

Noise Feasibility Study

Proposed Mixed-Use Development

Palermo Village

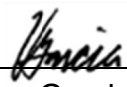
Town of Oakville, Ontario

Prepared for:

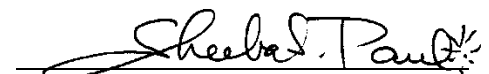
Palermo Village Corporation
4900 Palladium Way, Unit 105
Burlington, Ontario
L7M 0W7

Prepared by




Victor Garcia, PEng

Reviewed by


Sheeba Paul MEng, PEng

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Project No. 02300173

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Figure 1: Key Plan

Figure 2: Proposed Draft Plan Showing Prediction Locations

Figure 3: Aerial Photo of Site Showing Surrounding Land Uses

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1 Introduction and Summary

HGC Engineering was retained by Palermo Village Corporation to perform a noise feasibility study for a proposed mixed-use development located on the east and west sides of Regional Road 25, to the north and south of the future William Halton Parkway, to the north of Dundas Street West, and to the south of Highway 407 in the Town of Oakville, Ontario. The proposed development will consist of a variety of townhouses, single detached dwellings, several medium/high density blocks, a transit terminal, an urban square, parks, and a storm water management pond, 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, Regional Road 25, and Dundas Street West were obtained from the Region of Halton. Road traffic data for Highway 407 was obtained from HGC Engineering past project files in the area. The predicted sound levels were compared to the guidelines of the MECP, the Region of Halton and the Town of Oakville.

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 Highway 407 and/or William Halton Parkway. For the remaining dwellings, 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 Highway 407 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.

A number of high rise buildings are proposed on either side of Regional Road 25 ranging in height from 6-storeys to 35-storeys. The buildings adjacent to Regional Road 25 will require central air conditioning and upgraded building constructions especially on the facades facing the roadway. When phasing or siting information is available, detailed floor plans and building elevations should



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be reviewed to determine barrier requirements for potential outdoor amenity areas and glazing and building constructions.

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 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 on the east and west sides of Regional Road 25, to the north and south of the future William Halton Parkway, to the north of Dundas Street West, and to the south of Highway 407 in the Town of Oakville, Ontario. The preliminary draft plan prepared by Korsiak Urban Planning dated August 8, 2023 is included as Figure 2, also showing prediction locations. The proposed development may consist of a variety of townhouses, single detached dwellings, several medium/high density blocks, a transit terminal, an urban square, parks, and a storm water management pond, along with associated roadways. For the purposes of this report, it has been assumed that Blocks A, B, and C will be comprised primarily of 2 and 3-storey townhouse blocks. Blocks 1A, 1B, 2, 3, 4, 5A, 5B, and 6 were assumed to be mixed-use blocks and high density residential blocks, potentially including high rise towers.

HGC Engineering personnel visited the site in the month of March 2022. The primary sources of transportation noise are road traffic noise from Regional Road 25, William Halton Parkway, Dundas Street West, and Highway 407. Regional Road 25 is a 4-lane roadway (2 lanes in each direction) in this area; William Halton Parkway is a 2-lane roadway (1 lane in each direction) and currently only exists to the east of Regional Road 25; Dundas Street West is a 6-lane roadway (3 lanes in each direction); and Highway 407 is a 6-lane roadway (3 lanes in each direction). A 407 transitway is approved to the north of the subject site and to the south of the existing Highway 407.

To the east of Regional Road 25 are some existing residential lands along with Vaishno Devi Temple. To the south of Dundas Street West are existing residential lands, along with some commercial/retail uses. Lands immediately to the west are vacant. Further to the west is the



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Forestview Church Without Walls, Prime Industrial Corporation, and a Suez Water Technologies & Solutions corporate office. To the north of the site is Highway 407 with agricultural lands further to the north. Bronte Road Station, which is associated with the 407 Transitway, is proposed to the east of Regional Road 25 and Highway 407, approximately 330 m away from the subject site. Given the traffic volumes on Regional Road 25 and Highway 407, sound levels from the station are not expected to be significant at the subject site. Figure 3 is an aerial photo of the site showing surrounding lands uses. There are no other significant sources of stationary noise within 500 m of the subject site.

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 Regional Road 25 was obtained from Region of Halton personnel and is provided in Appendix A. A speed limit of 70 km/h was used for Regional Road 25. An existing commercial vehicle percentage of 5.7% was obtained from the Region of Halton, split into 2.2% medium trucks and 3.5% heavy trucks, along with a day-night split of 90%/10%.

Ultimate road traffic information for Dundas Street West was obtained from Region of Halton personnel and is provided in Appendix A. A speed limit of 70 km/h was used for Dundas Street West. An existing commercial vehicle percentage of 4.0% was obtained from the Region of Halton, split into 2.1% medium trucks and 1.9% 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. Additionally, future bus traffic on the proposed 407 transitway are not expected to significantly impact the predicted sound levels as an ultimate volume is already being considered for Highway 407.

Ultimate road traffic information for William Halton Parkway was obtained from Region of Halton personnel and is provided in Appendix A. 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 4% medium trucks and 2% heavy trucks, along with a day-night split of 90%/10%.

Table 2 summarizes the traffic data used in this study.

Table 2: Ultimate Road Traffic Data

Road Name		Cars	Medium Trucks	Heavy Trucks	Total
Regional Road 25 <i>Ultimate</i>	Daytime	43 284	1 010	1 606	45 900
	Nighttime	4 809	112	179	5 100
	Total	48 093	1 122	1 785	51 000
Dundas Street West <i>Ultimate</i>	Daytime	47 520	1 040	940	49 500
	Nighttime	5 280	115	105	5 500
	Total	52 800	1 155	1 045	55 000
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
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

4.2 Road Traffic Noise Predictions

The sound propagation portion of the modelling has been completed using methods from ISO Standard 9613-2, “Acoustics – Attenuation of Sound During Propagation Outdoors”, which accounts for reduction in sound level with distance due to geometrical spreading, air absorption, ground attenuation and acoustical shielding by intervening structures. The *Cadna-A* (version

2022 MR2: build 193.5260) software package was also used for this purpose, as it is well equipped to process calculations in complex, three-dimensional environments. ISO 9613-2 is a widely recognized standard for predicting sound propagation in the environment, and is accepted by many Ontario municipalities, and the MECP.

The road noise sources have been included in the model using line sources, calibrated to be equal at a reference distance of 15 m to levels predicted in STAMSON 5.04, a computer algorithm developed by the MECP, based on the volumes presented in Table 2.

The model was used to predict traffic noise levels at each of the building façades. Predicted daytime and nighttime sound levels at various locations throughout the site, and summarized in the following table.

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

Prediction Location	Description	Daytime – in the OLA L _{EQ-16 hr}	Daytime – at the Façade L _{EQ-16 hr}	Nighttime – at the Façade L _{EQ-8 hr}
[A]	Townhouses with exposure to RR25 and Hwy 407	N/A	69	65
[B]	Townhouses with exposure to Hwy 407, Some exposure to RR25	N/A	70	65
[C]	Single-detached dwelling with exposure to Hwy 407	70	71	66
[D]	Single-detached dwelling with some exposure to Hwy 407	60	61	57
[E]	Townhouses with fronting exposure from William Halton Pkwy	N/A	68	62
[F]	Dwellings in second row from William Halton Pkwy	N/A	59	53
[G]	Townhouses with exposure to RR25	N/A	65	60
[H]	Dwellings in second row from RR25	N/A	58	53
[I]	Townhouses with exposure to RR25	N/A	66	61
[J]	Dwellings in interior of developments	N/A	63	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

A large portion of the proposed development is proposed to include back-to-back townhouses, lane-based townhouses, or dual frontage dwellings. These dwellings do not have rear yards. No further mitigation is required.

The predicted daytime sound level in the rear yards of the dwellings with some backing exposure to Hwy 407 (prediction location [C]) will be 70 dBA, 15 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 4.2 m in height will reduce sound levels to 59 dBA. The 4 dBA sound level excess is acceptable to the MECP if it is acceptable to the municipality. Alternatively, a 6.0 m acoustic barrier is required for the rear yard to reduce sound levels to 55 dBA.

The predicted daytime sound level in the rear yards of the dwellings with some backing exposure to Hwy 407 (prediction location [D]) will be 60 dBA, 5 dBA in excess of the MECP's limit of 55 dBA. The 5 dBA sound level excess is acceptable to the MECP if it is acceptable to the municipality. No further mitigation is required.

Blocks A, B, and C

Townhouses are assumed to be located on these blocks. If traditional townhouses with rear yards are proposed with backing exposure to Hwy 407, Regional Road 25, or William Halton Parkway, acoustic barriers may be required. Back-to-back townhouses and/or lane-based townhouses are recommended for the areas closest to these roadways to reduce the risk for high acoustic barriers.

Further Work

When detailed grading plans are available, the acoustic barrier requirements should be refined.



Medium/Low Density, Medium/High Density, and High Density Mixed Use Blocks

There are numerous medium/low density, medium/high density and high density mixed-use blocks on either side of Regional Road 25. Since the details of the siting, density and height of the buildings are not known for these blocks, a detailed noise study will be required for these blocks to determine the acoustic requirements (acoustic barriers, ventilation and building façade construction) when siting, grading, building elevations and floor plans are available. From experience with past projects, it is likely that the buildings adjacent to Regional Road 25 will require air conditioning and upgraded building constructions. Large outdoor amenity areas will need to be reviewed to determine acoustic barrier requirements when these details are available.

Transit Terminal

Residential blocks near the transit terminal may be impacted by the activities associated with the bus terminal. A noise study is required for the transit terminal by their developer during the approvals process and at the time of Site Plan approval when the siting plans are available to determine the impact of their activities on the existing and future residential uses nearby. Typically, noisy sources such as rooftop mechanical equipment, compressor or condenser units, busing activities including idling and bus movements will need to be considered. A noise study is required to ensure that the noise emissions from the bus terminal complies with MECP guidelines limits contained in NPC-300 and necessary noise mitigation may be provided as warranted. In order to minimize the amount of mitigation potentially required for the transit terminal, a more suitable location may include one closer to Dundas Street West or Highway 407, where the proposed surrounding residences may benefit more from elevated criteria.

Urban Square

The uses of the urban square block are not known at this time. Residential blocks near these future blocks may be impacted by the activities associated with uses proposed for the blocks. A noise study is required for the urban square block by their developer during the approvals process and at the time of Site Plan approval when the siting plans including building elevations and potential uses are available to determine the impact of their activities on the existing and future residential uses nearby. Typically, noisy sources such as rooftop mechanical equipment, compressor or condenser units,



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rooftop cooling towers or trucking activities along with loading areas will need to be considered. A noise study is required to ensure that the noise emissions from the commercial/business facilities complies with MECP guidelines limits contained in NPC-300.

5.2 Indoor Living Areas

Air Conditioning

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

Medium/Low Density, Medium/High Density, and High Density Mixed Use Blocks

From experience with past projects, the residential blocks adjacent to Regional Road 25 will require air conditioning. A detailed noise study will be required for these blocks to determine the acoustic requirements (acoustic barriers, ventilation and building façade construction) when siting, grading, building elevations and floor plans are available.

Provision for the Future Installation of Air Conditioning

The predicted sound levels at the plane of the windows of the majority of the remaining dwellings 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. A typical window to floor area of 50% (40% fixed and 10% operable) for living/dining rooms and 40% (30% fixed and 10% operable) for bedrooms, along with a maximum wall to floor area ratio of 125% was assumed in the analysis. 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
[A]	Townhouses with exposure to RR25 and Hwy 407	STC-33
[B]	Townhouses with exposure to Hwy 407. Some exposure to RR25	STC-34
[C]	Single-detached dwelling with exposure to Hwy 407	STC-36
[D]	Single-detached dwelling with some exposure to Hwy 407	OBC
[E]	Townhouse with fronting exposure from William Halton Pkwy	STC-31
[F]	Dwellings in second row from William Halton Pkwy	OBC
[G]	Townhouses with exposure to RR25	OBC
[H]	Dwellings in second row from RR25	OBC
[I]	Townhouses with exposure to RR25	STC-30
[J]	Dwellings in interior of developments	OBC

Note:

¹ Based on assumed window to floor area ratios of 50% (40% fixed and 10% operable) for living/dining rooms, 40% (30% fixed and 10% operable) for bedrooms, and a maximum wall to floor area ratio of 125%..

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. If a brick exterior façade were used for the dwellings the glazing requirements may be reduced. 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 dwellings, the glazing requirements should be refined based on actual window to floor and wall to floor area ratios.

Medium/Low Density, Medium/High Density, and High Density Mixed Use Blocks

From experience with past projects, the buildings adjacent to Regional Road 25 will require upgraded building constructions. A detailed noise study will be required for these blocks to

determine the acoustic requirements (acoustic barriers, ventilation and building façade construction) when siting, grading, building elevations and floor plans are available.

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.

Suggested wording for buildings with sound level excesses the MECP criteria is given below:

Type A:

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.

Suggested wording for future dwellings 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.

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.

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

6 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. Acoustic barriers are required for the rear yards of dwellings closest to Highway 407. When detailed grading plans are available, acoustic barrier requirements should be refined.
2. Central air conditioning is required for dwellings closest to Highway 407 or William Halton Parkway. Forced air ventilation with ducts sized for the future installation of air conditioning by the occupant is required for the remaining dwellings in the development. 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 Highway 407 or William Halton Parkway. 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. A detailed noise study should be conducted for the entire site when lotting and grading information is available to refine acoustic barrier requirements and when detailed floor plans and



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building elevations are available to refine glazing constructions based on actual window to floor area ratios.

5. Warning clauses should be used to inform future residents of the traffic noise issues.
6. A transit terminal and urban square block are proposed for the site. Some dwellings near these blocks may be impacted by the activities of the blocks. A noise study is required for the transit terminal and urban square block as part of the approvals process and at the time of Site Plan approval when the siting plans including building elevations and potential uses are available to determine the impact of its activities on the existing and future residential uses nearby. Typically, noisy sources such as rooftop mechanical equipment, compressor or condenser units, or rooftop cooling towers, truck/bus movements will need to be considered. The buildings should be appropriately designed to consider the proposed residences. A noise study is required to ensure that the noise emissions from the facilities on the innovation blocks comply with MECP guidelines limits contained in NPC 300.

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	Description	Acoustic Barrier	Ventilation Requirements*	Type of Warning Clause	Preliminary Recommended STC
[A]	Townhouses with exposure to RR25 and Hwy 407	--	Central A/C	A, C	STC-33
[B]	Townhouses with exposure to Hwy 407. Some exposure to RR25	--	Central A/C	A, C	STC-34
[C]	Single-detached dwelling with exposure to Hwy 407	✓	Central A/C	B, C	STC-36
[D]	Single-detached dwelling with some exposure to Hwy 407	--	Forced Air	A, D	OBC
[E]	Townhouses with fronting exposure from William Halton Pkwy	--	Central A/C	A, C	STC-31
[F]	Dwellings in second row from William Halton Pkwy	--	Forced Air	A, D	OBC
[G]	Townhouses with exposure to RR25	--	Forced Air	A, D	OBC
[H]	Dwellings in second row from RR25	--	Forced Air	A, D	OBC
[I]	Townhouses with exposure to RR25	--	Central A/C	A, C	STC-30
[J]	Dwellings in interior of developments	--	Forced Air	A, D	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.



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6.1 Implementation

To ensure that the noise control recommendations outlined above are properly implemented prior to registration, it is recommended that:

1. A detailed noise study is required for the entire site to determine the acoustic requirements when siting information is available.
2. Prior to the issuance of building permits for this development, a Professional Engineer qualified to perform acoustical engineering services in the Province of Ontario should review the grading plans and architectural plans (floor plans and building elevations) for future dwellings with exposure to Highway 407 or William Halton Parkway to refine acoustic barrier heights, building and glazing requirements based on actual window areas to floor areas ratios and to ensure proposed building constructions are adequately designed to ensure acceptable indoor noise levels.
3. Prior to the issuance of occupancy permits for this development, the City'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.



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Limitations

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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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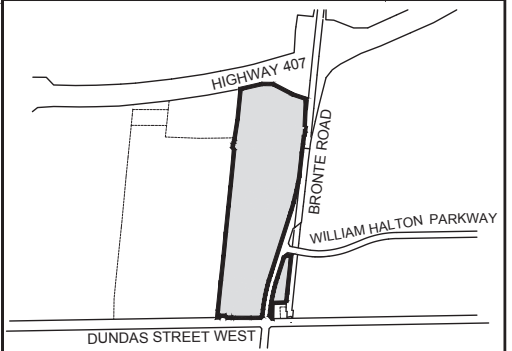


Figure 1 - Key Plan

DRAFT PLAN OF SUBDIVISION 24T-

PART OF LOT 31
CONCESSION 1, NORTH OF DUNDAS STREET

GEOGRAPHIC TOWNSHIP OF TRAFALGAR
NOW IN THE
TOWN OF OAKVILLE
REGIONAL MUNICIPALITY OF HALTON



KEY MAP Subject Lands

OWNER'S AUTHORIZATION

I HEREBY AUTHORIZE KORSIK URBAN PLANNING TO PREPARE AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION TO THE TOWN OF OAKVILLE FOR APPROVAL.

SIGNED _____ DATE _____ Month Day, 2023
Gord Buck
PALERMO VILLAGE IV CORPORATION
ARGO (PALERMO VILLAGE) LIMITED
4900 Palladium Way, Suite 105
Burlington, Ontario L7M 0W7

SIGNED _____ DATE _____ Month Day, 2023
Michael Shapiro
NEWMARK PALERMO HOLDINGS INC.

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AS SHOWN ON THIS PLAN AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE CORRECTLY AND ACCURATELY SHOWN.

SIGNED _____ DATE _____ Month Day, 2023
Shan Goonewardena, Ontario Land Surveyor

epe R-PE Surveying LTD.
ONTARIO LAND SURVEYORS
643 CHRISLEA ROAD, SUITE 7, WOODBRIDGE, ONTARIO L4L 8A3
TEL: (416) 635-5000 FAX: (416) 635-5001

ADDITIONAL INFORMATION (UNDER SECTION 51 (17) OF THE PLANNING ACT)

- A) SHOWN ON PLAN
- B) SHOWN ON PLAN
- C) SHOWN ON PLAN
- D) SHOWN ON PLAN
- E) SHOWN ON PLAN
- F) SHOWN ON PLAN
- G) SHOWN ON PLAN
- H) MUNICIPAL AND PIPED WATER TO BE PROVIDED
- I) CLAY LOAM
- J) SHOWN ON PLAN
- K) SANITARY AND STORM SEWERS TO BE PROVIDED
- L) SHOWN ON PLAN

LAND USE SCHEDULE

Land Use	Lots/Blocks	Block Total	Area (ha)	Units
□ Single Detached (12.80m)	1, 6-16, 26, 27	14	0.59	14
△ Single Detached (11.60m)	2, 5, 17-22	8	0.35	8
◇ Single Detached (11.00m)	3, 4, 23-25	5	0.23	5
○ Single Detached (15.24m)	28	1	0.03	1
Medium Density Residential Condominium Block	29-32	4	16.42	
High Density Residential Condominium Block	33-36	4	7.38	
Mixed Use Condominium Block	37-39	3	2.71	
Stormwater Management Pond	40	1	0.06	
Park	41	1	2.25	
Village Square	42	1	0.16	
Walkway (3m)	43	1	0.01	
Natural Heritage System (NHS)	44, 45	2	5.68	
Open Space	46, 47	2	1.45	
Transit Terminal	48	1	1.24	
Transitway	49	1	1.50	
Residential Reserve	50, 51	2	0.11	
Road Widening	52, 53	2	0.43	
0.3m Reserve	54, 55	2	0.00	
17m ROW (1,774 m)			3.06	
22m ROW (1,446 m)			3.27	
26m ROW (291 m)			0.80	
Totals	1-55	55	47.73	28

SDE CALCULATIONS

Unit Type	Lots/Blocks	Units	SDE*
Single Detached	1-28	28	28
Total		28	28.0

* SDE Factors:
Single Detached - 1.00

DATE	REVISION	DWG	BY
August 8, 2023	First Submission	A	WS
Jan. 17, 2023	Draft for Review	A	KC
DATE	REVISION	DWG	BY

NOTES:

- Pavement illustration is diagrammatic
- Connector or Avenue to Arterial daylight triangle = 15m
- Connector or Avenue to Connector or Avenue daylight triangle = 7.5m
- All other daylight triangles = 3.5m



SCALE 1:2000	August 8, 2023		A
DRAWN BY: WS	CHECKED BY: KC		

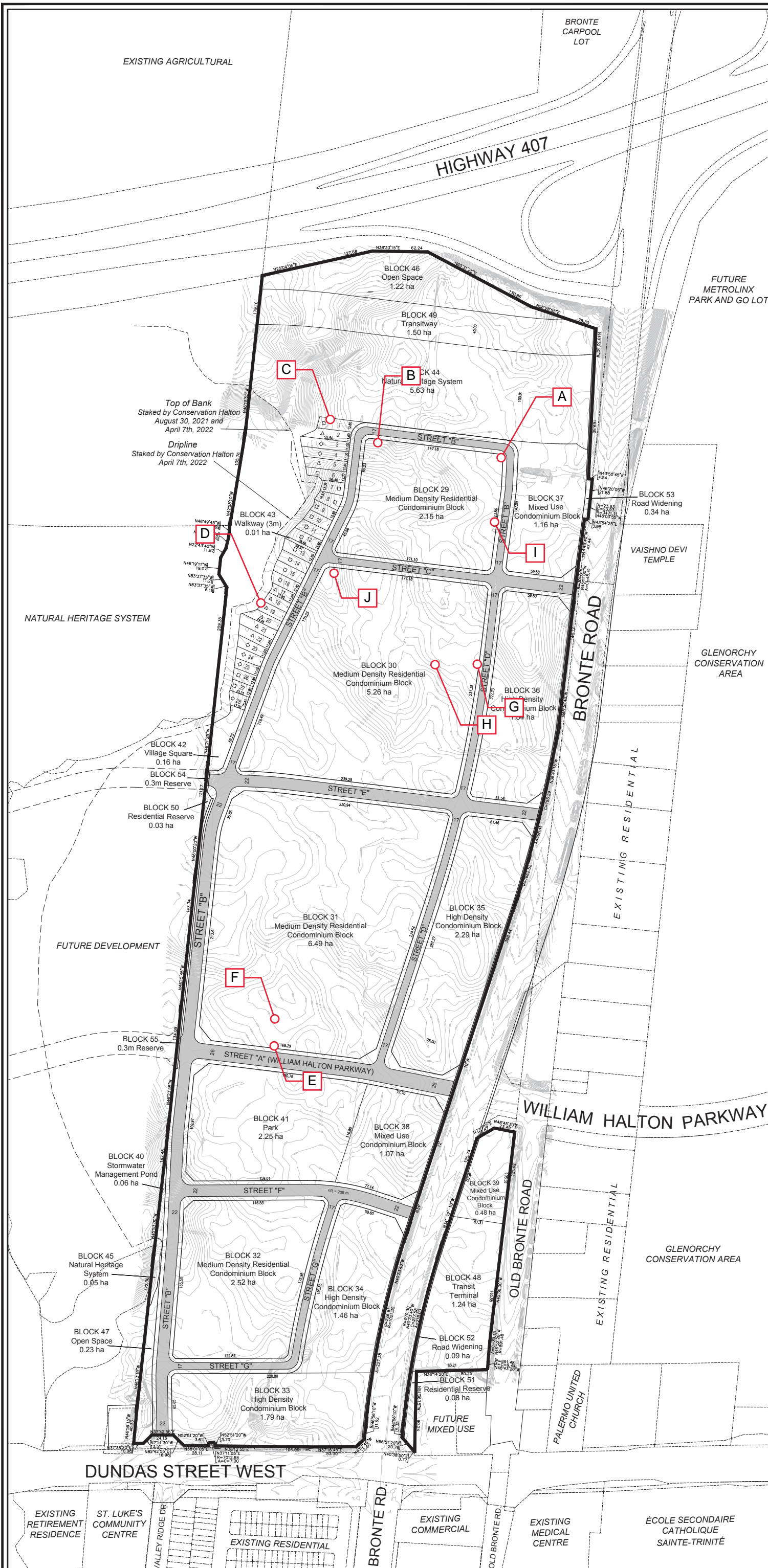


Figure 2 - Proposed Draft Plan Showing Prediction Locations



Figure 3 - Aerial Photo of Site Showing Surrounding Land Uses

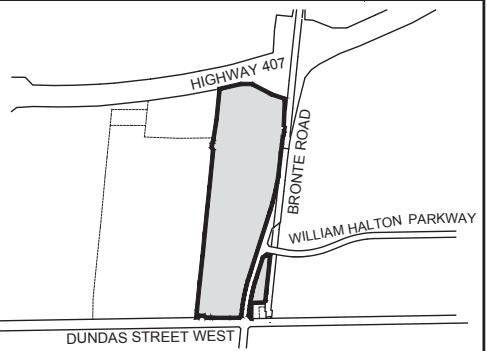
LEGEND

- Air conditioning required
- Forced air ventilation with ducts sized for the future installation of air conditioning by the occupant is required

DRAFT PLAN OF SUBDIVISION 24T-

PART OF LOT 31
CONCESSION 1, NORTH OF DUNDAS STREET

GEOGRAPHIC TOWNSHIP OF TRAFALGAR
NOW IN THE
TOWN OF OAKVILLE
REGIONAL MUNICIPALITY OF HALTON



KEY MAP Subject Lands

OWNER'S AUTHORIZATION
I HEREBY AUTHORIZE KORSIK URBAN PLANNING TO PREPARE AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION TO THE TOWN OF OAKVILLE FOR APPROVAL.

SIGNED _____ DATE _____ Month Day, 2023
Gord Buck
PALERMO VILLAGE IV CORPORATION
ARGO (PALERMO VILLAGE) LIMITED
4900 Palladium Way, Suite 105
Burlington, Ontario L7M 0W7

SIGNED _____ DATE _____ Month Day, 2023
Michael Shapiro
NEWMARK PALERMO HOLDINGS INC.

SURVEYOR'S CERTIFICATE
I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AS SHOWN ON THIS PLAN AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE CORRECTLY AND ACCURATELY SHOWN.

SIGNED _____ DATE _____ Month Day, 2023
Shan Goonewardena, Ontario Land Surveyor

ADDITIONAL INFORMATION (UNDER SECTION 51 (17) OF THE PLANNING ACT)

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◇ Single Detached (11.00m)	3, 4, 23-25	5	0.23	5
○ Single Detached (15.24m)	28	1	0.03	1
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High Density Residential Condominium Block	33-36	4	7.38	
Mixed Use Condominium Block	37-39	3	2.71	
Stormwater Management Pond	40	1	0.06	
Park	41	1	2.25	
Village Square	42	1	0.16	
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0.3m Reserve	54, 55	2	0.00	
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26m ROW (291 m)			0.80	
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SDE CALCULATIONS

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Single Detached	1-28	28	28
Total		28	28.0

* SDE Factors:
Single Detached - 1.00

DATE	REVISION	DWG	BY
August 8, 2023	First Submission	A	WS
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SCALE 1:2000 August 8, 2023
DRAWN BY: WS CHECKED BY: KC

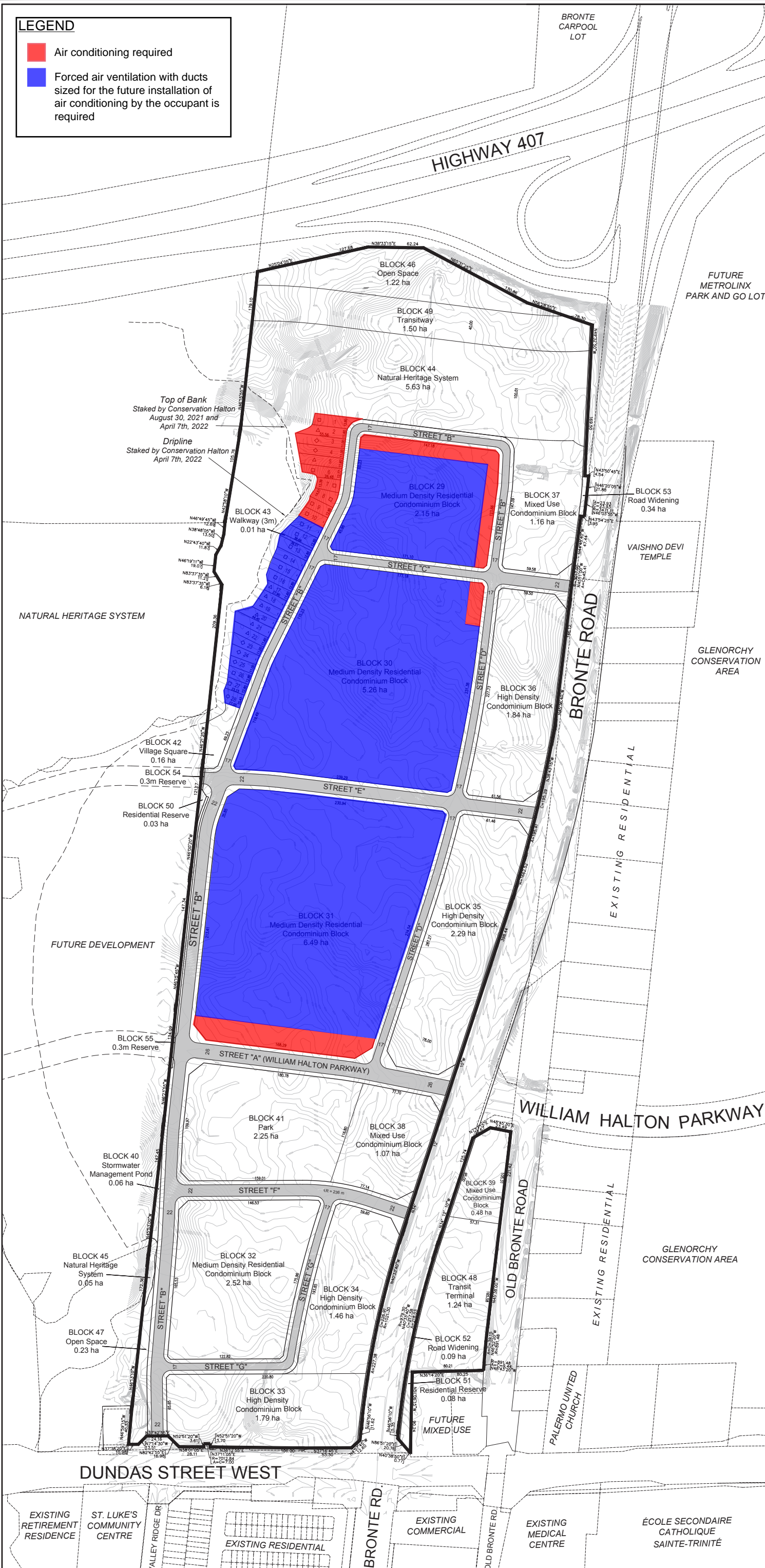


Figure 4 - Proposed Draft Plan Showing Barrier and Ventilation Requirements

S:\Korsiak & Company\ARGO\Newmark\Draft Plan of Subdivision\2023-08\Palermo - Draft Plan - Aug-08-23_kc.dwg

APPENDIX A

Road Traffic Data



ACOUSTICS



NOISE



VIBRATION

Victor Garcia

From: Krusto, Matt <Matt.Krusto@halton.ca>
Sent: July 28, 2022 2:36 PM
To: Victor Garcia
Cc: Khan, Ayesha
Subject: RE: Road Traffic Data Request - William Halton Pkwy and Dundas St W

Hi Victor,

I hope things are well. Say hi to boss lady Sheeba for me.

Yes, that data is still valid. Dundas Street truck volumes must be based on existing truck percentages, and data can be obtained at trafficdatarequests@halton.ca

Please keep in mind, depending on the site plan design, that Halton's initial position is always - ***in order to reduce the need for physical mitigation it is suggested that the land use be planned such that out-door living areas are not constructed adjacent to Regional Roads.***

Hope this helps.

Matt

Matt Krusto

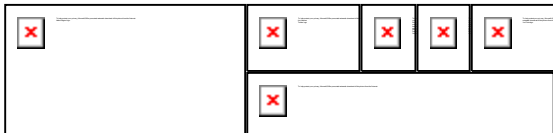
Supervisor, Transportation Development Review

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: July 28, 2022 1:58 PM
To: Krusto, Matt <Matt.Krusto@halton.ca>
Subject: Road Traffic Data Request - William Halton Pkwy and Dundas St W

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,

HGC Engineering is preparing a noise feasibility study for a proposed development located to the southwest of the intersection of William Halton Parkway and Hospital Gate in Oakville, Ontario. A google link is included for your reference below:

<https://goo.gl/maps/jkxW9Sp6WjCmneTD8>

We currently have the data below for William Halton Parkway:

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

And for Dundas Street West:

AADT = 55,000. Existing posted speed along this section is currently 70 km/h and 6 lanes.

Please let me know if this data is still valid in this area.

Thanks,

Victor Garcia, P.Eng
Associate

HGC Engineering [NOISE](#) | [VIBRATION](#) | [ACOUSTICS](#)
Howe Gastmeier Chapnik Limited
2000 Argentia Road, Plaza One, Suite 203, Mississauga, Ontario, Canada L5N 1P7
t: 905.826.4044 e: vgarcia@hgcengineering.com
Visit our website – www.hgcengineering.com Follow Us – [LinkedIn](#) | [Twitter](#) | [YouTube](#)

This e-mail and any attachments may contain confidential and privileged information. If you are not the intended recipient, please notify the sender immediately by return e-mail, delete this e-mail and destroy any copies. Any dissemination or use of this information by a person other than the intended recipient is unauthorized and may be illegal. Any conclusions or recommendations provided by HGC Engineering in this e-mail or any attachments have [limitations](#).

Waster Stat#	Description	Count date	total vol	ampr end	ampr vol	off pk end	offpk vol	pm pk end	pkhr vol	8hr vol	13hr vol	ted speed (0=speed (k) av g km)	85percent	exceeding #/cars	# sml trk	# med trk/b/hvy trk	%cars	%smal trk	% med trk	% hvy trk	headway m	headway n	temp min (0=Temp max	surface						
100500	Dundas Street - between Hwy 407 EB Off-Ramp and Northampton Boulevard	14-Apr-22	30,370	8:45	2,131	14:00	1,800	17:30	2,845	17,047	25,400	80	70	80	91.63	47.00%	28,682	303	535	720	94.8%	1.0%	1.8%	2.4%	1.22	180.00	11	26	Dry	
100501	Dundas Street - between Kerns Road and Brant Street	14-Apr-22	25,286	8:30	1,845	13:45	1,474	17:15	2,405	14,333	21,094	80	80	86	98.12	71.70%	23,990	273	405	297	96.1%	1.1%	1.6%	1.2%	1.39	180.00	10	29	Dry	
100502	Dundas Street - west of Guelph Line	14-Apr-22	25,788	8:30	1,989	13:45	1,647	17:00	2,762	15,596	22,508	80	70	79	91.30	44.50%	24,695	218	383	280	96.6%	0.9%	1.5%	1.1%	1.27	180.00	8	30	Dry	
100503	Dundas Street - between Guelph Line and 407 WB Off-Ramp	14-Apr-22	31,565	8:45	2,204	14:00	1,827	17:15	3,113	17,963	26,545	60	70	77	88.95	94.60%	29,959	286	547	506	95.7%	0.9%	1.7%	1.6%	1.13	150.00	11	29	Dry	
100504	Dundas Street - 1000m east of Walkers Line	14-Apr-22	35,863	9:00	2,393	14:00	2,013	17:15	2,986	18,768	28,323	60	60	65	76.35	66.90%	33,436	339	581	356	96.3%	0.9%	1.7%	1.0%	1.16	100.00	11	27	Dry	
100506	Dundas Street - 500m west of Tremaine Road	21-Jun-22	31,557	9:00	2,502	13:15	1,777	16:30	2,987	17,621	25,907	80	70	78	91.86	41.40%	29,883	335	459	582	95.0%	1.1%	1.9%	1.9%	1.16	128.57	20	50	Dry	
100507	Dundas Street - between Bronte Road and Postmaster Drive	14-Apr-22	34,215	9:00	2,336	12:30	1,874	16:30	3,066	18,555	27,602	70	70	73	86.14	61.20%	32,260	371	647	598	95.2%	1.1%	1.9%	1.8%	1.11	69.23	11	27	Dry	
100508	Dundas Street - between Lions Valley Park Road and Neyagawa Boulevard	14-Apr-22	47,974	9:00	3,366	14:00	2,696	16:15	4,232	25,974	38,661	70	70	75	88.88	63.90%	45,627	467	634	723	96.2%	1.0%	1.3%	1.5%	0.83	75.00	11	27	Dry	
100509	Dundas Street - between Harman Gate and Sixth Line	14-Apr-22	45,514	9:00	2,849	13:45	2,550	16:30	3,791	23,614	35,743	60	60	68	78.62	79.30%	43,847	344	520	544	96.9%	0.8%	1.1%	1.2%	0.91	52.94	11	26	Dry	
100510	Dundas Street - between Sixth Line and Oak Park Boulevard	14-Apr-22	47,726	9:00	2,965	13:45	2,698	18:00	3,887	24,508	37,264	60	60	64	75.63	61.10%	45,873	368	602	607	96.7%	0.8%	1.3%	1.3%	0.90	50.00	11	26	Dry	
100511	Dundas Street - between Oak Park Boulevard and Trafalgar Road	14-Apr-22	49,468	9:00	3,063	14:00	2,713	18:00	3,970	25,055	38,400	60	60	62	74.22	54.10%	47,178	585	684	709	96.0%	1.2%	1.4%	1.4%	0.87	50.00	11	26	Dry	
100512	Dundas Street - between Trafalgar Road and Postridge Drive	14-Apr-22	49,753	9:00	2,994	14:00	2,824	16:45	4,066	25,350	38,797	70	50	57	72.41	18.20%	47,539	391	642	786	96.3%	0.8%	1.3%	1.6%	0.87	56.25	12	26	Dry	
100513	Dundas Street - between Prince Michael Drive and Meadowridge Drive	14-Apr-22	51,191	9:00	3,106	14:00	2,943	17:45	4,093	25,948	39,761	70	70	76	88.66	70.60%	49,242	360	596	848	96.5%	0.7%	1.2%	1.7%	0.84	42.86	11	25	Dry	
100514	Dundas Street - between Ninth Line And Hwy 403 Wb off-ramp	21-Apr-22	51,362	9:00	2,843	13:45	3,084	17:45	4,379	26,424	40,168	60	50	59	73.99	41.80%	49,347	492	670	763	96.2%	1.0%	1.3%	1.5%	0.78	37.50	5	31	Dry	
100515	Dundas Street - between Hwy 403 EB off-ramp and Hyde Park Gate	21-Apr-22	46,866	9:00	2,522	14:00	3,216	17:15	4,114	24,841	37,536	60	50	61	75.50	48.90%	44,775	471	750	778	95.7%	1.0%	1.6%	1.7%	0.83	52.94	5	30	Dry	
100516	Dundas Street - between Hamshire Gate and Winston Churchill Blvd	21-Apr-22	39,896	9:00	1,861	13:45	2,855	17:15	3,384	20,875	31,486	60	50	56	68.47	31.60%	38,475	344	476	535	96.6%	0.9%	1.2%	1.3%	0.99	42.86	5	31	Dry	
100517	Dundas Street - East of Third Line	21-Apr-22	41,512	8:45	2,890	13:45	2,580	16:30	3,796	22,789	33,675	60	60	69	80.85	76.10%	39,859	330	608	643	96.2%	0.8%	1.5%	1.6%	0.92	69.23	6	29	Dry	
102503	Regional Road 25- between Dundas Street and Burnhamthorpe Road	21-Jun-22	32,618	8:45	2,779	13:45	1,732	17:45	2,863	17,292	26,325	70	80	86	98.79	90.40%	29,980	387	723	1,139	92.5%	1.8%	2.2%	3.5%	1.22	69.23	21	52	Dry	
102504	Regional Road 25- 200m north of Lower Base Line	21-Apr-22	27,997	8:30	2,071	12:45	1,586	16:30	2,242	14,698	22,120	80	80	87	98.73	71.60%	26,092	379	538	849	92.7%	1.4%	1.9%	3.0%	1.58	56.25	5	36	Dry	
102505	Regional Road 25 - between Brantara Road and Derry Road	21-Apr-22	26,656	8:45	1,979	13:15	1,470	16:30	2,089	13,716	20,740	70	70	74	85.89	62.10%	25,053	342	459	741	94.2%	1.3%	1.7%	2.8%	1.62	47.37	6	31	Dry	
102506	Regional Road 25 - south of Hwy 401 off-ramp	22-Jun-22	27,482	8:45	1,805	13:00	1,734	17:15	1,906	13,930	21,202	70	60	66	79.91	37.30%	21,498	1,094	1,430	3,348	78.5%	4.0%	5.2%	12.2%	1.73	31.03	25	45	Dry	
102507	Regional Road 25 - south of Campbellville Road	21-Apr-22	13,860	8:00	863	14:00	824	17:00	1,325	7,425	11,502	70	60	69	81.84	44.40%	12,418	315	382	712	89.8%	2.3%	2.8%	5.1%	2.62	128.57	6	30	Dry	
102508	Regional Road 25 - between # 5 Side Road and # 10 Side Road	21-Apr-22	12,736	8:30	840	14:00	716	17:15	1,214	6,925	10,367	80	70	82	97.00	54.60%	11,515	235	281	591	91.2%	1.9%	2.2%	4.7%	2.80	225.00	6	27	Dry	
102509	Regional Road 25 - south of # 15 Side Road	22-Jun-22	12,351	8:15	1,010	14:00	671	17:45	1,073	6,488	9,872	80	90	91	102.77	84.20%	10,777	243	380	864	87.9%	2.0%	3.1%	7.0%	3.16	180.00	28	51	Dry	
102510	Regional Road 25 - 300m north of # 15 Side Road	21-Apr-22	10,906	8:00	741	14:00	601	17:15	1,071	5,907	8,861	80	80	83	97.51	56.80%	9,920	202	248	454	91.6%	1.9%	2.3%	4.2%	3.23	150.00	5	29	Dry	
102511	Regional Road 25 - between # 22 Side Road and # 25 Side Road	21-Apr-22	10,634	8:15	732	14:00	599	17:15	1,052	5,828	8,666	80	90	91	101.87	86.30%	9,618	185	304	456	91.1%	1.8%	2.9%	4.3%	3.26	180.00	4	32	Dry	
102512	Regional Road 25 - 500m south of # 32 Side Road	21-Apr-22	4,606	8:15	291	14:00	295	17:15	435	2,483	3,820	80	80	84	95.66	63.40%	4,178	63	113	248	90.8%	1.4%	2.5%	5.4%	1.76	450.00	3	35	Dry	
102513	Regional Road 25 - between OE/W EB on off-ramps and Wycroft Road	21-Apr-22	24,379	9:00	1,752	13:15	1,866	17:30	2,118	13,952	20,585	60	50	56	67.71	32.30%	22,856	338	626	508	93.9%	1.4%	2.6%	2.1%	1.57	81.82	6	30	Dry	
102514	Regional Road 25 - between Steeles Avenue and Market Drive	21-Apr-22	30,979	8:45	1,848	13:30	1,866	17:30	2,296	15,454	23,753	50	60	62	70.99	91.60%	28,949	524	541	933	93.5%	1.7%	1.7%	3.0%	1.47	31.03	6	28	Dry	
102515	Regional Road 25 - Market Drive and Hwy 401 EB on off-ramps	22-Jun-22	32,213	8:15	2,129	13:15	1,972	17:15	2,569	15,948	24,725	50	50	52	65.41	61.40%	28,442	885	1,204	1,638	88.4%	2.8%	3.7%	5.1%	1.54	28.13	28	50	Dry	
102516	Regional Road 25- 80m south of North Service Road	21-Apr-22	28,257	8:30	2,746	14:00	2,410	17:15	3,228	20,896	31,071	60	50	62	75.31	53.50%	35,697	556	798	1,133	93.5%	1.5%	2.1%	3.0%	1.06	52.94	6	29	Dry	
102517	Regional Road 25 - 300m south of Dundas Street	21-Apr-22	25,986	8:45	2,230	13:45	1,390	17:00	2,308	14,507	21,606	60	50	60	72.51	47.60%	23,852	430	647	1,037	91.9%	1.7%	2.5%	4.0%	1.48	81.82	6	29	Dry	
102518	Regional Road 25 - 300m north of Dundas Street	21-Jun-22	28,498	8:45	2,348	14:00	1,526	17:30	2,463	15,363	23,058	70	70	74	87.33	61.20%	25,933	479	754	1,116	91.7%	1.7%	2.7%	3.9%	1.34	64.29	22	50	Dry	
102519	Regional Road 25 - Between north-407 Ramp and Burnhamthorpe	21-Apr-22	31,151	8:30	2,478	12:45	1,685	16:30	2,703	16,871	25,076	80	80	82	94.91	53.60%	28,940	409	710	942	93.4%	1.3%	2.3%	3.0%	1.27	52.94	6	27	Dry	
102520	Regional Road 25 - 250m south of Henderson Road	21-Apr-22	30,996	8:30	2,525	14:00	1,684	17:30	2,516	16,499	24,785	80	80	86	98.59	71.10%	28,797	366	631	984	93.6%	1.2%	2.1%	3.2%	1.33	56.25	5	30	Dry	
102521	Regional Road 25 - 250m south of Louis St	21-Apr-22	27,309	8:30	2,064	12:45	1,511	16:30	2,132	14,236	21,486	70	80	84	97.06	89.10%	25,637	338	441	815	94.1%	1.2%	1.6%	3.0%	1.58	56.25	6	31	Dry	
102522	Regional Road 25 - 200m north of Brant St Laurent	21-Apr-22	26,152	8:45	1,860	13:30	1,525	16:15	1,902	13,141	20,093	70	70	80	80	90.64	86.40%	24,369	295	564	856	93.4%	1.1%	2.2%	3.3%	1.76	50.00	6	30	Dry