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PRELIMINARY ENVIRONMENTAL NOISE REPORT

PROPOSED LONG-TERM CARE
HOME DEVELOPMENT
6360 REGIONAL ROAD 25
TOWN OF MILTON



Prepared for
Excelligent Milton LTC
c/o GSAI

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SUMMARY

The proposed long-term care home development is located at 6360 Regional Road 25, west of Regional Road 25 and south of Louis St. Laurent Avenue in the Town of Milton. It is subject to road traffic noise from Regional Road 25 and Louis St. Laurent Avenue. Potential noise associated with commercial and industrial facilities in the area including the future Canadian National (CN) Railway Company rail yard (Milton Logistics Hub) has also been evaluated.

The proposed development is comprised of one (1) midrise long-term care home building with one (1) level of underground parking, six (6) floors of long-term care home units, mixed with commercial retail/office spaces and indoor amenity spaces, a ground level secured courtyard outdoor amenity, landscaped areas and a driveway.

The environmental noise guidelines for transportation and stationary sources of the Town of Milton, the Region of Halton and the Ministry of the Environment, Conservation and Parks (MOE) set out sound level limits for both the indoor (transportation sources only) and building façade/outdoor space (both transportation and stationary sources).

The sound levels for various locations in the long-term care home development were determined using the road traffic data obtained from the Region of Halton and Town of Milton. Sound levels due to the adjacent roads were determined using ORNAMENT, the noise prediction model of the MOE.

It was found that with appropriate mitigative measures the proposed units in the proposed midrise long-term care home building will meet the noise guidelines. All long-term care home units facing north, east and south require mandatory central air conditioning due to the road traffic and a warning clause. Other units require provision for adding central air conditioning and a warning clause. As the subject midrise long-term care home building is proposed to be designed with a central air conditioning system, the noise mitigation requirements with respect to central air conditioning will be satisfied.

The 2nd level roof terrace facing east and other private balconies or elevated terraces are not intended to be used as outdoor amenity areas. An acoustically protected outdoor living area is provided in the form of a ground level secured courtyard outdoor amenity area located on the west side of the subject building. As the outdoor amenity area is fully screened by the proposed building, noise mitigation measures are not required.

Based on the preliminary analysis, window and exterior door construction better than standard construction practices is needed for all long-term care home units on the north, east and south side of the proposed building. Standard window and exterior door

construction is sufficient for the long-term care home units facing west. Also, standard exterior wall construction typically used for midrise buildings is acoustically acceptable for all long-term care home units. Prior to issuance of building permits, the acoustical requirements should be reviewed by an acoustical consultant to ensure compliance with the applicable acoustical guidelines. Prior to occupancy, the long-term care home units should be inspected by an acoustical consultant to ensure the required mitigation measures have been incorporated.

Where minor excesses exist and noise mitigation measures are required, future occupants will be advised through the use of warning clauses.

Canadian National Railway Company (CN) is proposing to construct an intermodal rail yard adjacent to the existing CN's Halton main line south of Britannia Road West. Based on the information available at this time and due a separation distance of approximately 2,500 m, the future CN operation is not expected to exceed the sound level limits at the proposed site; therefore, noise mitigation measures are not required.

Due to separation distances of more than 1050 m to the existing commercial uses and more than 2,000 m to the Milton Civic Operation Centre and the Halton Waste Management site, these facilities are not expected to be acoustically significant at the proposed long-term care home development; therefore, noise mitigation measures are not required.

The mechanical drawings and detailed information regarding the mechanical equipment associated with the proposed long-term care home development, including but not limited to rooftop HVAC units and garage exhaust fans were not available at the time of preparation of this noise report. Once detailed information becomes available, noise analyses should be prepared to ensure that the applicable noise guidelines are met.

1.0 INTRODUCTION

Jade Acoustics Inc. has been retained by Excelligent Milton LTC C/o GSAI to prepare a Preliminary Environmental Noise Report to investigate the potential impact of noise on the proposed development to the satisfaction of the Town of Milton and the Region of Peel.

The proposed site is identified as:

6360 Regional Road 25
Part of Lot 8, Concession 2 TRAF
Town of Milton
Regional Municipality of Halton

The proposed long-term care home development is located at the southwest quadrant of Regional Road 25 and Louis St. Laurent Avenue. It is bound by Regional Road 25 to the east, existing residential developments to the west, future mixed uses and/or high-density residential developments to the north and south and Louis St. Laurent Avenue to the further north.

The analysis was based on the following:

- Site and floor plans dated March 2, 2023, prepared by G Architects;
- Road traffic information provided by the Town of Milton and the Region of Halton; and
- Site visit conducted by Jade Acoustics Inc. staff on March 14, 2023.

A Key Plan is attached as Figure 1.

The proposed development is comprised of one (1) midrise long-term care home building with one (1) level of underground parking, six (6) floors of long-term care home units, mixed with commercial retail/office spaces and indoor amenity spaces, a ground level secured courtyard outdoor amenity, landscaped areas and a driveway. Figure 2 shows the proposed development.

2.0 NOISE SOURCES

2.1 Transportation Sources

The noise source to be investigated for potential impact on the proposed development is road traffic on Regional Road 25 and Louis St. Laurent Avenue.

The road traffic data for Regional Road 25 and Louis St. Laurent Avenue used in the analysis was based on the information provided by the Region of Halton and Town of Milton on March 13, 2023 and March 23, 2023, respectively. The road traffic information considered to represent an ultimate data is summarized in Table 1. Correspondence regarding the road traffic information is included as Appendix A.

In order to determine truck percentages, the existing road traffic information provided by the Town of Milton and the Region of Halton was used for the assessment. A typical day/night split of 90/10 was accounted for in the analysis. Correspondence and traffic data is included in Appendix A.

Izumi Gate is an internal collector road located approximately 150 m south of the proposed development. Due to the type of road, separation distance and screening by the intervening existing and future uses, Izumi Gate is acoustically insignificant at the proposed development. Therefore, this road is not considered further in the report.

Due to separation distances of more than 1,000 m, the site is not impacted by road traffic on other arterial roads or rail through traffic on the CN Halton Subdivision. The site is also not impacted by aircraft traffic.

2.2 Stationary Sources

Milton Logistics Hub

Canadian National Railway Company (CN) is proposing to construct an intermodal rail yard south of Britannia Road (the Milton Logistics Hub) in the Town of Milton, adjacent to an existing rail line. The application for the intermodal rail yard has been reviewed by the Canadian Transportation Agency (CTA) and Impact Assessment Agency of Canada (CEAA). In January 2021, the federal government approved the intermodal yard to proceed. The yard will be bounded by Britannia Road to the north, Bronte Street South (First Line) to the east, Tremaine Road to the west and Lower Baseline to the south.

Based on the report dated December 7, 2015, prepared by Stantec Consulting Ltd. (latest report), the rail yard will handle intermodal containers between trucks and rail cars. It is anticipated that operations will include four (4) intermodal trains (two (2) existing and

two (2) additional) and 800 trucks per day entering and subsequently exiting the hub when the facility is at full operation. It is estimated that approximately 85% of truck movements will occur between 6:00 a.m. and 9:00 p.m. The rail yard will operate 24 hours a day, seven (7) days a week.

The new facility will include six (6) yard tracks (three (3) pad tracks and three (3) service tracks) and the realignment/extension of the existing mainlines. The hub functions will be truck operations, train operations, lift operations and equipment maintenance.

It is expected that trucks will enter/exit the hub using a CN owned private access road with an overpass at the mainlines connecting Britannia Road West and the main operation area (hub) where containers will be unloaded and loaded from rail cars and chassis by rubber-tired cranes. The hub will consist of six (6) yard tracks running parallel to the mainlines and three (3) paved work pads that will be used to load/unload intermodal cars and hold and switch rail cars.

Buildings proposed for the intermodal facility will include an administration building and an attached maintenance garage. The garage with three (3) reach stacker bays, two (2) truck bays and one (1) cistern for rainwater collection will be used for maintenance and washing of yard equipment and vehicles. No on-site maintenance of locomotives is planned.

The rail facility will be located approximately 2,500 m from the proposed development. Due to the separation distance, this facility is expected to be acoustically insignificant at the proposed site; therefore, noise mitigation measures are not required.

Milton Civic Operation Centre

Milton Civic Operation Centre is located on the west side of Regional Road 25, south of Britannia Road West at a distance of approximately 2,000 m from the proposed long-term care home development. Due to the separation distance, this facility is expected to be acoustically insignificant; therefore, noise mitigation measures are not required.

Halton Waste Management

Halton Waste Management site is located on the east side of Bronte Street South (First Line), south of Britannia Road at a distance of approximately 2,800 m from the proposed long-term care home development. Due to the separation distance, this facility is expected to be acoustically insignificant; therefore, noise mitigation measures are not required.

Existing Commercial Developments

Existing commercial development are located along Britannia Road West and Regional Road 25, south of Britannia Road West at distances exceeding 1050 m relative to the proposed development. Due to the separation distances, the existing commercial developments will be acoustically insignificant; therefore, noise mitigation measures are not required.

Existing/Future Residential and/or Mixed-Use Developments

Future mixed uses and/or high-density residential developments immediately north and south of the proposed development and on the east side of Regional Road 25, and low-rise houses west of the proposed site, have been constructed or will be constructed in the near future.

It is expected that, as the future mixed uses and/or high-density residential buildings mentioned above will be provided with mechanical equipment similar to the proposed building, a noise assessment will be prepared and, if required, noise mitigation measures implemented by the proponent of that site to meet the applicable sound level limits at all impacted noise sensitive receptors including the proposed long-term care home building. Therefore, the future mixed uses and/or high-density residential buildings located north and south of the proposed development are not analysed further in the report.

Due to the type of developments and/or their location, the low-rise housing in the vicinity of the proposed site is not acoustically significant and, as such, it is not analysed further in the report.

Proposed Mechanical Equipment

In general, the main sources of noise of potentially adverse impact on sensitive land-uses due to the proposed development are the loading areas and mechanical equipment.

Noise from garbage pick-up and moving operations are of short duration and generally do not warrant special mitigative measures. As an administrative control measure, garbage collection and moving operations would need to be limited to the daytime hours between 7:00 a.m. and 7:00 p.m.

Mechanical equipment should comply with noise by-laws and municipal codes in the Town of Milton and Region of Halton and Ministry of the Environment, Conservation and Parks (MOE) Publication NPC-300. These criteria require that the noise from a stationary source not exceed the applicable sound level limits, in any one-hour period.

There are existing and future sensitive land-uses located in the immediate vicinity of the proposed site in all directions.

The noise from the proposed mechanical equipment for this development should be addressed when information becomes available. It is expected that with appropriate mitigation, it is feasible to meet the applicable sound level limits at the existing noise sensitive receptors.

3.0 ENVIRONMENTAL NOISE CRITERIA

The MOE document “Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning, Publication NPC-300”, dated August, 2013, released October 21, 2013 (updated final version # 22) was used in the analysis. A brief summary of the NPC-300 guidelines is given in Appendix B.

The environmental noise criteria used for residential and long-term care developments in the Town of Milton and the Region of Halton are summarized below.

3.1 Transportation Sources

3.1.1 Indoors

If the nighttime (11:00 p.m. to 7:00 a.m.) sound level in terms of Leq at the exterior face of a bedroom or living/dining room window/exterior door is greater than 60 dBA and/or if the daytime (7:00 a.m. to 11:00 p.m.) sound level in terms of Leq at the exterior face of a bedroom or living/dining room window/exterior door is greater than 65 dBA, means must be provided so that windows and/or exterior doors can be kept closed for noise control purposes and central air conditioning is required.

For nighttime sound levels (LeqNight) greater than 50 dBA to less than or equal to 60 dBA on the exterior face of a bedroom or living/dining room window/exterior door and/or daytime sound levels (LeqDay) greater than 55 dBA to less than or equal to 65 dBA on the exterior face of a bedroom or living/dining room window/exterior door, there need only be the provision for adding central air conditioning by the occupant at a later date. This typically involves a ducted heating system sized to accommodate the addition of central air conditioning by the occupant at a later date.

A warning clause advising the occupant of the potential interference with some activities is also required.

In all cases, the air cooled condenser units must not exceed the limits included in NPC-216. The air cooled condenser units must be sited in accordance with the zoning by-laws with respect to setbacks as well as location. These requirements are applicable to low-rise residential developments but not for the proposed building.

Mechanical equipment should comply with the requirements of the Ontario Ministry of the Environment, Conservation and Parks Publication NPC-300.

As required by the MOE, indoor noise criteria for road traffic noise is 40 dBA (Leq8hour) for the bedrooms during nighttime hours, 45 dBA (Leq8hour) for living/dining rooms during

nighttime hours and 45 dBA (Leq16hour) for the living/dining rooms and bedrooms during daytime hours. These criteria are used to determine the architectural requirements due to the road traffic.

3.1.2 Outdoors

The definition of outdoor amenity area as defined by the MOE is given below.

"Outdoor Living Area (OLA)

(applies to impact assessments of transportation sources) means that part of a noise sensitive land use that is:

- intended and designed for the quiet enjoyment of the outdoor environment; and
- readily accessible from the building.

The OLA includes:

- backyards, front yards, gardens, terraces or patios;
- balconies and elevated terraces (e.g. rooftops), with a minimum depth of 4 metres, that are not enclosed, provided they are the only outdoor living area (OLA) for the occupant; or
- common outdoor living areas (OLAs) associated with high-rise multi-unit buildings."

For the outdoor amenity areas, a design goal of 55 dBA for the daytime period between 7:00 a.m. to 11:00 p.m. is used for road traffic. In some cases, an excess not exceeding 5 dBA is considered acceptable. Where the unmitigated sound levels during the day exceed 55 dBA (Leq16hour, daytime) but are equal to or less than 60 dBA (Leq16hour, daytime), a warning clause is required and mitigation should be considered. Where the unmitigated sound levels exceed 60 dBA, mitigation measures and a warning clause are required.

Based on the Town of Milton's Engineering and Parks Standards dated March 2019, the maximum acoustic fence height is 2.4 m, although greater heights can be obtained using a combination of berm and acoustic fence.

Based on information provided by the Region of Halton, Transportation Planning, Infrastructure Planning and Policy, the height of sound barriers comprised of a berm and

acoustic fence combination, or an acoustic fence alone is limited to 3.3 m. Lower than 3.3 m heights can be used if a sound level of 55 dBA is achieved in rear yards.

For both indoor and outdoor conditions where the acoustic criteria are exceeded, warning clauses must be placed in offers of purchase and sale or lease agreements and included in the development agreement.

3.2 Stationary Sources

MOE Noise Guidelines

The NPC-300 guidelines of the Ontario Ministry of the Environment, Conservation and Parks (MOE) for stationary sources are to be used for the commercial/industrial facilities.

The MOE also has vibration guidelines with respect to stationary sources, NPC-207. These guidelines require that the peak vibration velocities not exceed 0.3 mm/s at the point of reception during the day or night.

The MOE recognizes the need for back-up beepers/alarms as safety devices and as such does not have any guidelines or criteria to address these sources.

It should be noted that the MOE guidelines do not require that the source be inaudible, but rather that specific sound level limits be achieved.

With respect to stationary sources of noise in urban areas, the MOE guidelines require that the sound level due to the stationary source at the building façade and outdoor amenity spaces not exceed the sound level due to road traffic and in certain situations due to rail traffic in any hour of source operation, subject to specific exclusions. Tables C-5, C-6, C-7 and C-8 of NPC-300 included in Appendix B provided the exclusion limit values of one-hour equivalent sound level ($L_{eq,dBA}$) and impulsive sound level ($L_{Im,dBAI}$).

The sound level limits for noise produced by emergency equipment operating in non-emergency situations, are 5 dB greater with respect to the sound level limits generally used for stationary sources. Therefore, for Class 1 area, exclusion sound level limits of 55 dBA (daytime) and 50 dBA (nighttime) apply. This is applicable to emergency generators associated with pumping stations. Sound level limits do not apply to emergency equipment operating in emergency situations.

In addition, the MOE guidelines require that most industries have a valid Environmental Compliance Approval (ECA) or its precursor, a Certificate of Approval (C of A) to operate.

In general, if the criteria for a stationary source of noise are exceeded, the MOE recommends that control be implemented at the source rather than at the receiver. Alternatively, if the receiver is set back from the source or if a physical barrier is constructed so that the criteria can be met at the receiver, no additional mitigative measures are required. In addition, a warning clause in offers of purchase and sale and/or lease agreement noting the proximity of houses to such a source should be considered. Treatment of the receptor building by the use of suitable wall and window construction and central air conditioning to keep windows closed is not an acceptable solution to the MOE in Class 1 and 2 areas (urban).

3.3 Town of Milton's Noise By-law

The Town of Milton has By-law No. 133-2012 dated October 29, 2012, with the latest amendment 083-2021, dated September 13, 2021, which regulates noise likely to disturb the inhabitants of the Town. It regulates sound ratings and locations of installation of air cooled condenser units by setting sound level limits at adjacent residential properties (MOE Publication NPC-216). It also provides qualitative and quantitative information with respect to other noise sources. Prohibitions by time and place are included in the by-law.

4.0 NOISE IMPACT ASSESSMENT

4.1 Transportation Sources

For road traffic noise, the sound levels in terms of Leq, the energy equivalent continuous sound levels for both day (Leq16) and night (Leq8) were determined using ORNAMENT, the MOE Traffic Noise Prediction Model for road traffic.

The analysis was based on the site and architectural plans listed in Section 1.0. The topography between the source and the receiver and screening effect due to the proposed and existing buildings, where applicable, have been taken into account.

A ground level outdoor amenity area (secured courtyard) screened by the proposed building itself is located on the west side of the subject building. The outdoor noise sensitive receptor was taken to be in the middle of this area.

A 2nd level roof terrace is proposed to be located on the east side of the building which is fully exposed to the road traffic on Regional Road 25. Based on information provided by the proponent, the 2nd level roof terrace is not intended to be used as an acoustically protected outdoor amenity area and as such, it was not included in the noise calculations. As noted above, there is a common ground level outdoor amenity area (secured courtyard) on the west side of the building that is considered to be a noise sensitive receptor that is readily accessible to all residents from the building. This area is intended to be used by all residents of the proposed midrise long-term care home building.

Other private balconies or elevated terraces associated with the subject long-term care home building are not intended to be used as acoustically protected outdoor amenity areas and as such, they were not included in the noise calculations.

The highest sound levels due to the road traffic are predicted at the east wall of the proposed building. The unmitigated sound levels at the 8th floor (top floor) are predicted to be 73 dBA during the daytime hours between 7:00 a.m. and 11:00 p.m. and 67 dBA during the nighttime hours between 11:00 p.m. and 7:00 a.m.

For the common ground level outdoor amenity area (secured courtyard), the unmitigated daytime sound level is predicted to be 52 dBA.

Table 2 provides a summary of the predicted sound levels outdoors due to road traffic at specific locations without mitigative measures. Appendix C gives sample calculations.

Where the sound level limits are predicted to exceed the noise guidelines, mitigative measures and warning clauses are required to address road traffic.

5.0 IMPACT OF THE DEVELOPMENT ON THE ENVIRONMENT

In general, the main sources of noise due to the development of potentially adverse impact on sensitive land-uses are the loading areas and mechanical equipment including air conditioning equipment, rooftop mechanical equipment, and garage exhaust fans.

Noise from garbage pick-up and moving operations are of short duration and generally do not warrant special mitigative measures. As an administrative control measure, garbage collection and moving operations would need to be limited to the daytime hours between 7:00 a.m. and 7:00 p.m.

Mechanical equipment should comply with the requirements of the Ontario Ministry of the Environment, Conservation and Parks Publication NPC-300. These criteria require that the noise from a stationary source not exceed the applicable sound level limits, in any one hour period.

There are existing and future sensitive land-uses located in all directions of the proposed long-term care home building.

The noise from the mechanical equipment proposed for this development should be addressed when information becomes available. With appropriate mitigation, it is feasible to meet the applicable sound level limits at the existing noise sensitive receptors.

6.0 IMPACT OF THE DEVELOPMENT ON ITSELF

When evaluating the potential effect of the development on itself, consideration must be given to the control of air-borne and structure-borne noise generated within the building itself. The areas to be investigated are the common boundaries both vertically and horizontally, between long-term care home units; between long-term care home units and recreational spaces; and between long-term care home units and mechanical areas.

The performance of a boundary with respect to air-borne noise is measured in terms of Sound Transmission Class (STC). This is an approximation of the amount of sound reduction provided by the boundary. The Ontario Building Code (OBC) requires a minimum STC 50 between residential dwelling units and between dwelling units and areas within which noise may be generated. STC 55 construction is required between residential units and elevator shafts and garbage chutes. These STC requirements are applicable to the proposed long-term care home units as well.

Noise from garbage pick-up is of short duration and generally does not warrant special mitigation measures.

The garage exhaust fans, emergency generator and roof mounted air conditioning equipment will be designed to not exceed the applicable sound level limits at the exterior face of the proposed building where windows and exterior doors will be located and at the outdoor amenity space.

Consideration should be given to the noise impact at the long-term care home suites in the vicinity of potentially noisy areas (e.g., garbage room, loading bays, mechanical rooms, indoor amenity spaces). Special sound isolation construction may be required to adequately mitigate the potential noise impact. The incorporation of secondary sound isolation ceilings, floating floors, or cavity walls are some examples. With a sound isolation ceiling, structural clearance may have to be increased to maintain ceiling height.

When addressing structure-borne noise, impact sounds are evaluated using the Impact Insulation Class (IIC) rating system. This system is configured in the same format as the STC rating system to allow for easier comparison when evaluating the acoustical performance of a partition. The National Building Code and the Ontario Building Code do not specify a minimum IIC rating for impact sound isolation. To ensure that impact sounds are not a problem, consideration should be given to the performance of the floor/ceiling systems, particularly when unlike spaces are stacked vertically, during the design process.

All of these items should be evaluated prior to issuance of building permits.

Also, the noise from the mechanical equipment proposed for this development should be addressed when information becomes available. With appropriate mitigation it is feasible to meet the applicable sound level limits at the proposed noise sensitive receptors.

7.0 NOISE MITIGATION REQUIREMENTS

The noise mitigation requirements for both the indoor and outdoor locations are detailed below. Table 3 and Figure 2 provide a summary of the noise mitigation requirements for the proposed midrise building.

7.1 Transportation Sources

7.1.1 Indoors

As required, indoor sound level criteria for road traffic can be achieved in all cases by using appropriate architectural elements for exterior walls, windows, exterior doors, and roof construction. The indoor limit for road traffic noise is 40 dBA for the bedrooms during nighttime hours, 45 dBA for the living/dining rooms during nighttime hours and 45 dBA for the living/dining rooms and bedrooms during daytime hours. These criteria have been used in this analysis. The characteristic spectra for road traffic has been accounted for in the determination of the architectural components.

Sample architectural component selection calculations are shown in Appendix D.

As no suite layout plans are available at this time, it has been assumed that the worst case would involve a top floor corner long-term care unit. The east and south exterior walls of the corner unit were assumed to be 45% and 70% of the associated floor area, respectively. The windows/exterior doors were assumed to be installed in the east wall only and have the surface area equal to 30% of the associated floor area.

Based on the preliminary analysis, windows and exterior doors need to be up to STC 34 and exterior walls need to be STC 42. An STC rating of 34 for windows and exterior doors exceed the minimum structural and safety requirements of standard construction.

The acoustical performance of windows and exterior doors as a whole depends on glass configuration/thickness, air space, material used for frames and construction details including seals. Therefore, the acoustical performance of the glass configuration alone expressed as a sound transmission class (STC) rating, generally available in the literature, does not address the STC rating of the whole window and exterior door. Some glass configurations with different frame materials and/or construction details often produce different STC ratings. Therefore, it is recommended that prior to installation, STC test results of window and exterior door configurations from an accredited laboratory be provided to ensure that the selected windows and exterior doors meet the required STC ratings.

An STC rating of 42 for exterior walls complies with the minimum structural and safety requirements of standard exterior wall construction typically used for midrise buildings.

Since the long-term care home unit floor and elevation plans are not yet available, the final architectural choices cannot be made. Once plans become available, the noise control requirements should be reviewed in a detailed manner to determine the final architectural component requirements.

Based on the exposure to the road noise, central air conditioning and a warning clause are required for all proposed long-term care home units facing north, east and south. Other west-facing units require provision for adding central air conditioning and a warning clause. As the subject midrise long-term care home building is proposed to be designed with a central air conditioning system, the noise mitigation requirements with respect to central air conditioning will be satisfied.

See Table 3 and Figure 2 for a summary of minimum noise mitigation measures.

For the proposed midrise long-term care home building, the air conditioning system should be designed to meet the MOE NPC-300 noise guideline limits.

Warning clauses will also be required to be placed in offers of purchase and sale, lease agreements and included in agreements that are registered on title, including condominium disclosure statements and declarations for all relevant long-term care home units to make future occupants aware of the potential noise situation. See Table 3 for details.

7.1.2 Outdoors

The outdoor amenity area is required to be exposed to sound levels of less than or equal to 55 dBA during the day. A 5 dB increase is considered acceptable in certain situations. Typically, if the sound level is above 55 dBA, some form of mitigation and a warning clause is required.

As noted in Section 4.1, the unmitigated sound levels due to the road traffic at the common ground level outdoor amenity area (secured courtyard) proposed on the west side of the subject building do not exceed 55 dBA. Therefore, noise mitigation measures are not required.

7.2 Stationary Sources

Based on Section 2.2, noise mitigation measures are not required to address the future CN Milton Logistics Hub facility.

Also, as mentioned in the same section, noise mitigation measures are not required to address the existing commercial and industrial developments located along Britannia Road West and south of Britannia Road West.

The noise from the mechanical equipment proposed for this development should be addressed when information becomes available. With appropriate mitigation it is feasible to meet the applicable sound level limits at the proposed, existing and future noise sensitive receptors.

8.0 RECOMMENDATIONS

1. The requirements as stipulated in Table 3 should be incorporated into the proposed development.
2. Prior to final development application approval, detailed noise report should be prepared once the final plans become available to ensure that the appropriate criteria are achieved. The report should include detailed reviews of the sound barrier, if applicable, architectural component and central air conditioning requirements to address the road traffic.
3. Prior to the issuance of building permits, the midrise long-term care home building plans should be reviewed by an acoustical consultant to ensure compliance with the applicable guidelines.
4. Prior to final occupancy, the midrise long-term care home building including the tenant units should be inspected by an acoustical consultant to ensure the required mitigative measures have been incorporated.

9.0 CONCLUSIONS

Based on the preliminary analysis, with the incorporation of the appropriate acoustical mitigation measures, the sound levels will be within the applicable noise guidelines. In accordance with the Town of Milton, Region of Halton and Ontario Ministry of Environment, Conservation and Parks implementation guidelines where mitigation is required, future occupants will be advised through the use of warning clauses.

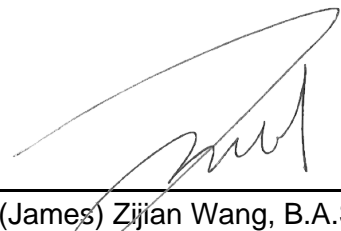
A detailed environmental noise report will need to be prepared once detailed site, architectural and grading plans for the subject development are available to ensure the appropriate criteria are achieved.

Prior to issuance of building permits, the acoustical requirements should be reviewed by an acoustical consultant to ensure compliance with the applicable guidelines.


Prior to issuance of occupancy permits, an acoustical consultant shall confirm that the acoustical requirements are in compliance with the acoustical report and required mitigative measures have been incorporated.

Respectfully submitted,


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Per: 

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Per: 

Davor Sikic, P.Eng.



10.0 REFERENCES

1. "Model Municipal Noise Control By-Law", Final Report, Ontario Ministry of the Environment, August, 1978.
2. "ORNAMENT – Ontario Road Noise Analysis Method for Environment and Transportation", Ontario Ministry of the Environment, October, 1989.
3. "Building Practice Note No. 56: Controlling Sound Transmission into Buildings", by J.D. Quirt, Division of Building Research, National Research Council of Canada, September, 1985.
4. "Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning", Ontario Ministry of the Environment, Publication NPC-300, August, 2013, released October 21, 2013, (updated final version # 22).
5. "Impulse Vibration in Residential Buildings", Ontario Ministry of the Environment, Publication NPC-207 (Draft), November, 1983.
6. Town of Milton's By-law Number 133-2012, October 29, 2012, latest Amendment 083-2021, September 13, 2021.
7. Town of Milton's "Engineering and Parks Standards" dated March, 2019.
8. "Milton Logistics Hub – Technical Data Report, Noise Effects Assessment (Appendix E-10)", Stantec Consulting Ltd., December 7, 2015.
9. Milton Logistics Hub, Environmental Impact Statement", Stantec Consulting Ltd., December 7, 2015.

TABLE 1
PROPOSED LONG-TERM CARE HOME DEVELOPMENT
6360 REGIONAL ROAD 25
TOWN OF MILTON

SUMMARY OF ROAD TRAFFIC DATA

ROAD	REGIONAL ROAD 25	LOUIS ST. LAURENT AVENUE
Daytime	45,900	37,800
AADT* Nighttime	5,100	4,200
Total	51,000 (ultimate)	42,000 (ultimate)
Day/Night Split (%)**	90/10	90/10
Cars	47,940 (94.0%)	40,635 (96.75%)
Medium Trucks	1,530 (3.0%)	525 (1.25%)
Heavy Trucks	1,530 (3.0%)	840 (2.0%)
No. of Lanes	6	4
Posted Speed	70	60
Gradient (%)	Up to 2	Up to 2
R.O.W. Width (m)	47	35

* AADT: Annual Average Daily Traffic.

** Typical day/night split.

TABLE 2
PROPOSED LONG-TERM CARE HOME DEVELOPMENT
6360 REGIONAL ROAD 25
TOWN OF MILTON

SUMMARY OF PREDICTED SOUND LEVELS
OUTDOORS DUE TO ROAD TRAFFIC

Location*	Source	Distance (m)	Leq (dBA)			
			Day		Night	
			Separate	Combined	Separate	Combined
East Wall 8 th Floor	Regional Road 25 (SB)	21.1	71	73	64	67
	Regional Road 25 (NB)	31.1	69		63	
North Wall 8 th Floor	Regional Road 25 (SB)	31.0	66	70	60	63
	Regional Road 25 (NB)	41.0	65		58	
	Louis St. Laurent Ave.	100.5	64		57	
Ground Level Outdoor Amenity	Regional Road 25 (SB)	53.4	47	52	--	--
	Regional Road 25 (NB)	63.4	47		--	
	Louis St. Laurent Ave.	126.2	47		--	

* 8th floor location taken 24.5 m above ground. Ground level outdoor amenity location taken in the middle of the secured courtyard space and 1.5 m above ground.

TABLE 3
PROPOSED LONG-TERM CARE HOME DEVELOPMENT
6360 REGIONAL ROAD 25
TOWN OF MILTON

SUMMARY OF MINIMUM NOISE MITIGATION MEASURES

Condominium Building	Air Conditioning ⁽¹⁾	Exterior Wall ⁽²⁾	Windows ⁽³⁾	Exterior Doors ⁽³⁾	Warning Clause ⁽⁴⁾
All long-term care home units facing north, east and south	Mandatory	STC 42*	Up to STC 34	Up to STC 34	A, B
All long-term care home units facing west	Provision for Adding**	Standard	Standard	Standard	A, B

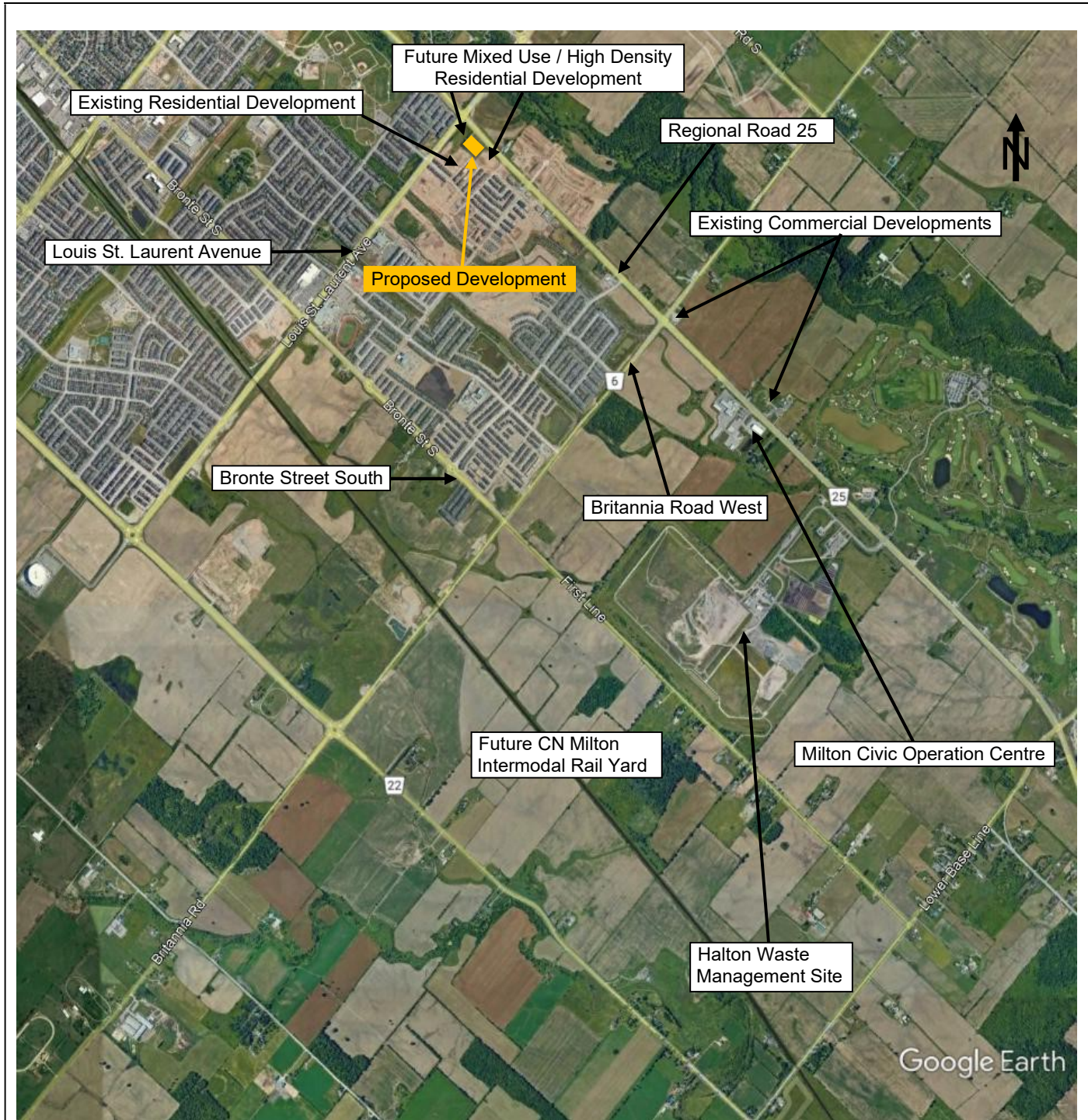
* Complies with structural and safety requirements of standard construction typically used for midrise buildings.

** The proposed midrise long-term care home building will be provided with a central air conditioning system. Therefore, all west facing long-term care home units will be centrally air conditioned.

See Notes to Table 3 on following pages.

NOTES TO TABLE 3

1. Means must be provided to allow windows to remain closed for noise control purposes. The air conditioning system should be designed to meet the MOE NPC-300 noise guideline limits.
2. STC - Sound Transmission Class Rating (Reference ASTM-E413). Values shown are based on preliminary calculations using the standard assumptions. See Section 7.1.1 for details.
3. STC - Sound Transmission Class Rating (Reference ASTM-E413). Values shown are based on preliminary calculations using the standard assumptions. See Section 7.1.1 for details. A sliding glass walkout door and exterior doors having glass components should be considered as a window and be included in the percentage of glazing.
4. Suggested warning clauses to be included in the development agreement and to be included in offers of purchase and sale or lease agreements on designated long-term care home units:
 - A. "Purchasers/tenants are advised that despite the inclusion of noise control features in this development area and within the dwelling units, noise due to increasing road traffic may continue to be of concern, occasionally interfering with the activities of the occupants as the sound level may exceed the noise criteria of the Municipality and the Ontario Ministry of the Environment, Conservation and Parks. I, the purchaser hereby, agree to place this clause in all subsequent offers of purchase and sale when I sell the property."
 - B. "Purchasers/tenants are advised that the long-term care home unit was fitted with a central air conditioning system in order to permit closing of windows for noise control."



N.T.S.

**Proposed Long Term Care Home Development
6360 Regional Road 25
Town of Milton
Region of Halton**

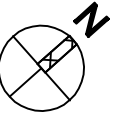
Date: April 2023

File: 12-048-28

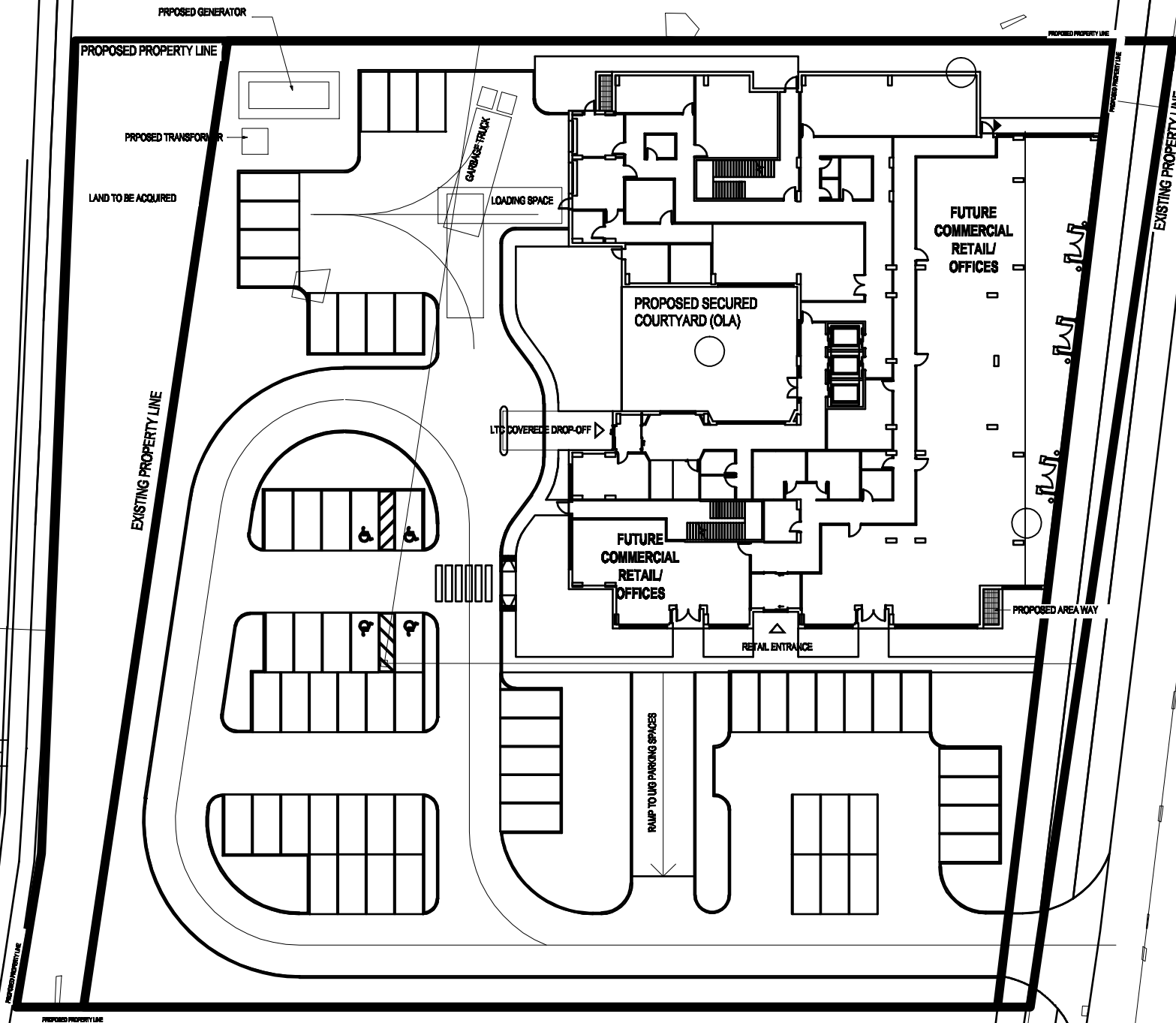
**KEY PLAN
FIGURE 1**



FUTURE MIXED USE OR HIGH DENSITY RESIDENTIAL



EXISTING RESIDENTIAL
RESTIVO LANE
SHEAFFE PLACE
RESTIVO LANE



FUTURE MIXED USE OR HIGH DENSITY RESIDENTIAL

REGIONAL ROAD 25

Legend:

○ NOISE SENSITIVE RECEPTOR LOCATION ANALYZED

NOTES:

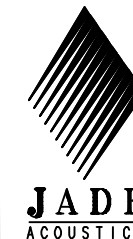
1. ALL NORTH, EAST AND SOUTH FACING LONG TERM CARE HOME UNITS REQUIRE CENTRAL AIR CONDITIONING. PROPOSED BUILDING WILL BE DESIGNED WITH A CENTRAL AIR CONDITIONING SYSTEM. SEE TEXT, TABLE 3 AND NOTES TO TABLE 3 FOR DETAILS.
2. ALL NORTH, EAST AND SOUTH FACING LONG TERM CARE HOME UNITS REQUIRE BETTER THAN STANDARD WINDOW AND EXTERIOR DOOR CONSTRUCTION. SEE TEXT, TABLE 3 AND NOTES TO TABLE 3 FOR DETAILS.
3. WARNING CLAUSES ARE REQUIRED TO ADDRESS THE SUBJECT SITE. SEE TEXT, TABLE 3 AND NOTES TO TABLE 3 FOR DETAILS.

N.T.S.

Proposed Long Term Care Home Development
6360 Regional Road 25
Town of Milton

Date: April 2023

Our File: 12-048-28



PLAN OF PROPOSED DEVELOPMENT SHOWING MINIMUM NOISE MITIGATION MEASURES

FIGURE 2

APPENDIX A

**CORRESPONDENCE REGARDING
ROAD TRAFFIC DATA**

James Wang

From: Loro, Darren <Darren.Loro@halton.ca>
Sent: March 13, 2023 2:46 PM
To: James Wang
Cc: Chris Kellar
Subject: RE: Road Traffic Data Request and Confirmation - Regional Road 25 and LOUIS ST LAURENT Ave Milton [Jade File: 12-048-28]

Hi James,

Just to confirm, this is for the 6360 Regional Road 25 property, right?

Please use the following inputs for the 2031 horizon year analysis for Regional Road 25 as they reflect Halton Region's current typical noise analysis inputs:

- AADT: 51,000 veh/day
- Trucks: 3% medium / 3% heavy
- Lanes: 6

Cheers,
Darren

Darren Loro, C.E.T.

Project Manager I – Transportation Planning Coordination
Infrastructure Planning & Policy
Public Works
Halton Region
905-825-6000, ext. 2694 | 1-866-442-5866



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From: James Wang <james@jadeacoustics.com>
Sent: Friday, March 10, 2023 12:26 PM
To: Loro, Darren <Darren.Loro@halton.ca>
Cc: Chris Kellar <chris@jadeacoustics.com>
Subject: Road Traffic Data Request and Confirmation - Regional Road 25 and LOUIS ST LAURENT Ave Milton [Jade File: 12-048-28]

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 Darren,

We obtained your contact information from our colleagues.

Jade Acoustics Inc. has been retained to prepare an Environmental Noise Report for a proposed residential development/retirement home located at the southwest quadrant of Regional Road 25 and LOUIS ST LAURENT Ave in the Town of Milton.

We have had several developments in the same area over the past few years. Road traffic data on Regional Road 25 has been requested and confirmed by the Region multiple times over the course of the period. I kindly request your assistance in verifying the validity of the road traffic information provided in the previous emails to us.

Once confirmed, if any of the information has been updated, please kindly provide us with the latest road traffic data.

Thank you in advance for your assistance.

Regards,

James Wang, B.A.Sc, E.I.T.

Jade Acoustics Inc.

411 Confederation Parkway, Unit 19

Concord, Ontario

L4K0A8

T: 905-660-2444

Cell: 647-901-7778

F: 905-660-4110

Email: james@jadeacoustics.com

Website: www.jadeacoustics.com



Turning Movement Count (1 - REGIONAL RD 25 & LOUIS ST LAURENT AVE)

Start Time	N Approach REGIONAL RD 25						E Approach LOUIS ST LAURENT AVE						S Approach REGIONAL RD 25						W Approach LOUIS ST LAURENT AVE						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
07:00:00	8	137	5	0	0	150	9	24	73	0	0	106	23	106	12	0	0	141	32	57	47	0	0	136	533	
07:15:00	20	147	6	0	0	173	8	29	58	0	1	95	47	119	12	0	0	178	38	64	47	0	0	149	595	
07:30:00	11	199	15	0	5	225	10	54	78	0	0	142	57	154	18	0	0	229	39	94	58	0	0	191	787	
07:45:00	20	161	23	0	3	204	23	101	60	0	0	184	57	168	28	0	1	253	28	135	76	0	2	239	880	2795
08:00:00	23	166	18	0	0	207	31	207	80	0	0	318	56	176	23	0	0	255	34	149	82	0	0	265	1045	3307
08:15:00	24	177	8	0	1	209	25	133	84	0	0	242	63	200	28	0	0	291	49	139	73	1	1	262	1004	3716
08:30:00	26	184	16	0	4	226	19	102	73	0	0	194	46	172	20	0	0	238	36	116	74	0	0	226	884	3813
08:45:00	28	153	27	0	1	208	21	62	63	0	0	146	52	175	24	0	0	251	36	128	66	0	0	230	835	3768
BREAK																										
16:00:00	34	154	13	0	1	201	19	93	75	0	0	187	75	151	38	0	0	264	26	89	21	0	0	136	788	
16:15:00	41	150	20	0	0	211	14	121	57	0	1	192	66	183	44	0	0	293	25	82	36	0	0	143	839	
16:30:00	41	147	19	0	1	207	19	100	65	0	0	184	86	216	41	0	0	343	17	80	53	0	0	150	884	
16:45:00	57	149	27	0	1	233	15	125	57	0	2	197	85	223	31	0	3	339	25	84	35	0	0	144	913	3424
17:00:00	49	179	24	0	3	252	17	137	83	0	0	237	69	171	50	0	0	290	20	81	46	0	0	147	926	3562
17:15:00	50	166	24	0	1	240	19	126	62	0	1	207	80	202	45	0	0	327	18	60	54	0	0	132	906	3629
17:30:00	53	120	22	0	3	195	19	135	88	0	2	242	91	177	42	0	1	310	16	106	39	0	0	161	908	3653
17:45:00	60	170	23	0	1	253	19	136	85	0	0	240	87	174	50	0	0	311	17	95	58	1	0	171	975	3715
Grand Total	545	2559	290	0	25	3394	287	1685	1141	0	7	3113	1040	2767	506	0	5	4313	456	1559	865	2	3	2882	13702	-
Approach%	16.1%	75.4%	8.5%	0%	-	-	9.2%	54.1%	36.7%	0%	-	-	24.1%	64.2%	11.7%	0%	-	-	15.8%	54.1%	30%	0.1%	-	-	-	-
Totals %	4%	18.7%	2.1%	0%	24.8%	2.1%	12.3%	8.3%	0%	22.7%	7.6%	20.2%	3.7%	8.3%	0%	31.5%	3.3%	11.4%	6.3%	0%	21%	-	-	-	-	
Heavy	6	177	3	0	-	4	29	24	0	-	22	135	17	0	-	9	29	27	0	-	-	-	-	-		
Heavy %	1.1%	6.9%	1%	0%	-	1.4%	1.7%	2.1%	0%	-	2.1%	4.9%	3.4%	0%	-	2%	1.9%	3.1%	0%	-	-	-	-	-		
Bicycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bicycle %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		



Peak Hour: 07:45 AM - 08:45 AM Weather: Clear Sky (-3.12 °C)

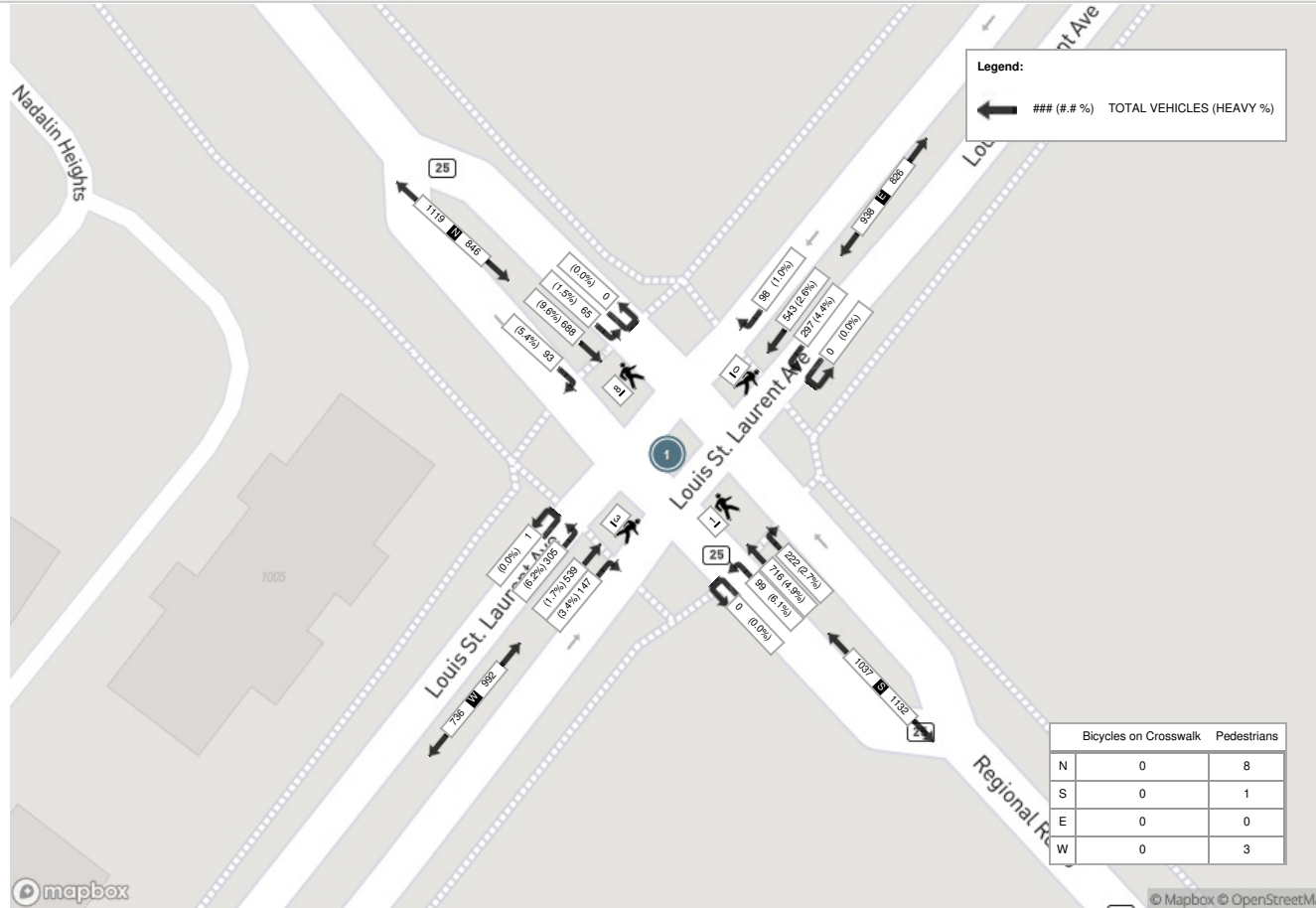
Start Time	N Approach REGIONAL RD 25						E Approach LOUIS ST LAURENT AVE						S Approach REGIONAL RD 25						W Approach LOUIS ST LAURENT AVE						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
07:45:00	20	161	23	0	3	204	23	101	60	0	0	184	57	168	28	0	1	253	28	135	76	0	2	239	880
08:00:00	23	166	18	0	0	207	31	207	80	0	0	318	56	176	23	0	0	255	34	149	82	0	0	265	1045
08:15:00	24	177	8	0	1	209	25	133	84	0	0	242	63	200	28	0	0	291	49	139	73	1	1	262	1004
08:30:00	26	184	16	0	4	226	19	102	73	0	0	194	46	172	20	0	0	238	36	116	74	0	0	226	884
Grand Total	93	688	65	0	8	846	98	543	297	0	0	938	222	716	99	0	1	1037	147	539	305	1	3	992	3813
Approach%	11%	81.3%	7.7%	0%	-	-	10.4%	57.9%	31.7%	0%	-	-	21.4%	69%	9.5%	0%	-	-	14.8%	54.3%	30.7%	0.1%	-	-	-
Totals %	2.4%	18%	1.7%	0%	22.2%	2.6%	14.2%	7.8%	0%	24.6%	5.8%	18.8%	2.6%	0%	27.2%	3.9%	14.1%	8%	0%	26%	-	-	-		
PHF	0.89	0.93	0.71	0	0.94	0.79	0.66	0.88	0	0.74	0.88	0.9	0.88	0	0.89	0.75	0.9	0.93	0.25	0.94	-	-	-		
Heavy	5	66	1	0	72	1	14	13	0	28	6	35	6	0	47	5	9	19	0	33	-	-	-		
Heavy %	5.4%	9.6%	1.5%	0%	8.5%	1%	2.6%	4.4%	0%	3%	2.7%	4.9%	6.1%	0%	4.5%	3.4%	1.7%	6.2%	0%	3.3%	-	-	-		
Lights	88	622	64	0	774	97	529	284	0	910	216	681	93	0	990	142	530	286	1	959	-	-	-		
Lights %	94.6%	90.4%	98.5%	0%	91.5%	99%	97.4%	95.6%	0%	97%	97.3%	95.1%	93.9%	0%	95.5%	96.6%	98.3%	93.8%	100%	96.7%	-	-	-		
Single-Unit Trucks	1	24	1	0	26	0	2	4	0	6	3	17	2	0	22	3	2	13	0	18	-	-	-		
Single-Unit Trucks %	1.1%	3.5%	1.5%	0%	3.1%	0%	0.4%	1.3%	0%	0.6%	1.4%	2.4%	2%	0%	2.1%	2%	0.4%	4.3%	0%	1.8%	-	-	-		
Buses	4	7	0	0	11	0	12	6	0	18	3	10	4	0	17	2	7	6	0	15	-	-	-		
Buses %	4.3%	1%	0%	0%	1.3%	0%	2.2%	2%	0%	1.9%	1.4%	1.4%	4%	0%	1.6%	1.4%	1.3%	2%	0%	1.5%	-	-	-		
Articulated Trucks	0	35	0	0	35	1	0	3	0	4	0	8	0	0	8	0	0	0	0	0	-	-	-		
Articulated Trucks %	0%	5.1%	0%	0%	4.1%	1%	0%	1%	0%	0.4%	0%	1.1%	0%	0%	0.8%	0%	0%	0%	0%	0%	-	-	-		
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-		
Bicycles on Road %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-	-	-		
Pedestrians	-	-	-	-	8	-	-	-	-	0	-	-	-	-	1	-	-	-	-	3	-	-	-		
Pedestrians%	-	-	-	-	66.7%	-	-	-	-	0%	-	-	-	-	8.3%	-	-	-	-	25%	-	-	-		
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-		
Bicycles on Crosswalk%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-	-		



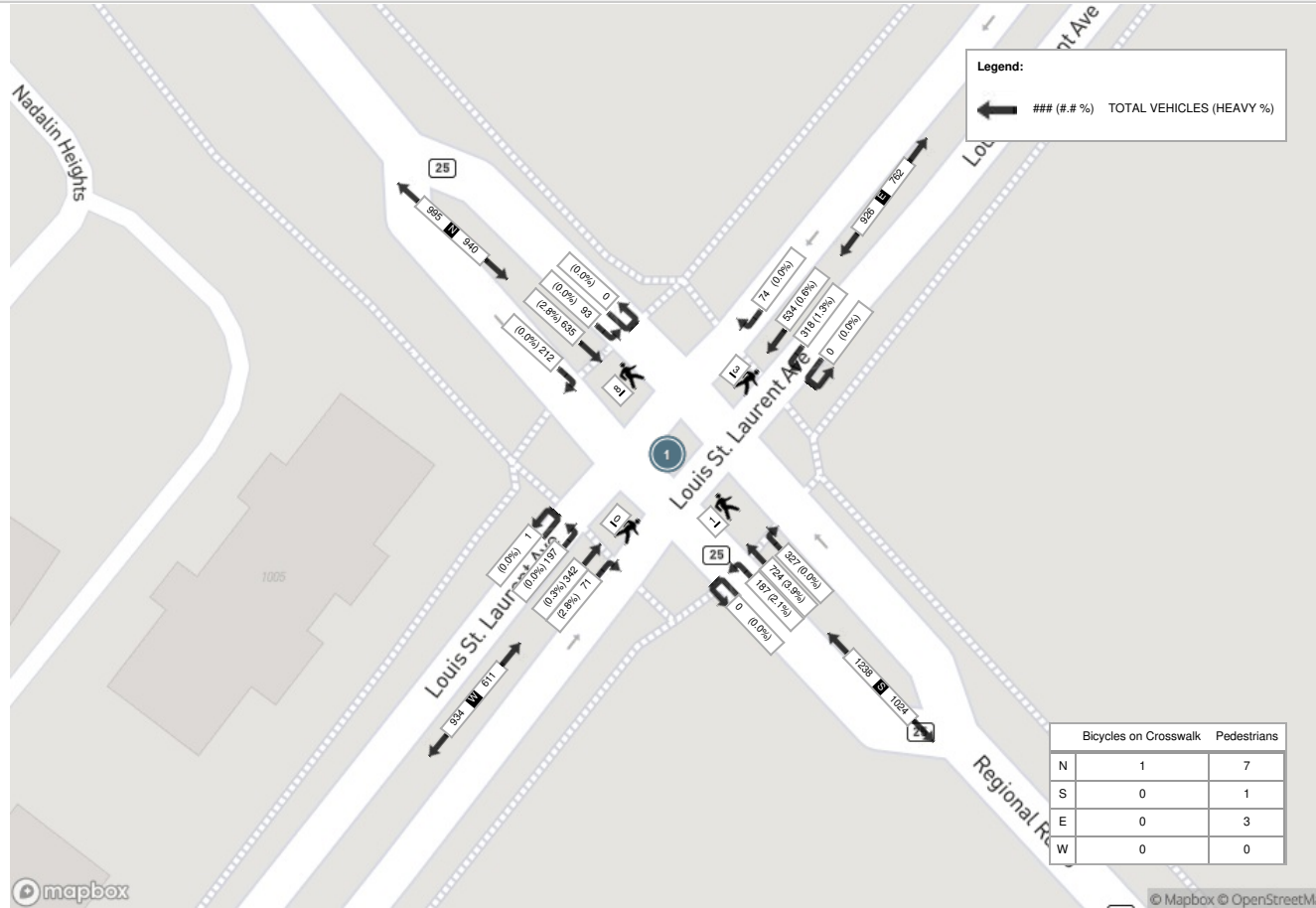
Peak Hour: 05:00 PM - 06:00 PM Weather: Overcast Clouds (2 °C)

Start Time	N Approach REGIONAL RD 25						E Approach LOUIS ST LAURENT AVE						S Approach REGIONAL RD 25						W Approach LOUIS ST LAURENT AVE						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
17:00:00	49	179	24	0	3	252	17	137	83	0	0	237	69	171	50	0	0	290	20	81	46	0	0	147	926
17:15:00	50	166	24	0	1	240	19	126	62	0	1	207	80	202	45	0	0	327	18	60	54	0	0	132	906
17:30:00	53	120	22	0	3	195	19	135	88	0	2	242	91	177	42	0	1	310	16	106	39	0	0	161	908
17:45:00	60	170	23	0	1	253	19	136	85	0	0	240	87	174	50	0	0	311	17	95	58	1	0	171	975
Grand Total	212	635	93	0	8	940	74	534	318	0	3	926	327	724	187	0	1	1238	71	342	197	1	0	611	3715
Approach%	22.6%	67.6%	9.9%	0%	-	-	8%	57.7%	34.3%	0%	-	-	26.4%	58.5%	15.1%	0%	-	-	11.6%	56%	32.2%	0.2%	-	-	-
Totals %	5.7%	17.1%	2.5%	0%	25.3%	25.3%	2%	14.4%	8.6%	0%	24.9%	24.9%	8.8%	19.5%	5%	0%	33.3%	33.3%	1.9%	9.2%	5.3%	0%	16.4%	16.4%	-
PHF	0.88	0.89	0.97	0	0.93	0.93	0.97	0.97	0.9	0	0.96	0.96	0.9	0.9	0.94	0	0.95	0.95	0.89	0.81	0.85	0.25	0.89	0.89	-
Heavy	0	18	0	0	18	18	0	3	4	0	7	7	0	28	4	0	32	32	2	1	0	0	3	3	-
Heavy %	0%	2.8%	0%	0%	1.9%	1.9%	0%	0.6%	1.3%	0%	0.8%	0.8%	0%	3.9%	2.1%	0%	2.6%	2.6%	2.8%	0.3%	0%	0%	0.5%	0.5%	-
Lights	212	617	93	0	922	922	74	531	314	0	919	919	327	696	183	0	1206	1206	69	341	196	1	607	607	-
Lights %	100%	97.2%	100%	0%	98.1%	98.1%	100%	99.4%	98.7%	0%	99.2%	99.2%	100%	96.1%	97.9%	0%	97.4%	97.4%	97.2%	99.7%	99.5%	100%	99.3%	99.3%	-
Single-Unit Trucks	0	6	0	0	6	6	0	2	3	0	5	5	0	12	3	0	15	15	2	0	0	0	2	2	-
Single-Unit Trucks %	0%	0.9%	0%	0%	0.6%	0.6%	0%	0.4%	0.9%	0%	0.5%	0.5%	0%	1.7%	1.6%	0%	1.2%	1.2%	2.8%	0%	0%	0%	0.3%	0.3%	-
Buses	0	3	0	0	3	3	0	1	1	0	2	2	0	2	1	0	3	3	0	1	0	0	1	1	-
Buses %	0%	0.5%	0%	0%	0.3%	0.3%	0%	0.2%	0.3%	0%	0.2%	0.2%	0%	0.3%	0.5%	0%	0.2%	0.2%	0%	0.3%	0%	0%	0.2%	0.2%	-
Articulated Trucks	0	9	0	0	9	9	0	0	0	0	0	0	0	14	0	0	14	14	0	0	0	0	0	0	-
Articulated Trucks %	0%	1.4%	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%	0%	1.9%	0%	0%	1.1%	1.1%	0%	0%	0%	0%	0%	0%	-
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	-
Bicycles on Road %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.5%	0%	0.2%	0.2%	-
Pedestrians	-	-	-	-	7	7	-	-	-	-	3	3	-	-	-	-	1	1	-	-	-	-	0	0	-
Pedestrians %	-	-	-	-	58.3%	58.3%	-	-	-	-	25%	25%	-	-	-	-	8.3%	8.3%	-	-	-	-	0%	0%	-
Bicycles on Crosswalk	-	-	-	-	1	1	-	-	-	-	0	0	-	-	-	-	0	0	-	-	-	-	0	0	-
Bicycles on Crosswalk %	-	-	-	-	8.3%	8.3%	-	-	-	-	0%	0%	-	-	-	-	0%	0%	-	-	-	-	0%	0%	-

Peak Hour: 07:45 AM - 08:45 AM Weather: Clear Sky (-3.12 °C)



Peak Hour: 05:00 PM - 06:00 PM Weather: Overcast Clouds (2 °C)



The resulting 2025 and 2030 future background traffic volumes are summarized in **Figure 10** and **Figure 11**.

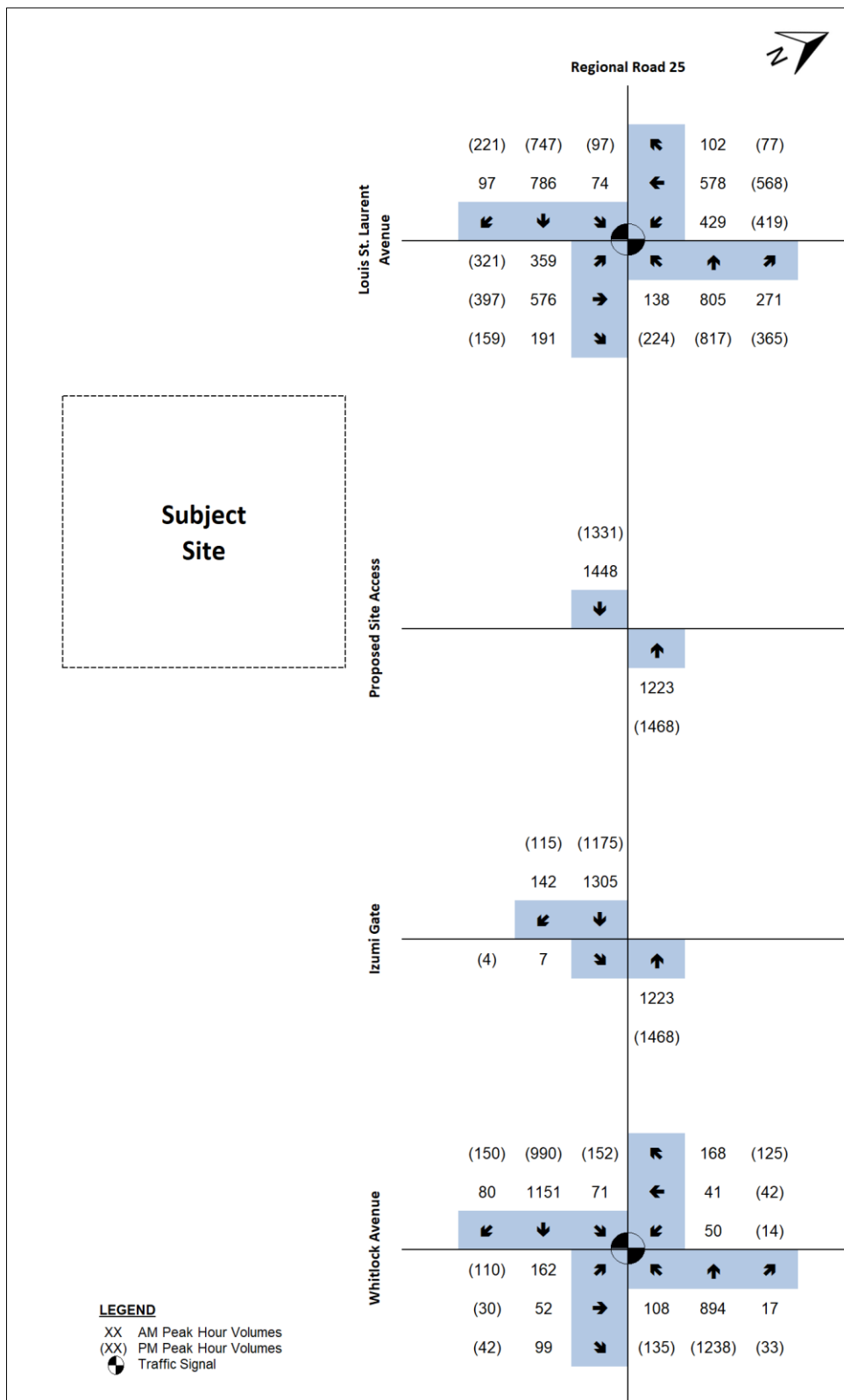


Figure 10 2025 Future Background Traffic Volumes

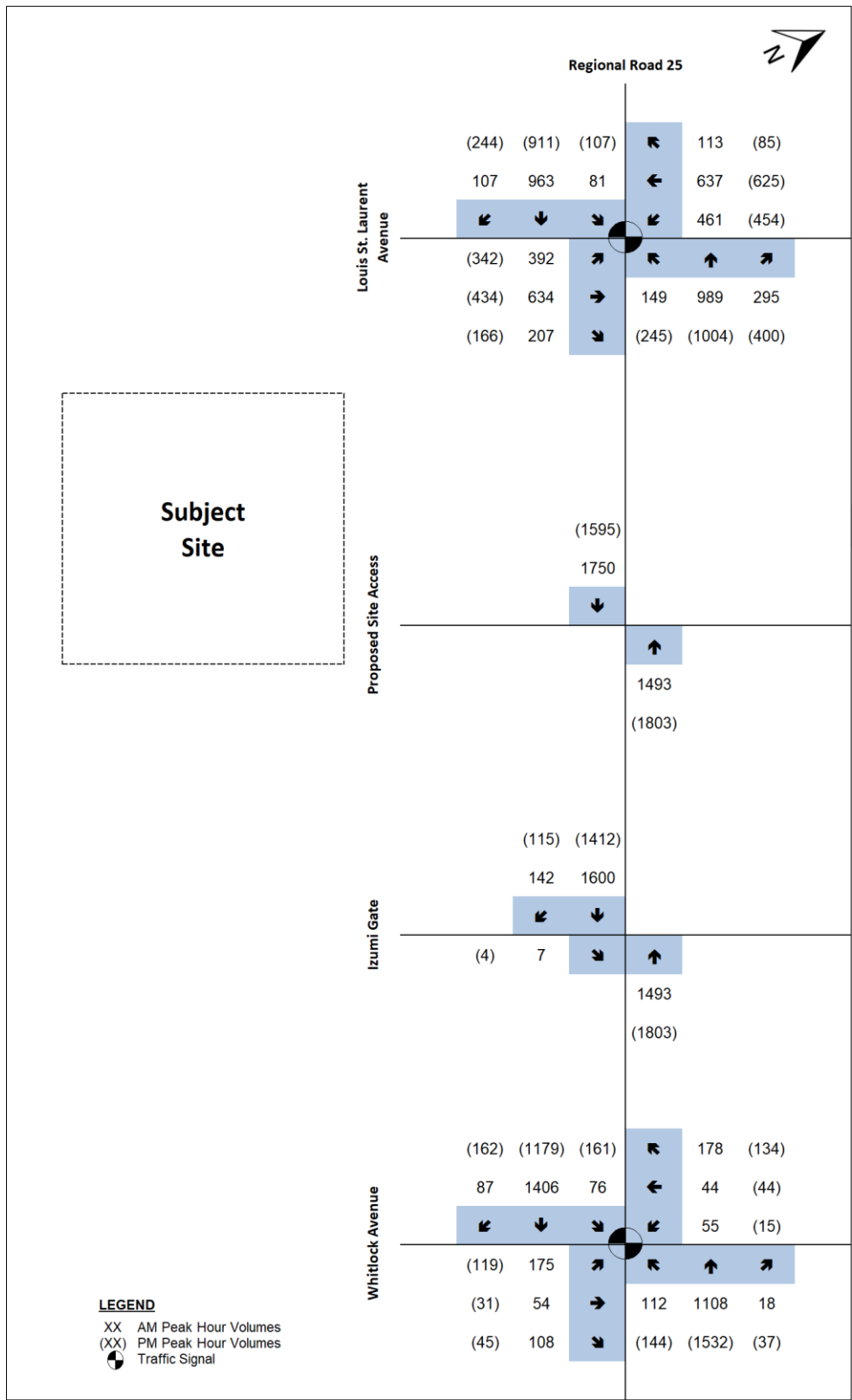


Figure 11 2030 Future Background Traffic Volumes

APPENDIX B

ENVIRONMENTAL NOISE CRITERIA

ONTARIO MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS (MOE)

Reference: "Environmental Noise Guidelines Stationary and Transportation Sources – Approval and Planning", Publication NPC-300, August, 2013, released October 21, 2013 (updated final version # 22).

SOUND LEVEL CRITERIA FOR ROAD AND RAIL NOISE

TABLE C-1

Sound Level Limit for Outdoor Living Areas

Road and Rail

Time Period	Leq (16) (dBA)
16 hr., 07:00 - 23:00	55

TABLE C-2

Indoor Sound Level Limits

Road and Rail

Type of Space	Time Period	Leq (dBA)	
		Road	Rail
Living/dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc.	07:00 – 23:00	45	40
Living/dining, den areas of residences, hospitals, nursing homes, etc. (except schools or daycare centres)	23:00 – 07:00	45	40
Sleeping quarters	07:00 – 23:00	45	40
	23:00 – 07:00	40	35

SOUND LEVEL CRITERIA FOR AIRCRAFT NOISE

TABLE C-3

Outdoor Aircraft Noise Limit

Time Period	NEF/NEP
24-hour	30

TABLE C-4

**Indoor Aircraft Noise Limit
(Applicable over 24-hour period)**

Type of Space	Indoor NEF/NEP*
Living/dining/den areas of residences, hospitals, nursing/retirement homes, schools, daycare centres, etc.	5
Sleeping Quarters	0

* The indoor NEF/NEP values in Table C-4 are used to determine acoustical insulation requirements based on the NEF/NEP contour maps.

SOUND LEVEL CRITERIA FOR STATIONARY SOURCES

TABLE C-5

**Exclusion Limit Values of One-Hour Equivalent Sound Level (Leq, dBA)
Outdoor Points of Reception**

Time of Day	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
07:00 – 19:00	50	50	45	55
19:00 – 23:00	50	45	40	55

TABLE C-6

**Exclusion Limit Values of One-Hour Equivalent Sound Level (Leq, dBA)
Plane of Window of Noise Sensitive Spaces**

Time of Day	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
07:00 – 19:00	50	50	45	60
19:00 – 23:00	50	50	40	60
23:00 – 07:00	45	45	40	55

TABLE C-7

**Exclusion Limit Values for Impulsive Sound Level (LLM, dBAI)
Outdoor Points of Reception**

Time of Day	Actual Number of Impulses in Period of One-Hour	Class 1 Area	Class 2 Area	Class 3 Area	Class 4 Area
07:00 – 23:00	9 or more	50	50	45	55
	7 to 8	55	55	50	60
	5 to 6	60	60	55	65
	4	65	65	60	70
	3	70	70	65	75
	2	75	75	70	80
	1	80	80	75	85

TABLE C-8

**Exclusion Limit Values of Impulsive Sound Level (LLM, dBAI)
Plane of Window - Noise Sensitive Spaces (Day/Night)**

Actual Number of Impulses in Period of One-Hour	Class 1 Area (07:00-23:00)/ (23:00-07:00)	Class 2 Area (07:00-23:00)/ (23:00-07:00)	Class 3 Area (07:00-19:00)/ (19:00-07:00)	Class 4 Area (07:00-23:00)/ (23:00-07:00)
9 or more	50/45	50/45	45/40	60/55
7 to 8	55/50	55/50	50/45	65/60
5 to 6	60/55	60/55	55/50	70/65
4	65/60	65/60	60/55	75/70
3	70/65	70/65	65/60	80/75
2	75/70	75/70	70/65	85/80
1	80/75	80/75	75/70	90/85

SUPPLEMENTARY SOUND LEVEL LIMITS

Indoor limits for transportation sources applicable to noise sensitive land uses are specified in Table C-2 and Table C-4. Table C-9 and Table C-10 are expanded versions of Table C-2 and Table C-4, and present guidelines for acceptable indoor sound levels that are extended to land uses and developments which are not normally considered noise sensitive. The specified values are maximum sound levels and apply to the indicated indoor spaces with the windows and doors closed. The sound level limits in Table C-9 and Table C-10 are presented as information, for good-practice design objectives.

TABLE C-9**Supplementary Indoor Sound Level Limits
Road and Rail**

Type of Space	Time Period	Leq (Time Period) (dBA)	
		Road	Rail
General offices, reception areas, retail stores, etc.	16 hours between 07:00 – 23:00	50	45
Living/dining areas of residences, hospitals, schools, nursing/retirement homes, daycare centres, theatres, places of worship, libraries, individual or semi-private offices, conference rooms, reading rooms, etc.	16 hours between 07:00 – 23:00	45	40
Sleeping quarters of hotels/motels	8 hours between 23:00 – 07:00	45	40
Sleeping quarters of residences, hospitals, nursing/retirement homes, etc.	8 hours between 23:00 – 07:00	40	35

TABLE C-10**Supplementary Indoor Aircraft Noise Limit
(Applicable over 24-hour period)**

Type of Space	Indoor NEF/NEP*
General offices, reception areas, retail stores, etc.	15
Individual or semi-private offices, conference rooms, etc.	10
Living/dining areas of residences, sleeping quarters of hotels/motels, theatres, libraries, schools, daycare centres, places of worship, etc.	5
Sleeping quarters of residences, hospitals, nursing/retirement homes, etc.	0

* The indoor NEF/NEP values in Table C-10 are not obtained from NEF/NEP contour maps. The values are representative of the indoor sound levels and are used as assessment criteria for the evaluation of acoustical insulation requirements.

APPENDIX C

SAMPLE CALCULATION OF PREDICTED SOUND LEVELS DUE TO ROAD TRAFFIC

**APPENDIX C-1
SAMPLE CALCULATION OF SOUND LEVEL**

FILE: 12-048-28
 NAME: 6360 Regional Road 25
 REFERENCE DRAWINGS: Site Plan
 LOCATION: East Wall, 8th Floor

Noise Source:	Regional Road 25 (SB)	Regional Road 25 (NB)
Time Period:	16 hr. (day)	16 hr. (day)
Segment Angle:	-90 to 90	-90 to 90
Distance (m):	21.1	31.1

CALCULATION OF SOUND LEVEL *

Reference Leq (dBA)*:	72.27	72.27
Distance Correction (dBA):	-1.48	-3.17
Finite Element Correction (dBA):	0.00	0.00
Allowance for Screening (dBA):	0.00	0.00
Allowance for Future Growth (dBA):	incl.	incl.
LeqDay (dBA):	70.79	69.10
Combined LeqDay (dBA):	73.04	

* Leq determined using the computerized model of the Ontario Ministry of the Environment Noise Assessment Guidelines, STAMSON Version 5.04 (ORNAMENT). See attached printouts.

APPENDIX C-2
SAMPLE CALCULATION OF SOUND LEVEL

FILE: 12-048-28
NAME: 6360 Regional Road 25
REFERENCE DRAWINGS: Site Plan
LOCATION: East Wall, 8th Floor

Noise Source:	Regional Road 25 (SB)	Regional Road 25 (NB)
Time Period:	8 hr. (night)	8 hr. (night)
Segment Angle:	-90 to 90	-90 to 90
Distance (m):	21.1	31.1

CALCULATION OF SOUND LEVEL *

Reference Leq (dBA)*:	65.75	65.75
Distance Correction (dBA):	-1.48	-3.17
Finite Element Correction (dBA):	0.00	0.00
Allowance for Screening (dBA):	0.00	0.00
Allowance for Future Growth (dBA):	incl.	incl.

LeqNight (dBA):	64.27	62.58
Combined LeqNight (dBA):	66.52	

* Leq determined using the computerized model of the Ontario Ministry of the Environment Noise Assessment Guidelines, STAMSON Version 5.04 (ORNAMENT). See attached printouts.

Filename: ew8fl.te Time Period: Day/Night 16/8 hours
Description: East Wall FL8 Receptor

Road data, segment # 1: R.R.25(SB) (day/night)

Car traffic volume : 21573/2397 veh/TimePeriod *
Medium truck volume : 689/77 veh/TimePeriod *
Heavy truck volume : 689/77 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 2 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 25500
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.00
Heavy Truck % of Total Volume : 3.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: R.R.25(SB) (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 : 21.10 / 21.10 m
Receiver height : 24.50 / 24.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: R.R.25(NB) (day/night)

Car traffic volume : 21573/2397 veh/TimePeriod *
Medium truck volume : 689/77 veh/TimePeriod *
Heavy truck volume : 689/77 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 2 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 25500
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.00
Heavy Truck % of Total Volume : 3.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: R.R.25(NB) (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 : 31.10 / 31.10 m
Receiver height : 24.50 / 24.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: R.R.25(SB) (day)

Source height = 1.32 m

ROAD (0.00 + 70.79 + 0.00) = 70.79 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	72.27	0.00	-1.48	0.00	0.00	0.00	0.00	70.79

Segment Leq : 70.79 dBA

Results segment # 2: R.R.25(NB) (day)

Source height = 1.32 m

ROAD (0.00 + 69.10 + 0.00) = 69.10 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	72.27	0.00	-3.17	0.00	0.00	0.00	0.00	69.10

Segment Leq : 69.10 dBA

Total Leq All Segments: 73.04 dBA

Results segment # 1: R.R.25(SB) (night)

Source height = 1.32 m

ROAD (0.00 + 64.27 + 0.00) = 64.27 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	65.75	0.00	-1.48	0.00	0.00	0.00	0.00	64.27

Segment Leq : 64.27 dBA

Results segment # 2: R.R.25(NB) (night)

Source height = 1.32 m

ROAD (0.00 + 62.58 + 0.00) = 62.58 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	65.75	0.00	-3.17	0.00	0.00	0.00	0.00	62.58

Segment Leq : 62.58 dBA

Total Leq All Segments: 66.52 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 73.04
(NIGHT): 66.52

**APPENDIX C-3
SAMPLE CALCULATION OF SOUND LEVEL**

FILE: 12-048-28
 NAME: 6360 Regional Road 25
 REFERENCE DRAWINGS: Site Plan
 LOCATION: Ground Level Outdoor Amenity

Noise Source:	R.R. 25 (SB)	R.R. 25 (NB)	L.S.L. Avenue
Time Period:	16 hr. (day)	16 hr. (day)	16 hr. (day)
Segment Angle:	-90 to 90	-90 to 90	-56 to 90
Distance (m):	53.4	63.4	126.2

CALCULATION OF SOUND LEVEL *

Reference Leq (dBA)*:	72.27	72.27	71.79/71.79
Distance Correction (dBA):	-5.51	-6.26	-15.35/-9.25
Finite Element Correction (dBA):	0.00	0.00	-11.01/-0.91
Allowance for Screening (dBA):	-19.46	-19.44	0.00/-19.64
Allowance for Future Growth (dBA):	incl.	incl.	incl.

LeqDay (dBA):	47.29	46.56	47.05
Combined LeqDay (dBA):		51.75	

* Leq determined using the computerized model of the Ontario Ministry of the Environment Noise Assessment Guidelines, STAMSON Version 5.04 (ORNAMENT). See attached printouts.

Filename: OLAGND.te Time Period: Day/Night 16 hours
Description: Gnd Lvl OLA (Secured Courtyard) Predicted Daytime

Road data, segment # 1: R.R.25(SB) (day)

Car traffic volume : 21573 veh/TimePeriod *
Medium truck volume : 689 veh/TimePeriod *
Heavy truck volume : 689 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 2 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 25500
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.00
Heavy Truck % of Total Volume : 3.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: R.R.25(SB) (day)

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 : 53.40 m
Receiver height : 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 26.00 m
Barrier receiver distance : 8.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 2: R.R.25(NB) (day)

Car traffic volume : 21573 veh/TimePeriod *
Medium truck volume : 689 veh/TimePeriod *
Heavy truck volume : 689 veh/TimePeriod *
Posted speed limit : 70 km/h
Road gradient : 2 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 25500
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 3.00
Heavy Truck % of Total Volume : 3.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 2: R.R.25(NB) (day)

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 : 63.40 m
Receiver height : 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 26.00 m
Barrier receiver distance : 8.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Road data, segment # 3: L.S.L Ave (day)

Car traffic volume : 36572 veh/TimePeriod *
Medium truck volume : 473 veh/TimePeriod *
Heavy truck volume : 756 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 2 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 42000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.25
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 3: L.S.L Ave (day)

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 : 126.20 m
Receiver height : 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -56.00 deg Angle2 : 90.00 deg
Barrier height : 26.00 m
Barrier receiver distance : 5.30 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

Results segment # 1: R.R.25(SB) (day)

Source height = 1.32 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.32	1.50	1.47	1.47

ROAD (0.00 + 47.29 + 0.00) = 47.29 dBA										
Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	72.27	0.00	-5.51	0.00	0.00	0.00	-19.46	47.29

Segment Leq : 47.29 dBA

Results segment # 2: R.R.25(NB) (day)

Source height = 1.32 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.32	1.50	1.48	1.48

ROAD (0.00 + 46.56 + 0.00) = 46.56 dBA										
Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	72.27	0.00	-6.26	0.00	0.00	0.00	-19.44	46.56

Segment Leq : 46.56 dBA

Results segment # 3: L.S.L Ave (day)

Source height = 1.19 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.19	1.50	1.49	1.49

ROAD (45.43 + 42.00 + 0.00) = 47.05 dBA										
Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-56	0.66	71.79	0.00	-15.35	-11.01	0.00	0.00	0.00	45.43
-56	90	0.00	71.79	0.00	-9.25	-0.91	0.00	0.00	-19.64	42.00

Segment Leq : 47.05 dBA

Total Leq All Segments: 51.75 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 51.75

APPENDIX D

SAMPLE CALCULATION OF ARCHITECTURAL COMPONENT SELECTION

APPENDIX D-1
SAMPLE CALCULATION OF ARCHITECTURAL COMPONENT SELECTION*

FILE: 12-048-28
 NAME: 6360 Regional Road 25
 REFERENCE DRAWINGS: Site Plan
 LOCATION: Southeast Corner Unit, 8th Floor

	ROAD
Room: Corner Unit	
Exterior Wall area as a percentage of Floor Area:	East: 45% South: 70%
Window/Exterior Door area as a percentage of Floor Area:	East: 30%
Number of components:	3
Outdoor Daytime Leq:	East: 73 (+3 for reflection) = 76 dBA South: 70 (+3 for reflection) = 73 dBA
Indoor Daytime Leq:	45
Angle Correction:	0
Noise Reduction (dBA):	East: 31 South: 28
Noise Spectrum:	Road
Absorption:	Medium

APPROPRIATE ELEMENTS

		STC Rating
Exterior Wall	East	STC 42
	South	STC 42
Window/Exterior Door	East	STC 34

* Based upon "Controlling Sound Transmission into Buildings", Building Practice Note 56 by National Research Council of Canada, September, 1985.