions or information occurring or becoming known after the date of this report could affect the results and conclusions presented.



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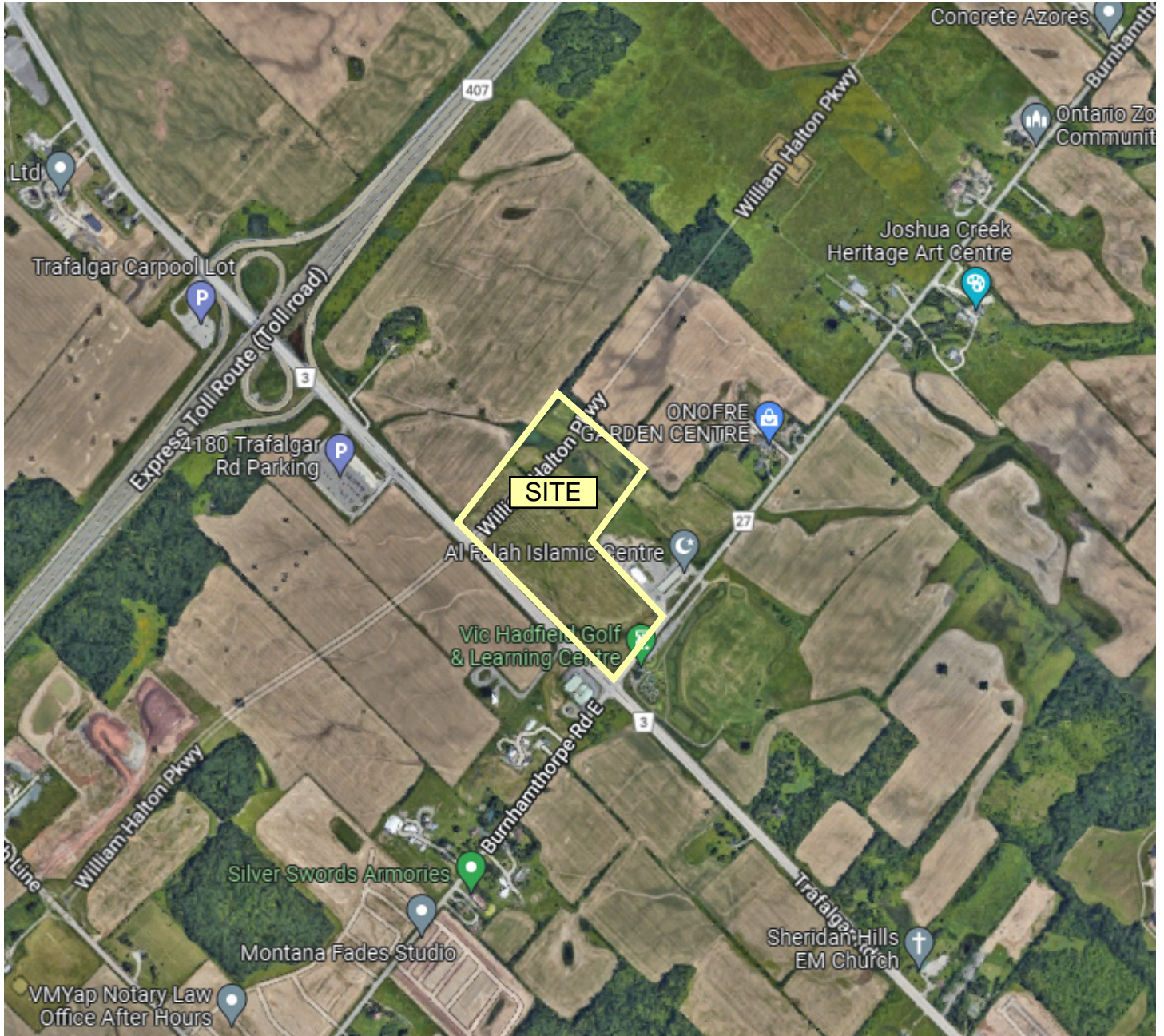


Figure 1 - Key Plan



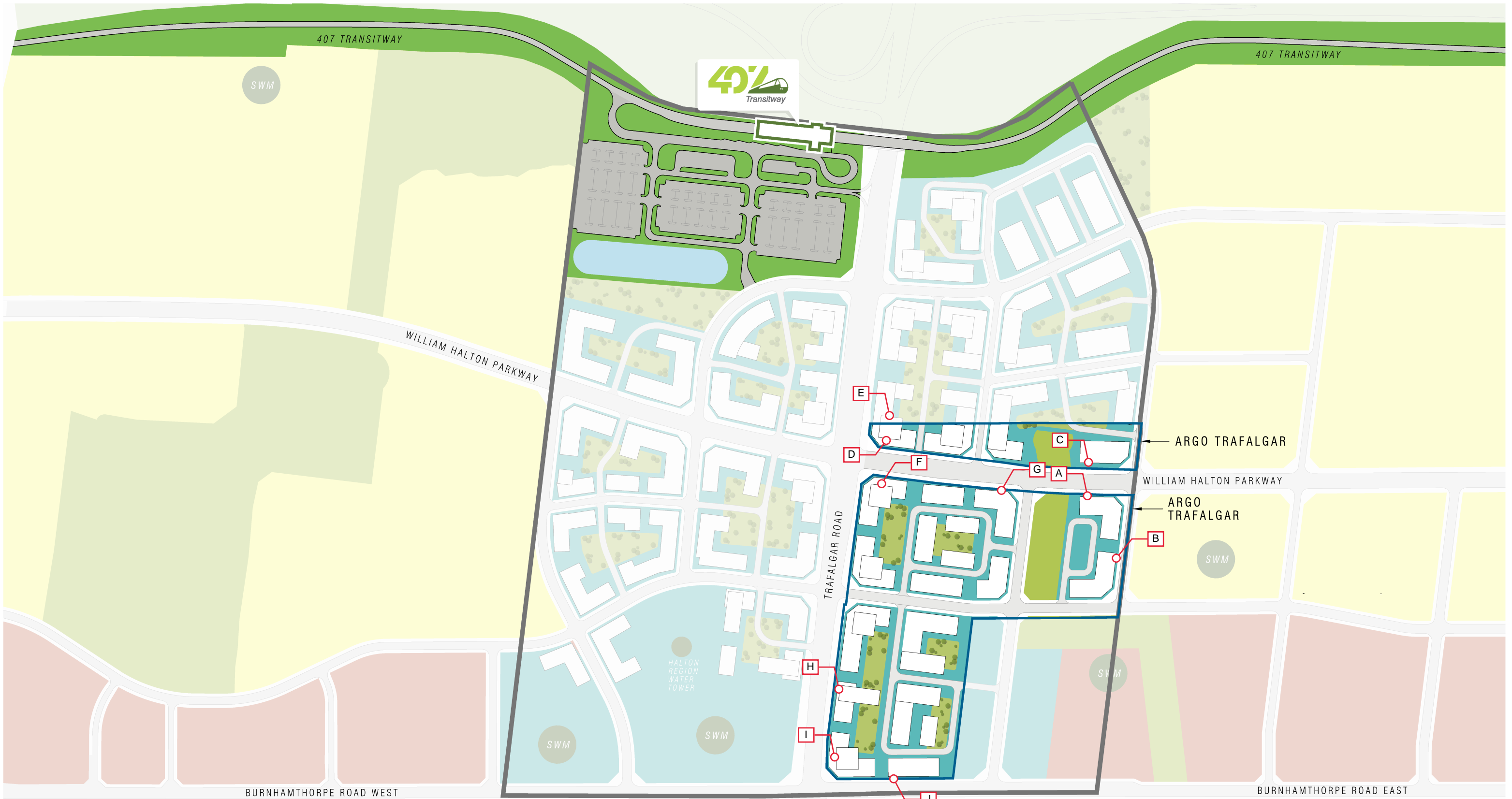
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- MIXED USE - RETAIL/OFFICE/RESIDENTIAL
- EMPLOYMENT
- TRANSITIONAL AREA
- PARK / OPEN SPACE (PUBLIC & PRIVATE)
- STUDY AREA
- ARGO LANDS

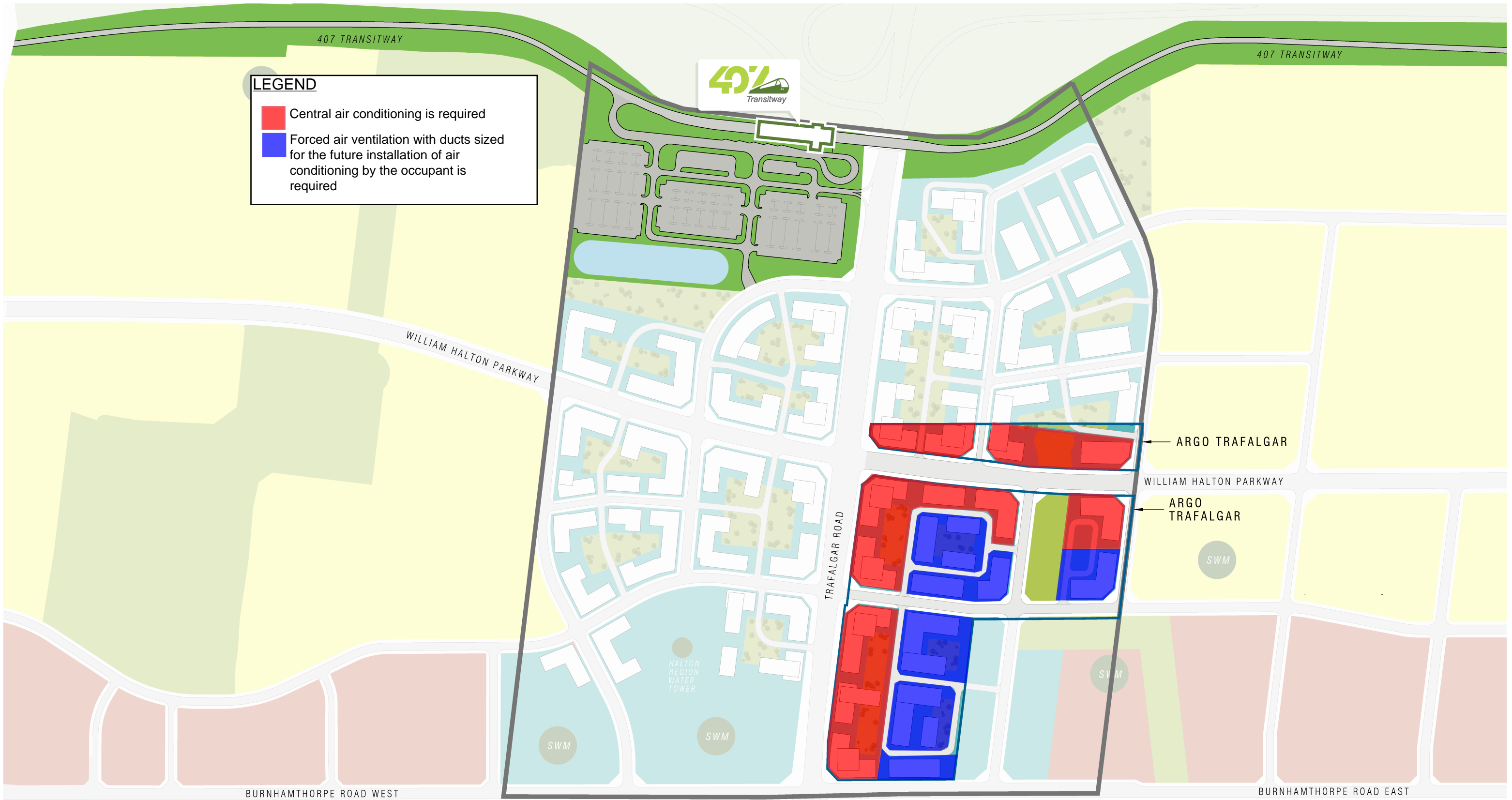
- All Units In Metric Unless Otherwise Noted.
- Base Information Obtained From Various Sources And Is Approximate.
- Schedule / Plan Information Is Conceptual And Requires Verification by Appropriate Agency.
- Aerial Photo: Google Earth



Figure 2 - Proposed Concept Plan Showing Prediction Locations

TRAFALGAR I & II | Oakville, Ontario
PRELIMINARY BLOCK PLAN CONCEPT

MAR 29, 2022
 PROJECT 1912
 SCALE 1:5000



DRAFT

- MIXED USE - RETAIL/OFFICE/RESIDENTIAL
- EMPLOYMENT
- TRANSITIONAL AREA
- PARK / OPEN SPACE (PUBLIC & PRIVATE)
- STUDY AREA
- ARGO LANDS

- All Units In Metric Unless Otherwise Noted.
- Base Information Obtained From Various Sources And Is Approximate.
- Schedule / Plan Information Is Conceptual And Requires Verification by Appropriate Agency.
- Aerial Photo: Google Earth

GERRARD DESIGN

TRAFALGAR I & II | Oakville, Ontario
 PRELIMINARY BLOCK PLAN CONCEPT

Figure 2 - Proposed Concept Plan Showing Ventilation Requirements

MAR 29, 2022
 PROJECT 1912
 SCALE 1:5000

APPENDIX A

Supporting Drawings



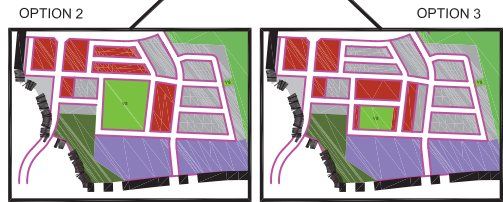
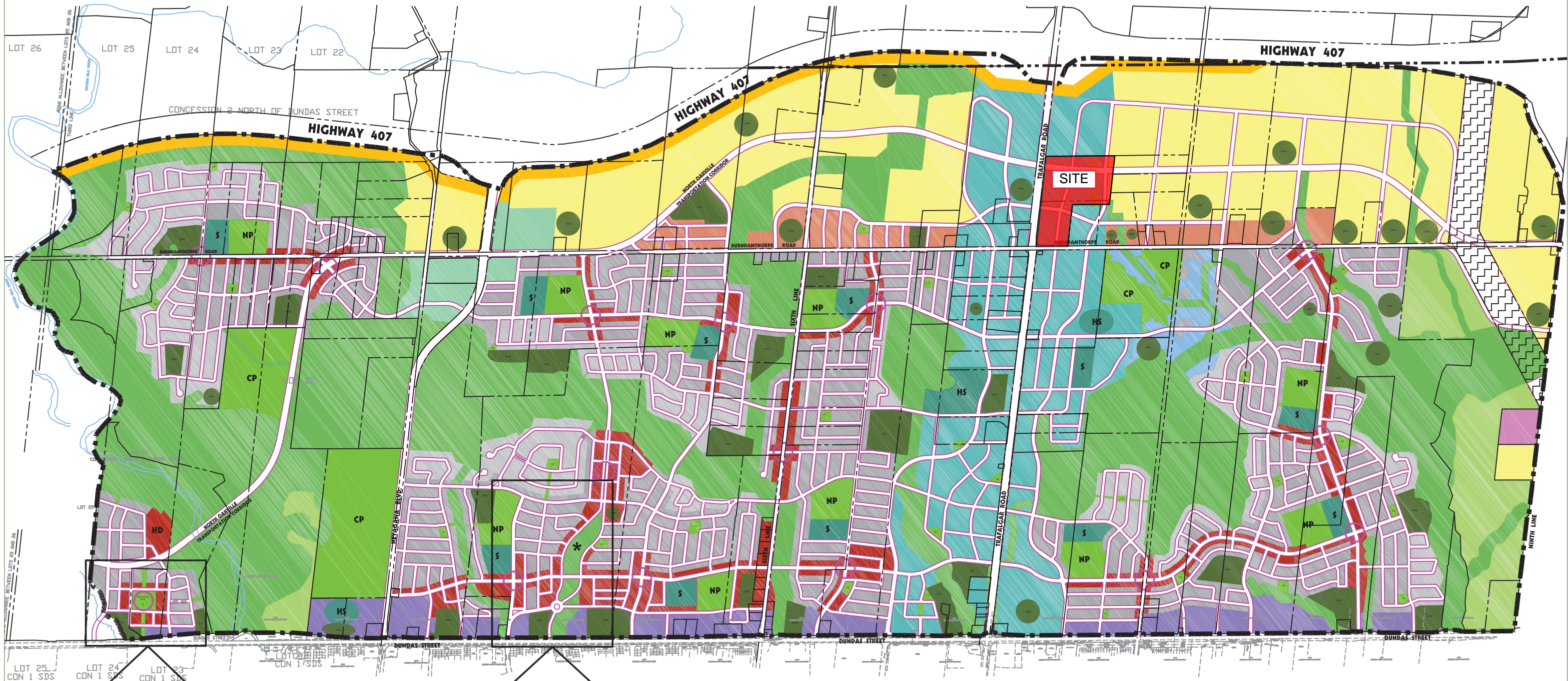
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LEGEND

- SECONDARY PLAN AREA BOUNDARY
- OAKVILLE / MILTON MUNICIPAL BOUNDARY
- TRANSITWAY
- DUNDAS STREET URBAN CORE AREA
- NEYAGAWA BLVD. URBAN CORE AREA
- TRAFALGAR ROAD URBAN CORE AREA
- TRANSITIONAL AREA
- EMPLOYMENT AREA
- NATURAL HERITAGE SYSTEM AREA
- INSTITUTIONAL AREA
- STORMWATER MANAGEMENT FACILITY (final location tbd)
- COMMUNITY PARK AREA
- NEIGHBOURHOOD PARK AREA
- VILLAGE SQUARE/URBAN SQUARE
- ELEMENTARY SCHOOL SITE
- SECONDARY SCHOOL SITE
- JOSHUA CREEK FLOODPLAIN AREA
- UTILITY CORRIDOR
- NEIGHBOURHOOD ACTIVITY NODE
- CEMETERY AREA
- NEIGHBOURHOOD CENTRE AREA
- GENERAL URBAN AREA
- SUB URBAN AREA
- HIGH DENSITY RESIDENTIAL AREA
- POLICY REFERENCE - SEE POLICY SECTION 7.4.7.2

Town of Oakville

Appendix 7.3
North Oakville Master Plan

February 2008

NOTE: The Master Plan assumes the protection of designated heritage resources in accordance with the provisions of Section 7.4.12 of the Secondary Plan



APPENDIX B

Road Traffic Data



ACOUSTICS



NOISE



VIBRATION

Victor Garcia

From: Krusto, Matt <Matt.Krusto@halton.ca>
Sent: March 9, 2022 9:34 AM
To: Victor Garcia
Subject: RE: Road Traffic Data Request - Trafalgar Road and William Halton Parkway, Oakville, Ontario

Hi Victor,

Yes Trafalgar is still valid, sorry about that.

Matt

From: Victor Garcia <vgarcia@hgcengineering.com>
Sent: March 9, 2022 9:30 AM
To: Krusto, Matt <Matt.Krusto@halton.ca>
Subject: RE: Road Traffic Data Request - Trafalgar Road and William Halton Parkway, Oakville, Ontario

CAUTION: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe. If you are unsure or need assistance please contact the IT Service Desk.

Hi Matt,

Thanks for that info, and the data for Trafalgar Road, was that valid as well?

Thanks,

Victor Garcia, P.Eng
HGC Engineering **NOISE | VIBRATION | ACOUSTICS**
Howe Gastmeier Chapnik Limited
t: 905.826.4044

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From: Krusto, Matt <Matt.Krusto@halton.ca>
Sent: March 8, 2022 1:54 PM
To: Victor Garcia <vgarcia@hgcengineering.com>
Subject: RE: Road Traffic Data Request - Trafalgar Road and William Halton Parkway, Oakville, Ontario

Hi Victor,

For William Halton Parkway, please use:

-William Halton Parkway: 36,000, 4% medium, 2% heavy, 4 lanes, ultimate ROW is 35m, posted speed 60 km/h

Matt

Victor Garcia

From: Krusto, Matt <Matt.Krusto@halton.ca>
Sent: July 23, 2019 1:21 PM
To: Victor Garcia
Subject: RE: Road traffic data verification - Dundas and Trafalgar

Hi Victor,

For Trafalgar Road, change the truck percentages to be based on the truck percentages of the existing count data AND state the 55,000 as “future ultimate” (delete year 2031).

For Dundas Street, change the truck percentages to be based on the truck percentages of the existing count data AND state the 55,000 as “future ultimate” (delete year 2031) AND change the future posted speed limit to 70 km/h.

Existing count data can be received upon request to accesshalton@halton.ca.

I hope this helps.

Matt

Matt Krusto

Transportation Planning Coordinator

Infrastructure Planning & Policy

Public Works

Halton Region

905-825-6000, ext. 7225 | 1-866-442-5866



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From: Victor Garcia <vgarcia@hgcengineering.com>
Sent: Tuesday, July 23, 2019 1:16 PM
To: Krusto, Matt <Matt.Krusto@halton.ca>
Subject: Road traffic data verification - Dundas and Trafalgar

Hi Matt,

We are conducting a noise feasibility study for a proposed residential development located at 3064 Trafalgar Road in Oakville, Ontario. A google link is included for your reference:

<https://goo.gl/maps/Lq1Bu9g2KaW4cF2g8>

APPENDIX C

Sample STAMSON 5.04 Output



ACOUSTICS



NOISE



VIBRATION

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

Description: 3-storey building with exposure to William Halton Parkway

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

```
-----
Car traffic volume   : 30456/3384   veh/TimePeriod   *
Medium truck volume : 1296/144    veh/TimePeriod   *
Heavy truck volume  : 648/72     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): 36000
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: William (day/night)

```
-----
Angle1   Angle2       : -90.00 deg   90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface    : 2 (Reflective ground surface)
Receiver source distance : 20.10 / 20.10 m
Receiver height : 7.50 / 7.50 m
Topography   : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
```

Results segment # 1: William (day)

Source height = 1.19 m

ROAD (0.00 + 70.03 + 0.00) = 70.03 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	71.30	0.00	-1.27	0.00	0.00	0.00	0.00	70.03

A

Segment Leq : 70.03 dBA

Total Leq All Segments: 70.03 dBA

Results segment # 1: William (night)

Source height = 1.19 m

ROAD (0.00 + 63.50 + 0.00) = 63.50 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	64.77	0.00	-1.27	0.00	0.00	0.00	0.00	63.50

Segment Leq : 63.50 dBA

Total Leq All Segments: 63.50 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 70.03 dBA
(NIGHT): 63.50 dBA

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

Description: South facade of 10-storey building with exposure to Burnhamthorpe Road East

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

```
-----
Car traffic volume : 47025/5225 veh/TimePeriod *
Medium truck volume : 1733/193 veh/TimePeriod *
Heavy truck volume : 743/83 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): 55000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.50
Heavy Truck % of Total Volume : 1.50
Day (16 hrs) % of Total Volume : 90.00
```

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

```
-----
Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 108.74 / 108.74 m
Receiver height : 58.50 / 58.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
```

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

```
-----
Car traffic volume : 12079/1342 veh/TimePeriod *
Medium truck volume : 135/15 veh/TimePeriod *
Heavy truck volume : 37/4 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:

J

24 hr Traffic Volume (AADT or SADT): 13280
 Percentage of Annual Growth : 2.50
 Number of Years of Growth : 1.00
 Medium Truck % of Total Volume : 1.10
 Heavy Truck % of Total Volume : 0.30
 Day (16 hrs) % of Total Volume : 90.00

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

 Angle1 Angle2 : -90.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0 / 0
 Surface : 2 (Reflective ground surface)
 Receiver source distance : 19.00 / 19.00 m
 Receiver height : 58.50 / 58.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Results segment # 1: Trafalgar (day)

 Source height = 1.11 m

ROAD (0.00 + 60.96 + 0.00) = 60.96 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	72.58	0.00	-8.60	-3.01	0.00	0.00	0.00	60.96

 Segment Leq : 60.96 dBA

Results segment # 2: Burn (day)

 Source height = 0.74 m

ROAD (0.00 + 63.22 + 0.00) = 63.22 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	64.25	0.00	-1.03	0.00	0.00	0.00	0.00	63.22

 Segment Leq : 63.22 dBA

Total Leq All Segments: 65.25 dBA

Results segment # 1: Trafalgar (night)

J

Source height = 1.11 m

ROAD (0.00 + 54.44 + 0.00) = 54.44 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	66.05	0.00	-8.60	-3.01	0.00	0.00	0.00	54.44

Segment Leq : 54.44 dBA

Results segment # 2: Burn (night)

Source height = 0.74 m

ROAD (0.00 + 56.68 + 0.00) = 56.68 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	57.71	0.00	-1.03	0.00	0.00	0.00	0.00	56.68

Segment Leq : 56.68 dBA

Total Leq All Segments: 58.71 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.25 dBA
(NIGHT): 58.71 dBA