Compatibility & Mitigation Study – Air Quality, Dust, Odour, Noise & Vibration

Provincial Lands West of Trafalgar Road, Town of Oakville

Infrastructure Ontario

1 Dundas Street West, Suite 2000, Toronto, ON M5G 1Z3

Prepared by:

SLR Consulting (Canada) Ltd.

100 Stone Road West, Suite 201, Guelph, ON N1G 5L3

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Revision	Date	Prepared By	Checked By	Authorized By
2	February 5, 2026	Mina Ghorbani Sabah Ersum	Jenny Graham Keni Mallinen	Jenny Graham Keni Mallinen

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Executive Summary

SLR Consulting (Canada) Ltd. (SLR), was retained by GSP Group Inc., on behalf of Infrastructure Ontario, to conduct environmental land use compatibility (air quality, noise, and vibration) studies for properties on the west side of Trafalgar Road, south of Highway 407 in Oakville, Ontario (the Project site). This document is in support of an Official Plan Amendment ("OPA") to permit residential uses along the Trafalgar corridor.

The addition of "sensitive" land uses within the Project site (including residential) requires an assessment of land use compatibility with the surrounding proposed and existing employment land uses.

This assessment has considered:

- Industrial air quality, odour, and dust emissions;
- Transportation-related air pollution;
- Industrial/ commercial noise and vibration; and
- Transportation-related noise and vibration.

The assessment has included a review of air quality, noise and vibration emissions from industrial facilities and surrounding future land uses in the area. A review was completed for the vacant lands and transportation sources in the immediate area, including the future land uses within the proposed development itself.

The required mitigation measures are summarized in Appendix F. In addition, upgraded glazing is anticipated to be required for various buildings within the development to mitigate transportation noise. These measures can be secured as part of conditions as part of required future planning approvals, such as Zoning By-law Amendments and Site Plan Approval. For air quality, as the general area has historically elevated levels of fine particulate, benzene and benzo(a)pyrene, mitigation options such as strategic location of fresh air intakes and filtration systems specific for fine particulate for buildings including residences can be considered in planning and design.

With these physical mitigation measures and warning clauses in place, adverse impacts from air quality contaminants, dust or odour, or noise are not anticipated.

Based on the Halton Region Land Use Compatibility Guidelines (LUCG), the development proposed is anticipated to be compatible with the surrounding land uses from an air quality and noise perspective. The Project site is not anticipated to limit surrounding existing or future industries and their ability to obtain/maintain their required Ministry of the Environment, Conservation & Parks (MECP) permits, or approvals.

Overall, from a compatibility perspective, the proposed development is considered to be feasible. Air quality and noise emissions that may be emitted from future land uses will be addressed with appropriate mitigation measures as determined by further studies at the time of future development applications.

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Acronyms and Abbreviations

AADT	Average Annual Daily Traffic
ATR	Automatic Traffic Recorder
BPN	National Research Council Building Practice Note 56
BRT	Bus Rapid Transit
dBA	Decibels (A-weighted)
ECA	Environmental Compliance Approval
ECO	Environmental Commissioner of Ontario
ED	Existing Development
EASR	Environmental Activity and Sector Registry
FD	Future Development
HOV	High-Occupancy Vehicle
HVAC	Heating Ventilation and Air Conditioning
ISO	International Organization for Standardization
L_{eq}	Energy Equivalent Sound Level
L_{LM}	Logarithmic Mean Impulse Sound Level
LUCG	Land Use Compatibility Guidelines
MECP	Ministry of the Environment, Conservation and Parks
MTO	Ontario Ministry of Transportation
NPC-300	MECP Publication NPC-300
NRCC	National Research Council Canada
O. Reg. 419/05	Ontario Regulation 419/05
OBC	Ontario Building Code
OLA	Outdoor Living Area
OPA	Official Plan Amendment
ORNAMENT	Ontario Road Noise Analysis Method for Environment and Transportation
PPS	Provincial Planning Statement
RAC	Railway Association of Canada
STC	Sound Transmission Class
TMC	Turning Movement Count
US EPA	U.S. Environmental Protection Agency

1.0 Introduction

SLR Consulting (Canada) Ltd. (SLR), was retained by GSP Group Inc. on behalf of Infrastructure Ontario, to conduct environmental air quality, noise, and vibration studies for properties on the west side of Trafalgar Road, south of Highway 407 in Oakville, Ontario (the Project site). This document is in support of an Official Plan Amendment (OPA) application to permit residential uses along the Trafalgar Road corridor.

The addition of “sensitive” land uses within the Project site (including residential) requires an assessment of land use compatibility with the surrounding proposed and existing employment land uses.

This assessment has considered:

- Industrial air quality, odour, and dust emissions;
- Transportation-related air pollution;
- Industrial/commercial noise; and
- Transportation-related noise and vibration.

In this assessment, SLR has reviewed the surrounding land uses in the area with respect to the following guidelines:

- The Provincial Planning Statement;
- The Ministry of the Environment, Conservation and Parks (“MECP”) land use compatibility guideline (D-Series) including Guideline D-6 – Compatibility Between Industrial Facilities and Sensitive Land Uses (MECP 1995);
- Ontario Regulation 419/05: Air Pollution – Local Air Quality and its associated air quality standards and assessment requirements;
- The Halton Region Air Quality Guidelines, Regional Official Plan Guidelines; and
- MECP Publication NPC-300 noise guidelines for industrial and transportation sources;
- The Halton Region Noise Abatement Guidelines, Regional Official Plan Guidelines.

This report identifies and evaluates options to achieve land use compatibility through appropriate design, buffering and/or separation distances between the proposed sensitive land uses, including residential uses, and nearby employment areas and/or major facilities.

Recommended measures intended to mitigate potential negative impacts are provided.

The focus of this assessment report is the West Development Lands (i.e., west of Trafalgar Road). An assessment of the East Development Lands has been prepared in a separate report.

2.0 Description of Proposed Future Development and Surroundings

2.1 Description of Surrounding Area

The Project site is located within the Region of Halton, in north Oakville. Downtown Oakville is located approximately 8 km to the southeast, Mississauga City Centre is 12 km to the northeast, Milton is 10 km to the northwest, and downtown Burlington is 20 km to the southwest. The proposed Project Site has a total area of approximately 20 hectares. The Project Site is located to the west of Trafalgar Road and north of Burnhamthorpe Road East (Regional Road 27). The northern boundary is Highway 407 and the planned 407 Transitway.

The Project site is generally flat and is currently used primarily for agricultural purposes.

A context plan is provided for reference as Figure 1.

2.2 Description of Proposed Development

The proposed Project site development plan envisions the Trafalgar Lands becoming a complete community composed of a mix of residential, commercial and employment land uses. Figure 1 illustrates the location of the Project site. The illustrative concept plan of the proposed Project site development is attached in Appendix A.

Building heights within the Project site contemplate the following:

- Development within 100 m of Trafalgar Road up to 20-storey height (with policy to allow up to 30-storey height), with 3-storey podiums;
- Development between 100 m and 300 m from Trafalgar Road up to 8-storey height, with 3-storey podiums; and
- Development beyond 300 m from Trafalgar Road limited to 1-storey height.

2.3 Land Use Designations in Surrounding Area

2.3.1 Town of Oakville Official Plan

The Project site is designated as Trafalgar Urban Core Area. To the north, the lands are designated as Trafalgar Road Urban Core Area and Transitway. To the west and east the lands are designated Employment Area and Trafalgar Urban Core Area, respectively. To the south the lands are designated Trafalgar Urban Core Area and Employment Area.

Figure 2A illustrates official plan designations of the Project site and surrounding lands from the North Oakville East Secondary Plan Land Use Plan.

2.3.2 Zoning Information

2.3.2.1 Town of Oakville Zoning By-law 2009-189

The proposed Project site is zoned as Existing Development-(ED) in the North Oakville Zoning By-Law 2009-189. Refer to Figure 2B. On the Town of Oakville Interactive Maps, the ED classification is used interchangeably with FD (Future Development).

The lands adjacent to and beyond to the east and south are zoned as ED/FD. West of the Project site the lands are zoned ED/FD, Natural Heritage System (NHS), Light Employment

(LE), General Urban (GU), Neighbourhood Centre (NC), Service Area-Employment (SA), and Park (P).

2.3.2.2 Town of Milton Zoning By-law 144-2003

Lands to the north of the proposed development, north of Highway 407, are governed under Town of Milton Comprehensive Zoning By-Law 144-2003. Refer to Figure 2C. All lands to the north of the Project are zoned Agricultural (A1).

3.0 Assessment Framework

The intent of this report is to identify any existing and potential land use compatibility issues and to identify and evaluate options to achieve appropriate design, buffering and/or separation distances between the proposed sensitive land uses, including residential uses, and nearby Employment areas and/or major facilities. Recommended measures intended to eliminate or mitigate negative impacts and adverse effects are provided.

The requirements of the Ontario planning regime are organized such that generic policy is informed by specific policy, guidance, and legislation, as follows:

- The Ontario Planning Act Section 2 sets the ground rules for land use planning in Ontario, whereby planning decisions have regard to matters of provincial interest including orderly development, public health, and safety; then
- The Provincial Planning Statement (“PPS”) sets out goals – making sure adjacent land uses are compatible from a health and safety perspective and are appropriately buffered; then
- The Halton Region Land Use Compatibility Guidelines (“LUCG”) developed by the Region to “identify how land use compatibility issues may be addressed by municipalities during a development proposal…” The LUCG were developed by the Region in consideration of the Provincial D-Series of Guidelines, prepared by the Ontario Ministry of Environment, Conservation & Parks (“MECP”). These guidelines set out methods to determine if assessments are required (Areas of Influence, Recommended Minimum Separation Distances, and the need for additional studies); then
- MECP and Municipal regulations, policies, standards, and guidelines then set out the requirements of additional air quality, noise and vibration studies and the applicable policies, standards, guidelines, and objectives to ensure that adverse effects do not occur.

3.1 Ontario Planning Act

The Ontario Planning Act is “provincial legislation that sets out the ground rules for land use planning in Ontario. It describes how land uses may be controlled, and who may control them. The purpose of the Act is to:

- provide for planning processes that are fair by making them open, accessible, timely and efficient;
- promote sustainable economic development in a healthy natural environment within a provincial policy framework;
- provide for a land use planning system led by provincial policy;

- integrate matters of provincial interest into provincial and municipal planning decisions by requiring that all decisions be consistent with the Provincial Policy Statement and conform/not conflict with provincial plans;
- encourage co-operation and coordination among various interests; and
- recognize the decision-making authority and accountability of municipal councils in planning".

Section 2.1 of the Ontario Planning Act describes how approval authorities and Tribunals must have regard to matters of provincial interest including orderly development, public health, and safety.

3.2 Provincial Planning Statement

The PPS "provides policy direction on matters of provincial interest related to land use planning and development. As a key part of the Ontario policy-led planning system, the Provincial Planning Statement sets the policy foundation for regulating the development and use of land. It also supports the provincial goal to enhance the quality of life for all Ontarians."

The PPS is a generic document, providing a consolidated statement of the government policies on land use planning and is issued under section 3 of the Planning Act. Municipalities are the primary implementers of the PPS through policies in their local official plans, zoning by-laws and other planning related decisions.

The Province of Ontario approved PPS came into effect on October 20, 2024. Policy direction concerning land use compatibility is provided in the following sections of the PPS.

> "Policy 2.8.3: *In addition to Policy 3.5, on lands within 300 metres of employment areas, development shall avoid, or where avoidance is not possible, minimize and mitigate potential impacts on the longterm economic viability of employment uses within existing or planned employment areas, in accordance with provincial guidelines.*
>
> *Policy 3.5.1: Major facilities and sensitive land uses shall be planned and developed to avoid, or if avoidance is not possible, minimize and mitigate any potential adverse effects from odour, noise and other contaminants, minimize risk to public health and safety, and to ensure the long-term operational and economic viability of major facilities in accordance with provincial guidelines, standards and procedures.*
>
> *Policy 3.5.2: Where avoidance is not possible in accordance with Policy 3.5.1, planning authorities shall protect the long-term viability of existing or planned industrial, manufacturing or other major facilities that are vulnerable to encroachment by ensuring that the planning and development of proposed adjacent sensitive land uses is only permitted if potential adverse affects to the proposed sensitive land use are minimized and mitigated, and potential impacts to industrial, manufacturing or other major facilities are minimized and mitigated in accordance with provincial guidelines, standards and procedures.*

The goals of the PPS are implemented through Municipal and Provincial policies, as discussed below. Provided the Municipal and Provincial policies, guidelines, standards, and procedures are met, the requirements of the PPS will be met.

3.3 Halton Region Official Plan Guidelines: Land Use Compatibility Guidelines

The purpose of the Land Use Compatibility Guidelines developed by the Halton Region (LUCG) is to "identify how land use compatibility issues may be addressed by municipalities during a development proposal…" The LUCG were developed by Halton Region in consideration of the Provincial D-Series of Guidelines, prepared by the MECP in 1995 for planning guidance in evaluating land use compatibility. Section 2 of the LUCG identifies the relevant provincial guidelines and regulations which are to be considered in conducting air quality assessment in Ontario:

> *"The D-Series are used for development applications that require the re-designation (Official Plan Amendment) or rezoning of land uses (Zoning By-law amendment). The MOE's D-Series are only applicable when a:*
>
> - *New sensitive land use requires a land use amendment and is proposed to be located within the influence, or potential influence, area of an impacting use, such as an existing industrial land use; or when a*
> - *New industrial use requires a land use amendment and is proposed to be located near an existing sensitive residential use."*

Included in the Halton Region summary is a discussion of the "potential Areas of Influence" approach, as presented in the D-series of guidelines when assessing compatibility of industrial uses with more sensitive uses such as residences.

In preparing the LUCG, Halton Region has clarified an aspect concerning Recommended Minimum Separation Distances. In the LUCG, it is understood that Areas of Influence of various industrial processes will be site specific. Actual Areas of Influence are determined through appropriate studies allowing for industrial activities to be compatible with more sensitive land uses within the Area of Influence and within Recommended Minimum Separation Distances which are presented in Table 1. Appropriate studies can provide mitigation strategies, if required.

3.4 Halton Region Official Plan Guidelines: Air Quality Guidelines

The Halton Region Air Quality Guidelines (AQG) were developed along with a number of other guidelines for land use planning which came out of the Halton Region Official Plan Amendment (ROPA 38). In general terms, the AQG recommends consideration of local industrial sources and transportation features when evaluating the siting of a residential land use.

The AQG acts as a summary document of the applicable guidelines for a particular undertaking.

> *"2.1 Under the Region's policy 143(12), any source emission studies may only be applicable when sensitive land uses (residential, natural heritage) are proposed with these 3 conditions present:*
>
> 1 *Within 30 m of a major arterial road or provincial highway or within 150 m of provincial freeway;*
> 2 *In proximity to an industrial use; and a*
> 3 *Utility use"*

SLR conducted a review of identified industrial uses and roadways/highways, as referred to in items 1) and 2) of Section 2.1, of the AQG listed above.

3.5 Town of Oakville By-law 2010-035

The Town of Oakville By-law 2010-035 enacts measures to restrict the potential concentrations of air quality contaminants – especially of fine particulate matter from significant industrial operations – below the levels enforced by the provincial air quality guidelines (O.Reg. 419).

> *"(2) The purposes of this by-law are:*
>
> *a) To take measures, including collecting information, implementing regulatory controls and monitoring, to protect human health from fine particulate matter;*
>
> *b) To designate specified sources of major emissions of health-risk air pollutants as public nuisances; and…*
>
> *c) To reduce over time the levels of fine particulate matter in the ambient air of the Town."*

This by-law does not impose any additional assessment requirements on the proposed Project site. The restrictions placed on particulate matter emissions from any new industries which are considered for development in the future on the neighbouring lands will also be subject to this by-law. It is presumed this by-law will assist in reducing the likelihood of impacts on the proposed Project site development because of the existing industrial operations in the Town of Oakville.

3.6 MECP D-Series of Guidelines

The D-series of guidelines on which the Halton Region LUCG are based were developed by the MECP in 1995 as a means to assess Recommended Minimum Separation Distances and other control measures for land use planning proposals in an effort to prevent or minimize 'adverse effects' from the encroachment of incompatible land uses where a facility either exists or is proposed. D-series guidelines address sources including sewage treatment (Guideline D-2), gas and oil pipelines (Guideline D¬3), landfills (Guideline D-4), water services (Guideline D-5) and industries (Guideline D-6).

For this project, the applicable guideline is Guideline D-6 - Compatibility between Industrial Facilities and Sensitive Land Uses. The guidelines specifically address issues of air quality, odour, dust, noise, and litter.

Adverse effect is a term defined in the Environmental Protection Act and "means one or more of

- impairment of the quality of the natural environment for any use that can be made of it,
- injury or damage to property or to plant or animal life,
- harm or material discomfort to any person,
- an adverse effect on the health of any person,
- impairment of the safety of any person,
- rendering any property or plant or animal life unfit for human use,
- loss of enjoyment of normal use of property, and
- interference with the normal conduct of business".

3.6.1 Guideline D-6 Requirements

This guideline specifically addresses issues of air quality, odour, dust, noise, and litter. To minimize the potential to cause an adverse effect, potential Areas of Influence and Recommended Minimum Separation Distances are included within the guidelines. The potential Areas of Influence and Recommended Minimum Separation Distances from the guidelines are provided in Table 1 below.

Table 1: Guideline D-6 – Potential Influence Area and Recommended Minimum Setback Distances for Industrial Land Uses

Industry Classification	Area of Influence	Recommended Minimum Setback Distance (m)
Class I – Light Industrial	70 m	20 m
Class II – Medium Industrial	300 m	70 m
Class III – Heavy Industrial	1000 m	300 m

Industrial categorization criteria are supplied in Guideline D-6-2 and are shown in Table 2.

Table 2: Guideline D-6 – Industrial Categorization Criteria

Category	Outputs	Scale	Process	Operations/ Intensity	Possible Examples
Class I Light Industry	• Noise: Sound not audible off-property • Dust: Infrequent and not intense • Odour: Infrequent and not intense • Vibration: No ground-borne vibration on plant property	• No outside storage • Small-scale plant or scale is irrelevant in relation to all other criteria for this Class	• Self-contained plant or building which produces/ stores a packaged product • Low probability of fugitive emissions	• Daytime operations only • Infrequent movement of products and/or heavy trucks	• Electronics manufacturing and repair • Furniture repair and refinishing • Beverage bottling • Auto parts supply • Packaging and crafting services • Distribution of dairy products • Laundry and linen supply
Class II Medium Industry	• Noise: Sound occasionally heard off-property • Dust: Frequent and occasionally intense • Odour: Frequent and occasionally intense • Vibration: Possible ground-borne vibration, but cannot be perceived off-property	• Outside storage permitted • Medium level of production allowed	• Open process • Periodic outputs of minor annoyanc e • Low probability of fugitive emissions	• Shift operations permitted • Frequent movements of products and/or heavy trucks with the majority of movements during daytime hours	• Magazine printing • Paint spray booths • Metal command • Electrical production • Manufacturing of dairy products • Dry cleaning services • Feed packing plants

Category	Outputs	Scale	Process	Operations/ Intensity	Possible Examples
Class III Heavy Industry	• Noise: Sound frequently audible off property • Dust: Persistent and/ or intense • Odour: Persistent and/ or intense • Vibration: Ground-borne vibration can frequently be perceived off property	• Outside storage of raw and finished products • Large production levels	• Open process • Frequent outputs of major annoyances • High probability of fugitive emissions	• Continuous movement of products and employees • Daily shift operations permitted	• Paint and varnish manufacturing • Organic chemical manufacturing • Breweries • Solvent recovery plants • Soaps and detergent manufacturing • Metal refining and manufacturing

The Area of Influence setback distances relative to the Project site overall are shown in Figure 3.

3.6.2 Requirements for Assessments

Guideline D-6 requires that studies be conducted to assess impacts where sensitive land uses are proposed within the potential Area of Influence of an industrial facility. This report is intended to fulfill this requirement.

The D-series guidelines reference previous versions of the air quality regulation (Regulation 346) and noise guidelines (Publications NPC-205 and LU-131). However, the D-Series of guidelines are still recognized, and represent current MECP policy and are specifically referenced in numerous other current MECP policies. In applying the D-series guidelines, the current policies, regulations, standards, and guidelines have been used (e.g., Regulation 419, Publication NPC-300).

3.6.3 Requirements for Minimum Separation Distances

Guideline D-6 also recommends that no sensitive land use be placed within the Recommended Minimum Separation Distance. However, it should be noted that this is a recommendation, only. Section 4.10 of the guideline allows for development within the Recommended Minimum Separation Distance, in cases of redevelopment, infilling, and transitions to mixed use, provided that the appropriate studies are conducted and that the relevant air quality guidelines are met.

4.0 Description of Existing Nearby Industries

Local industries within 1 km of the Project site were inventoried. As there are no significant industrial developments in the vicinity of the proposed development, the land use compatibility assessment as required by the Halton Region will focus on transportation sources in the immediate area. More information on the nearest industries is provided in the following subsections.

Additional comments with respect to air quality and noise are provided in Section 5.1 and Section 6.1, respectively.

4.1 Ren's Pets Oakville

ADDRESS:	4002 Trafalgar Road, Oakville
DISTANCE TO PROJECT:	60 m
D-6 CLASSIFICATION:	Class I Light Industry

Ren's Pets Oakville is a pet supply store that is open Monday through Friday from 9:00AM to 8:00PM, Saturdays from 9:00AM to 6:00PM, and Sundays from 10:00AM to 5:00PM. Potential air quality and noise source of interest associated with the facility include HVAC equipment and occasional vehicle movements from customer vehicles and delivery trucks. Based on the D-6 guidelines, it would be considered a Class I light industry, with a 70 m Area of Influence.

Despite being within the 70 m Area of Influence, air quality and noise sources associated with the facility are considered to be minor. This is a commercial business, as opposed to an industrial facility. Therefore, adverse impacts at the Project site are not anticipated. No further assessment is required.

4.2 Petrie's Quality Topsoil Ltd.

ADDRESS:	4321 Sixth Line, Milton
DISTANCE TO PROJECT:	480 m
D-6 CLASSIFICATION:	Class III Heavy Industry

Petrie's Quality Topsoil Ltd. is a landscaping business with posted operating hours of Monday to Friday, 8:00AM to 4:00PM, and Saturdays from 8:00AM to 2:00PM. A search of the MECP Access Environment website did not identify an Environmental Compliance of Approval (ECAs) or an Environmental Activity Sector Registration (EASR) for their operations. Potential air quality and noise sources of interest associated with the facility include vehicle movements, and equipment associated with movement/transfer of topsoil and other aggregate materials. The equipment may include excavators, front-end loaders, trucks, and mobile screening machinery.

Based on the size and nature of the facility operations, Petrie's Quality Topsoil site is conservatively considered a Class III heavy industry, with a Recommended Minimum Separation Distance of 300 m and a potential Area of Influence of 1000 m. The Project site is within the Potential Area of Influence, but outside the Recommended Minimum Separation Distance.

Given the facility is within the Potential Area of Influence, further discussion regarding potential for air emissions from the facility is provided within the context of this report.

4.3 Vacant Lots

Under Guideline D-6, the use of vacant buildings and lands must be considered in land use compatibility studies. Vacant lands surrounding the development include Light Employment (LE), Service Area-Employment (SA), Natural Heritage System (NHS) and Park (P) designations. These are discussed in the following subsection.

4.3.1 Light Employment/Service Area – Employment Lands

The lands to the west of the Project site are designated in the North Oakville East Secondary Plan as Employment Area. Under Town of Oakville Zoning By-Law 2009-189 the lands are zoned Existing Development (ED). Approximately 300 m to the west of the Project site, the

lands are currently zoned Light Employment (LE), and Natural Heritage System (NHS). Uses permitted within these zones are outlined in Table 3.

Table 3: Guideline D-6 – Industrial Categorization Criteria for Identified Project Land Use Designations in the Surrounding Area

Zoning Use	Type of Operation	Industry Class	Area of Influence Distance (m)	Recommended Minimum Separation Distance (m)
Light Industrial	Classification depends on intensity. Given surrounding land uses expected to be a Class I industry. MECP Permits required for emissions to atmosphere	I	70	20
Information Processing	Self-contained minimal air/noise emissions	I	70	20
Call Centres	Self-contained minimal air/noise emissions	I	70	20
Research and Development	Classification depends on intensity. Given surrounding land uses expected to be a Class I industry. MECP Permits required for emissions to atmosphere	I	70	20

Based on a review of the above table, LE employment uses have the following characteristics:

- Outputs: Sound, not audible off-property; low potential for fugitive emissions of dust or odour;
- Scale: Limited outside storage;
- Process: Self-contained within buildings; and
- Operations/ Intensity: Infrequent movements of equipment and personnel.

Based on the above employment characteristics, existing surrounding sensitive land uses, size, and nature of the possible employment land uses, the majority of the possible uses would be considered a Class I Light Industry, with a 70 m potential Area of Influence and a Recommended Minimum Separation Distance of 20 m.

If industries were to start operations in the Area of Influence of the Project site, they would be required to be compatible with the existing sensitive land uses that includes the NHS, P and mixed commercial/residential lands with elevated sensitive residential uses.

Further, if a future industrial operation were to relocate or be constructed on these lands, environmental studies would be required as part of planning/development processes, and further, industries may also be required to obtain approvals from the MECP (either EASR or ECA). In accordance with obtaining an MECP permit, a facility would be required to meet the applicable standards in O. Reg 419/05 with respect to air quality, and to meet the applicable requirements of MECP Publication NPC-300 with respect to noise. As part of the permitting process, a facility would be required to meet applicable guidelines at existing and approved residential locations.

5.0 Air Quality, Dust and Odour Assessment

5.1 Industrial Sources

5.1.1 Guidelines and Regulations

As previously discussed, within Ontario, facilities which emit significant amounts of air emissions to the environment are required to obtain and maintain an ECA from the MECP or submit an EASR. Facilities with an ECA/EASR should already meet the MECP guidelines for air quality emissions at their property line.

5.1.1.1 Air Quality Emissions

Under O.Reg. 419/05, a facility is required to meet prescribed standards for air quality emissions at their property boundary line and any location off-site. The MECP does not require industries to assess their emissions at elevated points off-site if a receptor does not exist at that location. While the introduction of mid- and high-rise residential properties could trigger a facility to re-assess compliance at new receptor location, the introduction of new low-rise receptors does not introduce any new receptors, as the facility is already required to comply at grade-level at their property line.

5.1.1.2 Odour

There are a select few compounds that are provincially regulated from an odour perspective; however, there is no formal regulation with respect to mixed odours. Impacts from mixed odours produced by industrial facilities are generally only considered and regulated by the MECP in the presence of persistent complaints (ECO 2010).

The MECP assesses mixed odours, in Odour Units, following draft guidelines. One odour unit (1 OU) has been used as a default threshold. This is the concentration at which 50 % of the population will just detect an odour (but not necessarily identify/recognize or object to it). Recognition of an odour will typically occur between 3 and 5 odour units. The following factors may be considered:

- **Frequency** – How often the odour occurs. The MECP typically allows odours to exceed 1 OU with a 0.5 % frequency.
- **Intensity** – The strength of the odour, in odour units. 1 OU is often used in odour assessments in Ontario.
- **Duration** – How long the odour occurs.
- **Offensiveness** – How objectionable the odour is.
- **Location** – Where the odour occurs. The MECP assesses odours where human activity is likely to occur.

The MECP has decided to apply odour-based standards to locations “where human activities regularly occur at a time when those activities regularly occur,” which is generally accepted to be places that would be considered sensitive such as residences and public meeting places. As a guide, the MECP has provided proposed clarification of human odour receptors, as shown in Table 4 below.

Table 4: Proposed Classification of Human Receptors (MECP, 2008)

Receptor Category	Examples	Exposure Type	Type of Assessment
Permanent potential 24-hour sensitivity	Anywhere someone could sleep including any resident or house, motels, hospitals, senior citizen homes, campgrounds, farmhouse, etc.	Individual likely to receive multiple exposures	Considered sensitive 24 hours per day
Permanent daily hours but with definite periods of shutdown/closure	Schools, daycares, community centres, soccer fields, farmland, churches, bicycle paths, hiking areas, lakes, commercial or institutional facilities (with consideration of hours of operation such as night clubs, restaurants, etc.)	Individual could receive multiple exposures	Night-time or daytime exclusion only (consider all other hours)
Seasonal variations with clear restrictions on accessibility during the off season	Golf courses, amusement parks, ski hills, other clearly seasonal private property	Short term potential for exposure	Exclusions allowed for non-seasonal use
Transient	Open fields, roadways, easements, driveways, parking lots, pump houses	Very short-term potential for exposure, may not be a single resident exposed to multiple events	Generally, would not be included as human receptors unless otherwise specified.

Note that certain commercial facilities are considered to be odour sensitive points of reception, as well as community spaces and residences.

5.1.1.3 Dust

Ontario Regulation 419/05 also provides limits for dust, including limits for suspended particulates and dust fall. Under Reg. 419/05, these air quality limits must be met at the property line and all points beyond. Tis not changed by the addition of sensitive uses within the Project site. That is to say, the existing property lines are already a point of reception for dust, and the limits must already be met at that location.

5.1.1.4 Cumulative Assessments

Cumulative impact assessments, examining the combined effects of individual industries, or the combined effects of industry and roadway emissions, are generally not required. Neither the PPS, the D Series of guidelines, Regulation 419/05, or the current MECP odour assessment protocols require an assessment of cumulative impacts.

Which is not to say that such assessments are never warranted; rather, the need to do so is considered on a case-by-case basis, depending on the nature and intensity of the industrial operation(s), and the nature of the pollutants released. Based on the types of pollutants released by the industries in this area, cumulative effects assessments are not warranted.

5.1.2 Assessment of Potential Air Quality Impacts

5.1.2.1 Petrie's Quality Topsoil Ltd.

Petrie's Quality Topsoil Ltd. is an aggregate and landscaping material supply company. The site has large excavation and material moving equipment with the potential to generate noise and air emissions.

A search of the MECP Access Environment website did not identify an Environmental Compliance of Approval (ECAs) or an Environmental Activity Sector Registration (EASR) for their operations. Potential air quality and noise sources of interest associated with the facility include vehicle movements, and equipment associated with movement/transfer of topsoil and other aggregate materials. The equipment may include excavators, front-end loaders, trucks, and mobile screening machinery.

Based on the size and nature of the facility operations, Petrie's site is conservatively considered a Class III heavy industry, with a Recommended Minimum Separation Distance of 300 m and a Potential Area of Influence of 1000 m.

Based on a review of the wind frequency distribution diagram illustrated in Figure 4, potential winds come from the west direction towards the Project site less than 18% of the time. The facility does not operate during the winter months, which reduces this frequency.

The Project site is located within the 1000 m Area of Influence of Petrie's' however it is outside the 300 m Recommended Minimum Separation Distance at a minimum distance of approximately 480 m. The Project site is further separated from Petrie's by the Highway 407 corridor and the associated elevated vegetation buffer.

The anticipated issue related to air quality would be the potential for dust associated with handling of materials on site. However, dust migrated off site would be expected to occur near to ground elevation and dissipate in proximity to the property line of the operating facility. Dust from this site is not anticipated to affect future sensitive uses associated with the subject property.

Given the large intervening distance, the vegetation buffer, and Highway 407 between the facility and the Project site, adverse air quality emissions from the Petrie's operations are not anticipated.

5.1.2.2 Development Employment Lands

As part of an adjacent proposed development by the Client to the East (addressed under a separate cover and assessment) some lands are designated in the North Oakville East Secondary Plan as Employment Areas. These lands are zoned as FD, and the concept plan for the East Development Lands designates the lands as Employment Area. From a compatibility perspective for air quality and noise, it is recommended that the Employment Area uses be limited to uses noted previously in Table 3.

If industries were to start operations in the Employment Areas that are within the Area of Influence of the residential/sensitive portions of the Project site, they would be required to be compatible with the existing sensitive land uses that includes the Trafalgar Road Urban Core Area, which may include mixed commercial/residential uses with elevated sensitive residential uses.

Further, if a future industrial operation were to relocate or be constructed on these lands, environmental studies would be required as part of planning/development process, and may

also be required to obtain approvals from the MECP (either EASR or ECA). In accordance with the MECP permit, the facility would be required to meet the applicable air quality standards of O. Reg 419/05 and to meet the applicable requirements of MECP NPC 300. As part of the permitting process, the facility would be required to meet applicable guidelines at existing and approved residential locations.

5.1.2.3 Employment Lands to West

SLR understands that an industrial development is proposed for municipal addresses 45 and 55 William Halton Parkway East in the Town of Oakville. The proposed development is also referred to as North Oakville Block 6 and is located approximately 280 m west of the Project site.

An updated Traffic Impact Study by LEA Consulting Ltd. dated May 2023 was provided to SLR for review. A previous Transportation Impact Study by URS dated April 2013 for the same area was also reviewed. The proposed industrial development is to consist of two industrial buildings, with three proposed driveways along William Halton Parkway. The specific tenants/uses of the industrial buildings are currently unknown, but the lands are zoned as Light Employment. These are likely to be Class I or Class II industries in a worst-case scenario, and therefore the Project site is located at the outer extent of the area of influence of a worst-case Class II industry.

The above-noted development would also be required to be compatible with existing and approved surrounding sensitive land uses, such as the residential development approved at the southeast corner of Sixth Line and William Halton Parkway. As discussed in Section 5.1.3.2, environmental noise and air quality studies would be expected to be required as part of the planning/development process.

5.2 Transportation Related Air Pollution

In support of the air quality portion of the study, an air dispersion modelling assessment was conducted to predict transportation related air pollution (TRAP) from vehicles on the nearby roadways at the Project site.

Vehicle emission estimates were determined using the United States Environmental Protection Agency (US EPA) Motor Vehicle Emission Simulator (MOVES) model. Air dispersion modelling was conducted using the US EPA AERMOD model. Maximum predicted model concentrations were combined with ambient background concentrations to estimate cumulative air emissions at the Project site.

5.2.1 TRAP Background Information

The Halton Region Air Quality Guidelines (AQG) were developed along with a number of other guidelines for land use planning which came out of the Regional Official Plan Amendment (ROPA 38). In general terms, the AQG recommends consideration of local industrial sources and transportation features when evaluating the siting of a residential land use.

The AQG acts as a summary document of the applicable guidelines for a particular undertaking.

> *"2.1 Under the Region's policy 143(12), any source emission studies may only be applicable when sensitive land uses (residential, natural heritage) are proposed with these 3 conditions present:*
>
> *1) Within 30 m of a major arterial road or provincial highway or within 150 m of provincial freeway;*

2) In proximity to an industrial use; and a

3) Utility use"

SLR conducted a review of identified roadways/highways, as referred to in items 1) and 2) of Section 2.1 listed above to determine if a detailed transportation related air pollution (TRAP) study is warranted. Portions of the Project site are within 30 m of Trafalgar Road and William Halton Parkway. Therefore, a TRAP study is warranted.

In addition to the Halton Region AQG, SLR considered information related to TRAP from the City of Toronto. TRAP generally considered in background pollution levels, however, based on studies conducted by Toronto Public Health (TPH), the City of Toronto recommends a review of the potential for TRAP to affect new residential developments near major highways and roadways. The 2017 Toronto Public Health *'Avoiding the Trap' Technical Report – Land Use Planning at the Project site Level' and "Operational and Behaviour strategies in Buildings"* document notes that TRAP is a major local contributor to air pollution in Toronto and can result in adverse health outcomes for people residing near highways and roadways. Common mitigation strategies for TRAP include filtration, strategic intake/amenity location, HVAC system operational procedures (i.e. timing around rush hour), physical barriers and vegetation buffers.

The City of Toronto document entitled Reducing Health Risks from Traffic Related Air Pollution (TRAP) in Toronto, October 16, 2017[1] identifies that:

> "Exposures to traffic-related air pollution (TRAP) are highest near highways and busy roads. The health literature indicates that health risk from TRAP is higher within 500 metres of highways with an average daily traffic volume of 100,000 vehicles or more, and within 100 metres of arterial roads with an average daily traffic volume of 15,000 vehicles or more."

There is currently no specific guidance document related to TRAP for the Town of Oakville, however, SLR understands that the intent of the Halton Region AQG is for developers to consider on-site mitigation measures to reduce potential exposure to TRAP at residential and other sensitive land use locations ("receptors"). Three resources are recommended by the City of Toronto as reference guides for mitigating potential TRAP emissions:

- Toronto Public Health (TPH) 'Avoiding the TRAP' Technical Report – 'Land Use Planning at the Site Level' and "Operational and Behaviour Strategies in Buildings";
- Government of South Australia: Reducing Noise and Air Impacts from Road, Rail and Mixed Land Use – Chapter 2; and
- US EPA Recommendations for Constructing Roadside Vegetation Barriers to Improve Near-Road Air Quality.

TPH notes that adverse health outcomes attributed to air pollution are potentially amplified for people residing in close proximity to Highways and roads.

Common TRAP mitigation strategies include:

- Filtration – use of air filtration systems to reduce indoor levels of air quality concentrations:

[1] https://www.toronto.ca/legdocs/mmis/2017/pe/bgrd/backgroundfile-108665.pdf

  - MERV filters 5-8 deemed appropriate for “Commercial Buildings” and “Better Residential Buildings”; and
  - MERV filters 9-12 deemed appropriate for “Better Commercial Buildings” and “Superior Residential Buildings”,
- Intake Location – locate fresh air intakes away from roadways and loading docks;
- HVAC System – timing the ventilation schedule to avoid bringing in fresh air during the peak rush hour vehicle volumes; mechanical HVAC can also be used to provide more make-up air than is exhausted to slightly pressurize the building positively, minimizing the infiltration of polluted air through the building envelope;
- Physical Barriers – installation of physical barriers (for example, noise barriers) to limit initial dispersion of pollutants and increase vertical mixing; a minimum of 5m tall and extending 50m laterally from the area of concern;
- Vegetation Buffer – use of a vegetation buffer/barrier to block site line to roadways and filter out particle emissions; coniferous varieties should be used to ensure efficacy year-round; porosity of 0.5-0.9 is considered ideal; and
- Prevailing Winds – Consideration of prevailing winds with respect to building orientation for dispersion, location of barriers and location of fresh air intakes.

This quantitative TRAP modelling study has been conducted to evaluate if mitigation measures are warranted at the Project site.

5.2.1.1 Air Emissions of Interest

The air emissions of interest for this study have been chosen based on the regularly assessed air emissions for transportation assessments in Ontario, as determined by the Ministry of Transportation Ontario (MTO) and the MECP.

Motor vehicle emissions have largely been determined by scientists and engineers with United States and Canadian government agencies such as the US EPA, the MECP, Environment Canada (EC), Health Canada (HC), and the MTO.

These air emissions are emitted from the operation of internal fuel combustion engines, brake wear, tire wear, the breakdown of dust/debris on roadways, fuel leaks, evaporation and permeation, as well as refuelling leaks and spills.

Note that emissions related to refuelling leaks and spills are not applicable to motor vehicle emissions from roadway travel. Instead, these emissions contribute to the overall background levels of the applicable air emissions of interest. The majority of the modelled air quality parameters are emitted from fuel combustion, while emissions from brake wear, tire wear, and breakdown of road dust/debris include only particulates. A summary of the air quality parameters of interest is provided in Table 5.

Table 5: Air Emissions of Interest

Criteria Air Contaminants		VOC’s & PAH’s [1]	
Name	**Symbol**	**Name**	**Symbol**
Nitrogen Dioxide	NO_2	Benzene	C_6H_6
Fine Particulate Matter (<2.5 microns in diameter)	$PM_{2.5}$	Benzo[a]Pyrene	$C_{20}H_{12}$

Criteria Air Contaminants		VOC's & PAH's [1]	
Coarse Particulate Matter (<10 microns in diameter)	PM_{10}		
Note: [1] – Volatile Organic Compounds (VOC), and Polycyclic Aromatic Hydrocarbons (PAH)			

5.2.1.2 Applicable Standards and Criteria

To evaluate if mitigation is required at the Project site, the predicted emissions from the adjacent highways and arterial roadways were compared to guidelines established by government agencies and organizations. Relevant agencies and organizations in Canada and their applicable emission standards and criteria are:

- MECP Ambient Air Quality Criteria ("AAQC"); and
- Canadian Ambient Air Quality Standards ("CAAQS").

Within the standards and criteria, the threshold value for each air quality parameter and its applicable averaging period were used to assess the maximum predicted concentration at sensitive receptors derived from computer simulations. The air quality emissions of interest are compared against 1-hour, 24-hour, and annual averaging periods. The threshold values and averaging periods used in this assessment are presented in Table 6.

Table 6: Applicable Air Quality Standards and Criteria

Parameter	Averaging Period (hrs)	Threshold Value (µg/m^3)	Source
NO_2	1	400	AAQC
	24	200	AAQC
	1	83 (42 ppb) [1]	CAAQS
	Annual	24 (12 ppb) [2]	CAAQS
$PM_{2.5}$	24	27 [3]	CAAQS
	Annual	8.8 [4]	CAAQS
PM_{10}	24	50	Interim AAQC
Benzo[a]Pyrene	24	0.00005	AAQC
	Annual	0.00001	AAQC
Benzene	24	2.3	AAQC
	Annual	0.45	AAQC

Notes: [1] The 1-hour NO_2 CAAQS is based on the 3-year average of the annual 98th percentile of the NO_2 daily-maximum 1-hour average concentrations.

[2] The NO_2 annual CAAQS is based on the average over a single calendar year of all the 1-hour average NO_2 concentrations.

[3] The $PM_{2.5}$ 24-hour CAAQS is based on the 3-year average of the annual 98th percentile of daily 24-hour average concentrations.

[4] The $PM_{2.5}$ annual CAAQS is based on the 3-year average of the annual average of the daily 24-hour average concentrations.

5.2.1.3 Background Ambient Data

A review of MECP and Environment Canada National Air Pollution Surveillance Program (NAPS) ambient monitoring stations in Ontario was undertaken to identify the monitoring stations that are in proximity to the Project site; and that are representative of background air quality concentrations in the area. Figure 5 shows the locations of the selected monitoring stations relative to the Project site location.

The stations and applicable background air emission concentrations considered in this assessment include:

- Oakville, MECP (ID: 44017), Address: Eighth Line/Glenashton Dr. Years: 2020-2024, Pollutants: NO_2 and $PM_{2.5}$;
- Toronto West, NAPS (ID: 60438), Address: 125 Resources Road. Years: 2017-2022, Pollutants: Benzo[a]Pyrene; and
- Etobicoke West, NAPS (ID: 60413), Address: Elmcrest Road. Years: 2012-2016, Pollutants: Benzene. Note more recent data was not available for this VOC.

PM_{10} is not measured in Ontario; therefore, background concentrations were estimated by applying a $PM_{2.5}/PM_{10}$ ratio of 0.54 (Lall et al., 2004). It was found that the available ambient Benzo[a]Pyrene data was measured at inconsistent frequencies and time intervals, and there was very little data available for 2020. Therefore, six years of background data were considered for Benzo[a]Pyrene. The 90th percentile ambient concentrations are provided in Table 7. These concentrations were added to maximum modelled concentrations to estimate cumulative air quality concentrations at the Project site.

Table 7: Ambient Background 90th Percentile Concentrations

Parameter	Averaging Period	Threshold Value (µg/m^3)	90th Percentile Ambient Concentration (µg/m^3)	Monitoring Station
NO_2	1-hr	400	30.86	Oakville (44017)
	24-hr	200	25.71	Oakville (44017)
	Annual	24	15.41 [1]	Oakville (44017)
$PM_{2.5}$	24-hr	27	12.42	Oakville (44017)
	Annual	8.8	9.69 [1]	Oakville (44017)
PM_{10}	24-hr	50	22.99	Oakville (44017)
Benzo[a]Pyrene	24-hr	0.00005	0.00013	Toronto West (60438)
	Annual	0.00001	0.00010	Toronto West (60438)
Benzene	24-hr	2.3	0.82	Etobicoke West (60413)
	Annual	0.45	0.67 [1]	Etobicoke West (60413)

[1] For annual averages, the maximum annual average over 5 years of background data was used rather than the 90th percentile of the 5 values.

5.2.2 Assessment Methodology

This assessment was conducted following common practices for air quality modelling in Ontario and Guideline A-11: Air Dispersion Modelling Guideline for Ontario (MECP, 2017).
US EPA AERMOD dispersion modelling was conducted to predict worst-case air quality concentrations from roadway emissions at the Project site. Maximum modelled concentrations were combined with the 90th percentile measured background concentrations. These combined concentrations were compared against applicable guidelines and standards for the various parameters and averaging periods. Details regarding the modelling assessment are provided below.

5.2.2.1 Sensitive Receptor Locations

In the modelling assessment, discrete receptors were placed along each of the building facades at grade-level and every 3m in height up to roof level to represent the balconies and operable windows on the buildings, and fresh air intake locations.

5.2.2.2 Traffic Data

The Halton Region AQ Guidelines require assessment of transportation sources where a sensitive receptor is located within 30 m of a major arterial road or provincial highway or within 150 m of a provincial freeway. Roadways in the vicinity of the site which meet this criterion and were therefore included in this assessment are:

- Trafalgar Road, William Halton Parkway, adjacent to the Project site.

Highway 407 and Burnhamthorpe Road were also included in the assessment for completeness.

Sources of road traffic data used in the assessment are discussed further in Section 6.2.2.

The traffic data used in the assessment is provided in Table 8.

Table 8: 2041 Road Traffic Volumes

Roadway Link	Future Year Traffic Volume (AADT)	Heavy Duty Vehicle %		Posted Speed Limit (km/hr)
		Medium Truck %	Heavy Truck %	
Trafalgar Road – Northbound	25,000	4.8	3.7	80
Trafalgar Road – Southbound	25,000	4.8	3.7	80
Highway 407 – Eastbound	48,000	6.0	6.0	100
Highway 407 - Westbound	48,000	6.0	6.0	100
William Halton Parkway – Eastbound	17,500	4.0	2.0	60
William Halton Parkway - Westbound	17,500	4.0	2.0	60
Burnhamthorpe Road	21,430	3.5	0.2	60

5.2.2.3 Meteorological Data

The MECP pre-processed meteorological data for AERMOD for a suburban environment was used in this assessment. This meteorological station considers surface data from Pearson

Airport and Upper Air Data from the U.S. National Weather Service's Buffalo station for five years (1996-2000). The wind rose for this meteorological data set is provided in Figure 4 and shows that predominant winds come from the northerly through southwesterly directions.

5.2.2.4 Motor Vehicle Emission Rates

The US EPA Motor Vehicle Emission Simulator ("MOVES") model provides estimates of current and future emission rates from motor vehicles based on a variety of factors such as local meteorology, vehicle fleet composition and speed. MOVES 4.0, released in August 2023, is the US EPA's latest tool for estimating vehicle emissions resulting from the combustion of fuel, brake and tire wear, fuel evaporation, permeation, and refuelling leaks. The MOVES model is based on "an analysis of millions of emission test results and considerable advances in the Agency's understanding of vehicle emissions and accounts for changes in emissions due to proposed standards and regulations".

For this project, MOVES was used to estimate vehicle emissions based on vehicle type, road type, model year, and vehicle speed. Emission rates were estimated for the year 2041, for the medium/heavy duty vehicle percentages (provided in Table 8). Vehicle age is based on the US EPA standard vehicle age distribution.

The emission rates for each modelled vehicle speed and associated truck percentages (as outlined in Table 8) are shown in Table 9. Emission rates are provided in grams per vehicle mile travelled (g/VMT).

Table 9: MOVES Emission Rates (g/VMT) – 2041

Pollutant	60 km/hr	80 km/hr	100 km/hr
Nitrogen Dioxide	5.81E-03	6.52E-03	7.86E-03
Benzene	9.61E-04	7.78E-04	7.06E-04
Total PM_{10}	4.75E-02	2.32E-02	1.51E-02
Total $PM_{2.5}$	7.23E-03	4.12E-03	3.09E-03
Benzo[a]Pyrene	3.89E-07	3.72E-07	3.62E-07

A large portion of roadway particulate matter emissions is generated from dust/debris on the pavement which is re-suspended by vehicles travelling on the Highway and roadways. These emissions are estimated using empirically derived values presented by the US EPA in their AP-42 report, Chapter 13.2.1.3. The emission factors for re-suspended PM were estimated in accordance with this document and were added to the predicted MOVES particulate emission rates, to estimate total emissions of particulates. The particulate emission rates are shown in Table 10.

Table 10: Re-Suspended Particulate Matter Emission Factors

AADT	Particle Size Multiplier, K ($PM_{2.5}/PM_{10}$)	Silt Loading (g/m^2)	Weight (Tons)	Emission (g/VMT)	
				$PM_{2.5}$	PM_{10}
>10,000 (limited access)	0.25/1.0	0.0015	3	0.018	0.07
>10,000	0.25/1.0	0.03	3	0.033	0.13

5.2.2.5 Air Dispersion Modelling

Air dispersion modelling was conducted using the MECP approved version of the US EPA AERMOD Model, version 22112. The roadways were modelled utilizing volume line sources and following US EPA guidance for plume width, plume height and release height.

Vehicle emissions were modelled utilizing MOVES emission rates for the Trafalgar Road, William Halton Parkway, and Burnhamthorpe Road. Variable emissions by hour of day were modelled to account for changes in traffic volumes throughout the day. The Project site and associated sensitive receptor locations were included in the model based on the concept plan included in Appendix A and building height assumptions noted in Section 2.2.

Modelling was conducted in accordance with Guideline A-11: Air Dispersion Modelling Guideline for Ontario. Modelling sources and receptor locations are shown in Figure 6 and Figure 7.

5.2.3 Modelling Results

Maximum model results were combined with the 90th percentile background concentrations to determine the predicted cumulative air emissions at the Project site sensitive receptors. These predicted emission concentrations were compared against the applicable standards and guidelines. The maximum predicted concentrations at the Project site for each air quality parameter are summarized in Table 11. For all parameters, maximum predicted concentrations occur at grade level on the east property line, in proximity to the Trafalgar Road and William Halton Parkway intersection. Figure 8 shows the 1-hour NO_2 contour plot.

Predicted air emission concentrations at the Project site are below the applicable MECP AAQC and EC CAAQS for the majority of air quality parameters for their respective averaging periods. The exceptions are annual benzene, annual $PM_{2.5}$, and 24-hour and annual Benzo[a]Pyrene. It is important to note that for all four exceedances, the background concentrations exceed the standards and criteria, prior to adding in the modelled emissions.

For example, the annual Benzene background concentration is 149 % of the standard, prior to adding the modelled emissions. The contribution from TRAP to the maximum cumulative annual Benzene concentrations is predicted to be 3%. In other words, the background concentrations dominate the combined concentrations.

Overall, as height above grade increases, predicted concentrations of emissions from the transportation sources decrease for all parameters, with the lowest predicted concentrations occurring at the roof level.

Table 11: Maximum Predicted Concentrations

Contaminant	Averaging Period	Threshold (µg/m^3)	Maximum Model Concentration (µg/m^3), 2041	Background 90th Percentile Concentration (µg/m^3)	Total (µg/m^3), 2041	Percentage of Threshold, 2041
Nitrogen Dioxide	1-Hour	400	1.86	30.86	32.72	8%
	24-Hour	200	0.68	25.71	26.39	13%
	1-Hour (CAAQS)	83	0.69	30.86	31.55	38%
	Annual (CAAQS)	24	0.16	15.41	15.57	65%

Contaminant	Averaging Period	Threshold (µg/m^3)	Maximum Model Concentration (µg/m^3), 2041	Background 90th Percentile Concentration (µg/m^3)	Total (µg/m^3), 2041	Percentage of Threshold, 2041
$PM_{2.5}$	24-Hour	27	4.19	12.42	16.61	62%
	Annual	8.8	1.00	9.69	10.69	122%
PM_{10}	24-Hour	50	18.13	22.99	41.13	82%
Benzene	24-Hour	2.3	0.10	0.82	0.91	40%
	Annual	0.45	0.02	0.67	0.69	154%
Benzo[a]Pyrene	24-Hour	0.00005	0.00004	0.00013	0.0002	336%
	Annual	0.00001	0.00001	0.00010	0.0001	1145%

5.2.4 Summary of Air Quality, Dust and Odour Conclusions and Recommendations

The potential for air quality emissions was assessed for the area surrounding the proposed Project site development, with respect to industrial and transportation emission sources.

The Project site is anticipated to be compatible with the surrounding existing and potential industrial land uses from an air quality perspective. In addition, adverse emissions of dust and odour at the Project site are not anticipated. The Project site is not anticipated to limit the ability of surrounding industries to obtain or maintain required MECP permits or approvals.

Under the Halton LUCG, major 400 series highways and arterial roads must be assessed in the air quality assessment. Vehicle emission estimates were determined using the US EPA MOVES model. Air dispersion modelling was conducted using the US EPA AERMOD model. Maximum predicted model concentrations were combined with ambient background concentrations to estimate cumulative air quality emissions at the Project site.

Predicted air emission concentrations at the Project site are below the applicable MECP AAQC and EC CAAQS for the majority of air quality parameters for their respective averaging periods. The exceptions are annual benzene, annual $PM_{2.5}$, and 24-hour and annual Benzo[a]Pyrene. It is important to note that for all four exceedances, the background concentrations exceed the standards and criteria, prior to adding in the modelled emissions. Although not a requirement, recognizing that elevated background concentrations exist for annual benzene, $PM_{2.5}$ and Benzo[a]Pyrene, it is common practice to further shield the fresh air intakes from transportation emissions in the vicinity of the Project site. The following mitigation measures may be considered during future planning and design for high rise features located in the immediate vicinity of the adjacent roadways:

- Locate fresh air intakes at roof level, where roadway concentrations are predicted to be the lowest; alternatively, locate fresh air intakes at elevated locations on building facades facing away from local roadways;
- Utilize a centralized heating, ventilation, and air conditioning (“HVAC”) system (i.e. no individual fresh air intakes);
- Include, at a minimum, MERV-8 rated filters on the fresh air intakes to the various buildings; these filters help to reduce particulate are deemed appropriate for “Better Residential Buildings”, in accordance with the Toronto Public Health (TPH) article

entitled, Avoiding the TRAP: “Traffic Related Air Pollution in Toronto”, in the case of particulate matter reduction;

- Consider timing the ventilation schedule to minimize the amount of fresh air brought into the buildings during the peak rush hour vehicle volumes; and Design the mechanical HVAC to provide more make-up air than is exhausted to slightly pressurize the buildings positively, minimizing the infiltration of outdoor air through each building envelope.

6.0 Environmental Noise Assessment

6.1 Industrial (Stationary) Source Noise

6.1.1 Discussion of Existing Stationary Sources

SLR has reviewed aerial imagery of the Project site and surrounding area, to assess potential stationary source noises in the vicinity of the Project. The Town of Oakville – North Oakville Master Plan (Appendix 7.3) and the Town of Oakville Zoning By-Law 2009-189 were also reviewed to determine the existing and future planned land use designations for the area. An excerpt from the North Oakville Master Plan is provided in Figure 2A for reference.

There are currently no significant stationary noise sources existing in proximity to the development that are expected to result in adverse impacts at the Project site. A discussion of nearby stationary sources is provided in the following subsections.

6.1.1.1 Ren’s Pet’s Oakville (Class I Industry)

Potential sources of noise associated with the Ren’s Pet’s Oakville facility include HVAC equipment and occasional vehicle movements from customer vehicles and delivery trucks.

Due to the high ambient sound levels due to road traffic along Trafalgar Road/Burnhamthorpe Road East, and no significant noise sources associated with the facility, sound levels exceeding applicable limits are not anticipated at the Project site. Therefore, the facility has not been considered further in this assessment.

6.1.1.2 Petrie’s Quality Topsoil Ltd. (Class II Industry)

Petrie’s Quality Topsoil Ltd. Is a landscaping business with posted operating hours during daytime hours only (i.e., 0700h to 1900h). Potential sources of noise associated with the facility include vehicle movements, and equipment associated with movement/transfer of topsoil and other aggregate materials such as excavators, front-end loaders, trucks, and mobile screening machinery.

Based on previous SLR experience with similar facilities and noise sources, it is expected that daytime MECP NPC-300 Class 1 minimum exclusionary sound level limits are met at distances of approximately 400 m from the operating equipment (with intervening ground consisting of grassy lands). During night-time hours, the sound level limits are met at distances of approximately 500 m or more from operating equipment. In both cases, the operating scenarios assumed continuous operation of a mobile screen, excavator, and loader for a full hour.

Due to the large separation distance between the nearest potential noise source locations at the facility and the Project (i.e., greater than 600 m), and the high ambient sound levels due to road traffic along intervening Highway 407, sound levels exceeding applicable limits are not anticipated at the proposed development.

6.1.2 Discussion of Future/Planned Stationary Sources

6.1.2.1 Proposed Development Site

The proposed Project site is currently vacant and zoned as Existing Development/Future Development (ED/FD) according to the Town of Oakville Zoning By-Law 2009-189. Based on the North Oakville Official Plan, the lands are designated as Trafalgar Road Urban Core Area. Within the Project site itself, the concept plan indicates lands are intended for Mixed Uses (i.e., residential and retail/commercial uses combined) and Employment Uses.

As the concept plan for the proposed development includes high density residential developments (podiums and towers) within the Project site, there is the potential for noise impacts from the commercial/retail/employment-related land uses located below or adjacent to the residential buildings.

Future Employment Area facilities within the Project site, including commercial and retail uses, should comply with the sound level limits in MECP Publication NPC-300. Should General Employment be considered for the Project site lands to the East, Light Employment lands should be considered as a buffer. In general, Light Employment noise impacts are not anticipated to be a concern for the proposed development, and can be addressed through strategic building design, equipment layout, equipment selection and inclusion of noise controls (if needed). With the inclusion of a Light Employment buffer, General Employment/industrial lands are expected to be sufficiently controlled with strategic building design, equipment layout, equipment selection and inclusion of noise controls (if needed).

6.1.2.2 Employment Lands to West

As previously indicated, an industrial development is proposed for municipal addresses 45 and 55 William Halton Parkway East in the Town of Oakville. The proposed development is also referred to as North Oakville Block 6 and is located approximately 720 m west of the Project site.

Due to the intervening distance and Light Employment zoning applicable to the proposed Employment Lands, noise impacts at the Project site are not expected, and a detailed assessment has not been completed.

6.2 Transportation Noise Sources

Transportation sources with the potential to produce noise at the Project site include road traffic along Trafalgar Road, William Halton Parkway, Highway 407, and Burnhamthorpe Road East.

In addition to the current existing roadways, future transit-related projects have the potential to introduce additional transportation noise sources in proximity to the Project. These include:

- The Highway 407 Transitway; and
- The Trafalgar Road Bus Rapid Transit (BRT) Route.

Road traffic noise from these sources has been predicted, and this information has been used to determine preliminary façade, ventilation, and warning clause recommendations/ requirements for the proposed development.

There are no railways or airports in proximity to the Project; therefore, rail and aircraft noise has not been considered further in the assessment.

6.2.1 Surface Transportation Noise Criteria

6.2.1.1 Ministry of Environment Publication NPC-300

Noise-Sensitive Development

Ministry of the Environment, Conservation and Parks (MECP) Publication NPC-300 provides sound level criteria for noise-sensitive developments. The applicable portions of NPC-300 are Part C – Land Use Planning and the associated definitions outlined in Part A – Background. Table 12 to Table 16 summarize the applicable surface transportation (road and rail) criteria.

Location-Specific Criteria

Table 12 summarizes criteria in terms of energy equivalent sound levels (L_{eq}) for specific noise-sensitive locations. Both outdoor and indoor locations are identified, with the focus of outdoor areas being amenity spaces. Indoor criteria vary with sensitivity of the space. As a result, Sleeping Quarters have more stringent criteria than Living/Dining room spaces.

Table 12: NPC-300 Sound Level Criteria for Road and Rail Noise

Type of Space	Time Period	Energy Equivalent Sound Level L_{eq} [5] (dBA)		Assessment Location
		Road	Rail [1]	
Outdoor Amenity Area	Daytime (0700-2300h)	55	55	Outdoors [2]
Living/Dining Room [3]	Daytime (0700-2300h)	45	40	Indoors [4]
	Night-time (2300-0700h)	45	40	Indoors [4]
Sleeping Quarters	Daytime (0700-2300h)	45	40	Indoors [4]
	Night-time (2300-0700h)	40	35	Indoors [4]

Notes: [1] Whistle noise is excluded for OLA noise assessments and included for Living/Dining Room and Sleeping Quarter assessments, where applicable.
[2] Road and Rail noise impacts are to be combined for assessment of OLA impacts.
[3] Residence area Dens, Hospitals, Nursing Homes, Schools, Daycares are also included. During the nighttime period, Schools and Daycares are excluded.
[4] An assessment of indoor noise levels is required only if the criteria in Table 15 are exceeded.
[5] L_{eq} – the energy equivalent sound level, integrated over the time period shown.

Outdoor Living Areas

Table 13 summarizes the noise mitigation requirements for communal outdoor amenity areas ("Outdoor Living Areas" or "OLAs").

For the assessment of outdoor sound levels, total surface transportation noise is determined by combining road and rail traffic sound levels. Whistle noise from trains is not included in the determination of outdoor sound levels.

Table 13: NPC-300 OLA Sound Level Criteria for Road and Rail Noise

Time Period	OLA Energy Equivalent Sound Level L^{eq} (dBA)	Mitigation Requirements/Warning Clause Recommendations
Daytime (0700-2300h)	≤ 55	• None
	56 to 60 inc.	• Noise barrier OR Type A Warning Clause
	> 60	• Noise barrier to reduce noise to 55 dBA OR • Noise barrier to reduce noise to 60 dBA and Type B Warning Clause

Ventilation and Warning Clauses

Table 14 summarizes recommendations for ventilation where windows would potentially have to remain closed as a means of noise control. Despite implementation of ventilation measures where recommended, if sound levels exceed the guideline limits in Table 14, warning clauses advising future occupants of the potential excesses are also recommended. Warning clauses also apply to OLAs.

Table 14: NPC-300 Ventilation and Warning Clause Recommendations

Assessment Location	Time Period	Energy Equivalent Sound Level – L_{eq} (dBA)		Ventilation and Warning Clause Recommendations [2]
		Road	Rail [1]	
Outdoor Living Area	Daytime (0700-2300h)	56 to 60 incl.		Type A Warning Clause
Plane of Window	Daytime (0700-2300h)	≤ 55		None
		56 to 65 incl.		Forced Air Heating with provision to add air conditioning + Type C Warning Clause
		> 65		Central Air Conditioning + Type D Warning Clause
	Night-time (2300-0700h)	51 to 60 incl.		Forced Air Heating with provision to add air conditioning + Type C Warning Clause
		> 60		Central Air Conditioning + Type D Warning Clause

Notes: [1] Whistle noise is excluded from assessment.
[2] Road and Rail noise is combined for determining Ventilation and Warning Clause requirements

Building Components

Table 15 provides sound level thresholds which, if exceeded, trigger a requirement for the building shell components (i.e., exterior walls, windows) to be designed accordingly to meet the applicable indoor sound criteria.

Table 15: NPC-300 Building Component Assessment Requirements

Assessment Location	Time Period	Energy Equivalent Sound Level – L_{eq} (dBA)		Component Requirements
		Road	Rail [1]	
Plane of Window	Daytime (0700-2300h)	> 65	> 60	Designed/ Selected to Meet Indoor Requirements [2]
	Night-time (2300-0700h)	> 60	> 55	

Notes: [1] Whistle noise is included in assessment
[2] Building component requirements are assessed separately for Road and Rail, and then combined for a resultant sound isolation parameter.

Supplementary Criteria

MECP Publication NPC-300 provides sound level criteria for land uses and developments not normally considered to be noise sensitive. This includes educational facilities, places of worship and office spaces. The sound level limits in Table 16 are provided as good practice design objectives.

Table 16: Supplementary Indoor Sound Level Limits Road and Rail

Type of Space	Time Period	Energy Equivalent Sound Level L_{eq} (dBA) – Road	Assessment Location [1]
General offices, reception areas, retail stores, etc.	Daytime (0700-2300h)	50	Indoors
Hospitals, schools, nursing/retirement homes, day care centres, theatres, places of worship, libraries, individual or semi-private offices, conference rooms, reading rooms, etc.	Daytime (0700-2300h)	45	Indoors

Notes: [1] An assessment of indoor noise levels is required only if the criteria in Table 15 are exceeded.

6.2.1.2 Halton Region Guidelines

The Halton Region guidelines include the Noise Abatement Guidelines – Regional Official Plan Guidelines and the Land Use Compatibility Guidelines – Regional Official Plan Guidelines, both dated June 18, 2014.

In general, the Halton Region guidelines are consistent with the MECP NPC-300 guidelines, with the exception of the barrier assessment requirements. Differences include the requirement to consider mature-state-of-development traffic volumes for regional roads in the mitigation analysis, and the noise barrier height limitations (3.5 m maximum and 2.4 m minimum).

6.2.2 Traffic Data and Future Projections

6.2.2.1 Regional Road and Trafalgar Road Bus Rapid Transit (BRT)

Ultimate annual average daily traffic (AADT) volumes for Trafalgar Road and William Halton Parkway, and truck percentages for William Halton Parkway, were obtained from the Halton Region Infrastructure Planning & Policy Department. For Trafalgar Road, truck percentages and the day/night split were also obtained from Halton Region in the form of a 24-hour ATR between Burnhamthorpe Road and Highway 407 from May 2021.

For the Trafalgar Road BRT, estimates of bus volumes were obtained from the report entitled "Halton Region – Trafalgar Road (Regional Road 3) Improvements Class Environmental Assessment Study – Traffic Noise Impact Study" by AECOM, dated April 2015. The assessment in the report considered 600 buses per day along the Trafalgar Road BRT route, which was applied in this analysis. Based on correspondence with Halton Region, the most likely near-future scenario along Trafalgar Road will include 6 total lanes of traffic, with 2 outer HOV lanes that will accommodate buses. For the analysis, Trafalgar Road was therefore split into 4 separate segments. The two inner segments were considered to account for 82% of northbound plus southbound traffic along Trafalgar Road (41,000 AADT), and the HOV lanes accounting for the remaining 18% (9,000 AADT), based on volumes and ratios in the Trafalgar Road (Regional Road 3) Improvements Class Environmental Assessment Study – Traffic Noise Impact Study by AECOM (April 2015). All 600 buses were included in the HOV lanes, with the balance of the HOV lane composed of cars only (8,400 cars). Therefore, the total medium truck percentage along Trafalgar Road considered in the assessment was 5.6% to account for the buses, above the 4.7% in the 24-hour ATR data. Heavy vehicle traffic was considered to make up 3% of Trafalgar Road traffic on the inner 4 lanes (2 modelled segments).

6.2.2.2 Highway 407 and Transitway

For Highway 407, detailed traffic data is not available. SLR has applied historical estimates of 12,000 vehicles per lane AADT, for a total of 48,000 vehicles for eastbound and westbound traffic, respectively. Furthermore, based on previous SLR experience with Highway 407, a day/night split of 85% / 15% was applied, along with truck percentages of 6% medium trucks, and 6% heavy trucks.

Highway 407 Transitway bus volumes were obtained from the report prepared by Arcadis for the Ontario Ministry of Transportation entitled "Appendix J – Air Quality Impact Assessment – Highway 407 Transitway: West of Brant Street to West of Hurontario Street, June 2020". The Appendix K – Noise Report (also by Arcadis, prepared for the same overall study) was also reviewed, but did not contain specific traffic count information related to the Highway 407 Transitway. An estimated 464 transitway buses (AADT) were considered in the assessment, based on the site plan of the Transitway Trafalgar Road Station prepared by Parsons Corporation and IBI Group, included for reference in Appendix B. A day/night split of 90%/10% was assumed, and a travel speed of 100 km/hr was applied as the buses are entering the station from Highway 407.

6.2.2.3 Burnhamthorpe Road

Ultimate road traffic data for Burnhamthorpe Road was not available. Therefore, turning move counts (TMCs) obtained from Paradigm Transportation Solutions Limited and Halton Region were reviewed. Data for various future Year 2041 scenarios (i.e., a typical mature state of development for various municipalities) were considered, and the scenario resulting in the most conservative (i.e., highest) volumes were applied in the analysis. Peak PM turning movement

count (TMC) data for Trafalgar Road and Burnhamthorpe Road East from a future Year 2041 ("with Street A" scenario) were used to calculate AADT volumes and commercial vehicle (truck) percentages. A medium/heavy truck split of 3.5% / 0.2% was applied in the assessment. A day/night split of 90%/10% was assumed, consistent with the MECP ORNAMENT document.

6.2.2.4 Review of Truck Traffic from West Employment Lands

To address questions from Halton Region regarding heavy truck traffic from the North Oakville Block 6 industrial development to the west, SLR analyzed turning movement counts from the following reports:

- Updated Transportation Impact Study – 45 and 55 William Halton Parkway East, Town of Oakville, Proposed Industrial Development (dated May 2023); and
- Transportation Impact Study – Star Oak Development Limits – Town of Oakville (dated April 2013).

Future-year AADT volumes and heavy truck percentages were calculated for both scenarios, and these were compared to the Ultimate AADT volumes and associated truck percentages provided by Halton Region for William Halton Parkway, along which heavy trucks from the development would travel.

Based on review of the LEA and URS studies and the future year AM/PM peak TMCs, the predicted future AADT volumes were significantly lower compared to Ultimate data and did not exceed 12,000 vehicles per day. Overall truck percentages also did not exceed 1.1% of the future year AADT. In comparison, Ultimate data provided by Halton Region for Wiliam Halton Parkway indicated medium and heavy truck percentages of 4% and 2%, respectively, and an AADT of 35,000 vehicles per day (refer to Table 17).

Based on this analysis, it is expected that the Ultimate AADT and truck percentages provided by Halton Region for William Halton Parkway sufficiently incorporate any future truck traffic from the three driveway access points from 45 and 55 William Halton Parkway East. Therefore, the Ultimate data provided by Halton Region was used in the transportation noise assessment.

6.2.2.5 Summary of Road Traffic Data

All road traffic data considered in the analysis is summarized in Table 17. Applicable traffic data and correspondence is included for reference in Appendix B.

Table 17: Summary of Road Traffic Data Used in Transportation Analysis

Roadway Link	Future Traffic Volume AADT	% Day/Night Volume Split[1]		Commercial Vehicle Breakdown		Vehicle Speed (km/hr)
		Daytime	Night-time	% Medium Trucks	% Heavy Trucks	
Trafalgar Road – Northbound	20,500	90	10	4.8	3.7	80
Trafalgar Road – Southbound	20,500	90	10	4.8	3.7	80
Trafalgar Road HOV Lane - Northbound	4,500	90	10	6.7	0.0	80

Roadway Link	Future Traffic Volume AADT	% Day/Night Volume Split[1]		Commercial Vehicle Breakdown		Vehicle Speed (km/hr)
		Daytime	Night-time	% Medium Trucks	% Heavy Trucks	
Trafalgar Road HOV Lane - Southbound	4,500	90	10	6.7	0.0	80
William Halton Parkway	35,000	90	10	4.0	2.0	60
Burnhamthorpe Road	21,430	90	10	3.5	0.2	60
407 Transitway	464	90	10	100.0	0.0	100
Highway 407 – Eastbound	48,000	85	15	6.0	6.0	100
Highway 407 - Westbound	48,000	85	15	6.0	6.0	100
Notes: [1] The Daytime/Night-time split was determined from historic data at SLR for urban areas, and for highways (Highway 407).						

6.2.3 Predicted Sound Levels

Future road traffic sound levels at the proposed development were predicted using Cadna/A, a commercially available noise propagation modelling software package. Roadways were modelled as line sources of sound, with sound emission rates calculated using the ORNAMENT algorithms, the road traffic noise model of the MECP. These predictions were validated and are equivalent to those made using the MECP's ORNAMENT or STAMSON v5.04 road traffic noise models. A STAMSON validation file and output are included for reference in Appendix C.

Sound levels were predicted along the facades of the proposed development using the "building evaluation" feature of Cadna/A. This feature allows for noise levels to be predicted across the entire façade of a structure. OLA sound levels were assessed at a height of 1.5 m above terrace level, at the centre of the terrace spaces.

Block number/letter identifiers for all site buildings were added by SLR for descriptive and reporting purposes, as shown in Figure 9. Building height estimates ranged from 3 storeys to 20 storeys (noting that requested policy would allow up to 30-storey height), based on information provided by GSP Group and noted previously in Section 2.1. Estimated building heights considered in this assessment are summarized in Appendix D. These are subject to change and will be confirmed as part of noise studies required as part of future planning applications, including Zoning By-law Amendments and Site Plan Approvals.

Topographic contours (1.0 m resolution) were included in the model to account for grade changes in the area surrounding the Project site. Ground absorption was conservatively assumed to be reflective (i.e., G = 0).

6.2.3.1 Façade Sound Levels

Predicted worst-case façade sound levels due to road traffic are presented in Table 18 for select Blocks/buildings within the development. The predicted sound levels in Table 18 represent the highest for each development Block.

Table 18: Summary of Predicted Worst-Case Transportation Façade Sound Levels

Assessment Location	Worst-Case Building/Façade[1]	Maximum Predicted Road Traffic Sound Levels[2]	
		L_{eq} Daytime (dBA)	L_{eq} Night-time (dBA)
Mixed-Use Buildings			
Block 4	Block 4A-3 / East	74	67
Block 5	Block 5B-3 / East	74	67
Block 11	Block 11A-3 / North	70	64
Block 12	Block 12A-3 / South	68	61
Block 13	Block 13B-2 / East	73	66
Block 14	Block 14B-2 / East	73	66
Employment Buildings			
Block 6	Block 6 / South	62	n/a [3]
Block 7	Block 7 / East, South	61	n/a [3]
Block 11	Block 11C / North	69	n/a [3]
Block 12	Block 12B / South	66	n/a [3]

Notes: [1] Block numbers/letters (IDs) are shown in Figure 9.
[2] Sound levels presented above are the highest for the identified building Block and facade.
[3] Supplementary criteria for non-residential Employment use buildings are not applicable during night-time hours.

The highest predicted sound levels for all buildings in the proposed development are summarized in Appendix D and shown in Figure 10 for daytime hours and Figure 11 for night-time hours, respectively.

Sound levels along several facades within the proposed developed exceed 65 dBA during daytime hours. Therefore, upgraded building shell components are required to achieve the indoor sound level requirements in Table 12. Refer to Section 6.2.4.

6.2.3.2 Outdoor Living Area Sound Levels

Building massing and OLAs associated with residential buildings in the development are conceptual at this stage. To evaluate potential OLA transportation sound levels, it was assumed the development building rooftops could have common elevated rooftop amenity terraces.

As the proposed development was assumed to include common rooftop amenity spaces for all residential building occupants, private terraces are not considered to be the only outdoor amenity spaces available. Therefore, an assessment of private terraces was excluded based on the definitions outlined in NPC-300.

The predicted transportation sound levels at the potential Outdoor Living Areas associated with each applicable building in the development are shown in Figure 12. The highest Outdoor Living Area sound levels in each Block are summarized in Table 19. A complete list of predicted daytime Outdoor Living Area sound levels is provided for reference in Appendix D. Outdoor Living Areas were not considered for Employment Use buildings, consistent with the NPC-300 guideline.

Table 19: Summary of Predicted Transportation OLA Sound Levels

OLA Assessment Location	Worst-Case OLA	Predicted Sound Level, L_{eq}, Daytime (dBA)
Block 4	OLA_2A_2, OLA_4B_3	66
Block 5	OLA_5B_2	72
Block 11	OLA_11B	62
Block 12	OLA_12A_1	65
Block 13	OLA_13B_2	67
Block 14	OLA_14B_2	67

Sound levels are predicted to exceed 60 dBA for several of the potential OLA locations; therefore, mitigation and warning clauses are expected to be required. Refer to Section 6.2.4.2.

6.2.4 Noise Control Measures

6.2.4.1 Façade Assessment

Glazing Requirements

Based on the sound levels shown in Table 18, façade sound levels were predicted to exceed 65 dBA (daytime) and 60 dBA (night-time) at multiple locations throughout the development. Therefore, an assessment of glazing requirements is necessary for meeting the indoor sound level requirements outlined in Table 12.

Indoor sound levels and required facade Sound Transmission Class (STC) ratings were estimated using the procedures outlined in National Research Council Building Practice Note BPN-56.

The following assumptions were considered for all buildings in the proposed development.

- Window wall construction with glazing and glass spandrel panel elements;
- For living/dining rooms and office spaces, 70% of the exterior wall is vision glass/patio doors;
- For bedrooms, 50% of the exterior wall is vision glass;
- Non-glazing portions of the wall (i.e., glass spandrel panel) has an assumed STC rating of 45;
- Living rooms were assumed to be 3 m x 6 m in size with intermediate absorption;
- Bedrooms were assumed to be 3 m x 3 m in size with intermediate absorption; and
- For Employment Use only buildings, general office space was assumed to be 15 m x 15 m in size with intermediate absorption.

The worst-case acoustic requirements for each Block are provided in Table 20, which presents the STC ratings taking into consideration roadway noise and the assumptions listed above. A summary of worst-case window STC requirements for all buildings in the proposed development are included in Appendix D. Detailed façade calculations for all locations with daytime sound levels exceeding 65 dBA and night-time sound levels exceeding 60 dBA (the criteria defined in Table 15) are provided in Appendix E.

Table 20: Façade Sound Transmission Class (STC) Requirements

Block	Worst Case Building / Facade	STC Rating of Non-Glazing Component	Glazing STC Requirements [1]				
			Living/ Dining Room	Bedroom	Corner Living/ Dining Room	Corner Bedroom	Corner Office
Mixed-Use Buildings							
Block 4	Block 4A-3 / East	45	32	35	35	38	OBC
Block 5	Block 5B-2 / East	45	32	35	35	38	OBC
Block 11	Block 11A-3 / North	45	OBC	30	31	33	OBC
Block 12	Block 12A-4 / South	45	OBC	OBC	OBC	31	OBC
Block 13	Block 13B-2 / East	45	31	34	34	37	OBC
Block 14	Block 14B-2 / East	45	31	34	34	37	OBC
Employment Buildings							
Block 6	Block 6 / South	OBC	n/a[2]	n/a[2]	n/a[2]	n/a[2]	OBC
Block 7	Block 7 / East, South	OBC	n/a[2]	n/a[2]	n/a[2]	n/a[2]	OBC
Block 11	Block 11C / North	OBC	n/a[2]	n/a[2]	n/a[2]	n/a[2]	OBC
Block 12	Block 12B / South	OBC	n/a[2]	n/a[2]	n/a[2]	n/a[2]	OBC

Notes: [1] OBC = meets minimum non-acoustical requirements of the Ontario Building Code, meeting a rating of STC 29.
[2] The proposed development buildings are designated as “Employment Use” and therefore will not have living/dining rooms or bedrooms.

The combined glazing and frame assemblies must be designed to ensure the overall sound isolation performance for the entire window unit meets the sound isolation requirements. It is recommended that window manufacturers test data be reviewed to confirm acoustical performance is met.

The mitigation measures outlined above are all feasible. The exact specifications and extent of the required mitigation measures will be fully determined as part of noise studies which will be required as part of future planning applications, including Zoning By-law Amendments and Site Plan Approvals.

Ventilation and Warning Clause Requirements

The requirements for triggering warning clauses are summarized in Table 14. Where required, the warning clauses should be included in agreements registered on Title for the residential units, in all agreements of purchase and sale or lease, and all rental agreements.

Based on the façade sound levels, central air conditioning for noise control purposes (with an MECP Type D warning clause), or the provision for adding air conditioning at a later date (with an MECP Type C warning clause), are recommended for several buildings.

Ventilation and related warning clause recommendations for all buildings in the proposed development are summarized in Appendix F.

The exact specifications and extent of the required mitigation measures will be fully determined as part of noise studies which will be required as part of future planning applications, including Zoning By-law Amendments and Site Plan Approvals.

6.2.4.2 Outdoor Living Area Assessment

The OLA assessment was based on assumed locations within the development, to determine the feasibility of including elevated rooftop OLAs for all buildings. When actual OLA locations and designs are established, the assessment should be reviewed in detail.

Recommendations/requirements for barriers and/or warning clauses related to OLAs are summarized in Appendix F for all buildings. For predicted sound levels between 56 dBA and 60 dBA inclusive, an MECP Type A warning clause is recommended (with no barrier). For levels greater than 60 dBA, sound barriers and MECP Type B warning clauses are recommended.

Based on the predicted OLA sound levels and previous SLR experience, it is anticipated that it would be feasible to mitigate OLA sound levels to meet the applicable criteria. Mitigation can be implemented through strategic design and placement of barriers, and by locating OLAs such that they take advantage of screening from other buildings within the proposed development itself.

Any parapet walls/sound barriers must be constructed of a material with surface density of 20 kg/m^2, and without any cracks or gaps (except for small, localized gaps under the barrier if required for drainage purposes). A range of materials can be used to construct the parapet walls/barriers, including concrete, wood and plexiglass, provided the surface density requirements are met.

The exact specifications and extent of the required mitigation measures will be fully determined as part of noise studies which will be required as part of future planning applications, including Zoning By-law Amendments and Site Plan Approvals.

6.3 Stationary Source Noise from the Proposed Development on Itself

At the time of this assessment, the mechanical systems for the proposed development have not been sufficiently designed for a detailed stationary source noise impact assessment. These sources and equipment have the potential to generate noise at the noise sensitive spaces within the proposed development itself.

Therefore, the potential noise impacts from mechanical systems should be assessed as part of the final building design. Noise impacts from all equipment should comply with the MECP Publication NPC-300 guideline limits. Criteria are expected to be met at all on-site receptors with the appropriate selection of mechanical equipment, by locating equipment to minimize noise impacts within the development, and by incorporating appropriate control measures (e.g., silencers, barriers) into the design, where necessary.

It is recommended that the mechanical systems be reviewed by an accredited Acoustical Consultant prior to final selection of equipment.

If individual air conditioning systems are to be implemented for each residential unit for the proposed site, the sound levels from each unit should meet MECP Publication NPC-216.

6.4 Stationary Source Noise from the Development on the Surrounding Area

With respect to the noise environment of the area (i.e., Class 1), it is expected that the proposed development will have a negligible effect on the neighbouring properties due to high existing roadway noise levels.

Other noise sources associated with the proposed development with possible adverse impacts on the surrounding neighbourhood are mechanical equipment (e.g., make up air units, cooling units, and parking garage vents). Sound levels due to operation of these sources are required to meet MECP Publication NPC 300 limits at off-site noise sensitive receptors.

Off-site impacts are not anticipated given the elevated ambient sound levels in the area, and because systems will be designed to ensure that the applicable noise guidelines are met at on-site receptors.

Regardless, potential impacts should be assessed as part of the final building designs to ensure compliance, particularly for mixed-use buildings and those designated for employment uses. The applicable criteria can be met at all surrounding and on-site receptors though the use of routine mitigation measures, including the appropriate selection of mechanical equipment, by locating equipment with sufficient setback from noise sensitive locations, and by incorporating control measures (e.g., silencers, barriers) into the design.

It is recommended that the mechanical systems be reviewed by an accredited Acoustical Consultant prior to final selection of equipment.

6.5 Summary of Environmental Noise Conclusions and Recommendations

The potential for noise impacts on the potential future development has been assessed. Based on the results of our studies:

- There are no existing stationary noise sources anticipated to impact the Project.
- Future stationary noise sources associated with mixed-uses within the development are not anticipated to be a concern and are expected to meet the applicable limits in NPC-300 with appropriate building design, equipment selection and inclusion of noise controls (if needed).
- The development Employment Lands are expected to meet the applicable limits in NPC-300 with the consideration of a Light Employment buffer separating General Employment lands, in addition to the consideration of appropriate building design, equipment selection and inclusion of noise controls (if needed).
- Based on transportation façade sound levels, upgraded glazing is recommended within the proposed development. Refer to Section 6.2.4.1 and Appendix D. As the glazing analysis was completed based on generic room and window dimensions and assumed building heights, the analysis should be review and revised once detailed floor and façade plans are available, at later stages in the planning process.
- MECP Type C and/or D warning clauses will be required for various buildings within the Project. These will be specified later in the design and development/planning/approvals process.
- MECP Type A and Type B warning clauses, along with sound barriers/parapet walls, will likely be required for OLAs associated with the Project. These should be reviewed and specified later in the design and development/planning/approvals process.
- The mitigation measures outlined above are all feasible. The exact specifications and extent of the required mitigation measures will be fully determined as part of noise studies which will be required as part of future planning applications, including those for Zoning By-law Amendments and Site Plan Approvals.

- As the mechanical systems for the proposed development have not been designed at the time of this assessment, the acoustical design should be reviewed by an Acoustical Consultant as part of the final building design.
- Heavy truck traffic and associated transportation noise impacts from the Industrial development at 45 and 55 William Halton Parkway are sufficiently addressed through use of Ultimate traffic volumes and truck percentages for William Halton Parkway that was provided by Halton Region for this assessment.

7.0 Environmental Vibration Assessment

SLR conducted a review of the site and surrounding area to determine the potential for environmental vibration impacts onto the proposed development.

There are no railways located within 1 km of the proposed development; therefore, railway-generated vibration is not of concern. Furthermore, rubber-wheeled vehicles on the surrounding roadways are not expected to be a concern with respect to ground borne vibration.

With respect to surrounding industries, industrial vibration is typically generated by sources such as automotive parts heavy metal stamping. No significant industrial vibration sources are located within the proposed project development area. Therefore, an assessment of industrial vibration sources is not required.

As there are no significant sources of industrial or transportation-related vibration in proximity to the Project, vibration mitigation measures are not required.

8.0 Assessment Conclusions

A Compatibility/ Mitigation assessment has been completed, examining the potential for air quality, dust, odour, noise, and vibration impacts from road and nearby industrial land uses to affect the future development on the Project site.

The assessment has included a review of the surrounding industrial facilities in the area. Their available MECP approvals have been reviewed.

8.1 Air Quality, Dust and Odour

The potential for air quality impacts on the potential future development, including dust and odour, have been reviewed for the existing surroundings, future surrounding uses and the development's own employment lands. Based on the results of our studies, the Project site is anticipated to be compatible with the surrounding existing and potential land uses from an air quality perspective. In addition, adverse emissions of dust and odour at the Project site are not anticipated. The Project site is not anticipated to limit the ability of surrounding industries to obtain or maintain required MECP permits or approvals.

If industry were to start operations in the Area of Influence of a sensitive land use within the Project site, they will be required to be compatible with the existing sensitive land uses that may include mixed uses with elevated sensitive residential uses. The industry may also be required to obtain an ECA or an EASR prior to operation. Facilities with an ECA/EASR should already meet the MECP guidelines for air quality emissions at their property line.

With respect to the proximity of the lands to the 407 Highway and other major arterials, emissions are expected to largely be directly adjacent to the roadways. Although not required, mitigation options can be considered in planning and design such as strategic location of fresh

air intakes and filtration systems specific to fine particulate for buildings including residential features.

8.2 Environmental Noise and Vibration

The potential for noise impacts on the potential future development has been reviewed. There are no existing stationary noise sources anticipated to impact the Project. Future stationary sources associated with mixed-use and employment land uses are expected to meet applicable limits in NPC-300 at the development residential buildings with the inclusion of appropriate building design, equipment selection and inclusion of noise controls (if needed). A Light Employment buffer is recommended to separate General Employment facilities for the developments proposed Employment Lands. With the inclusion of the Light Employment buffer, appropriate building design, equipment selection and inclusion of noise controls (if needed), the NPC-300 guideline limits are expected to be met at the development noise sensitive building.

Upgraded glazing and façade constructions, as well as various warning clauses, are required to address transportation noise. In addition, acoustic barriers may be required, pending the placement and programming of the outdoor amenity areas. The estimated mitigation measures are feasible. The exact specifications and extent of required mitigation measures will be fully determined as part of noise studies which will be required as part of future planning applications, including Zoning By-law Amendments and Site Plan Approvals.

There are no significant sources of vibration in proximity to the Project. Therefore, vibration is not a concern, and no vibration mitigation measures are recommended.

With the above suggested mitigation measures, the Project site is anticipated to be compatible from a noise and vibration perspective.

8.3 Overall Assessment

The requirements of MECP Guideline D-6, Regulation 419/05, and Publication NPC-300 would be met, with the inclusion of the above. The proposed development is:

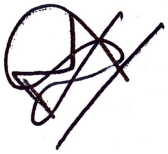
- Unlikely to result in increased risk of complaint and nuisance claims;
- Unlikely to result in operational constraints for the surrounding facilities;
- Unlikely to result in constraints on surrounding facilities to reasonably expand, intensify or introduce changes to their operations; and
- Unlikely to result in constraints allowed land uses to reasonably be established in the Light Industrial zoned area.

Overall, from a compatibility perspective, the proposed development is considered to be feasible, with the ability of any air quality and noise emissions to be addressed with appropriate mitigation measures as determined by further studies at the time of future development applications.

9.0 Closure

Regards,

SLR Consulting (Canada) Ltd.



Sabah Ersum, M.Eng.
Acoustics Consultant

Mina Ghorbani, M.Eng., EIT
Air Quality Engineer-in-Training

Keni Mallinen, M.A.Sc., P.Eng.
Senior Acoustics Engineer

Jenny Graham, P.Eng.
Senior Air Quality Engineer

Distribution: 1 electronic copy – Infrastructure Ontario
1 electronic copy – SLR Consulting (Canada) Ltd.

10.0 References

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Figures

Compatibility & Mitigation Study – Air Quality, Dust, Odour, Noise & Vibration

Provincial Lands West of Trafalgar Road, Town of Oakville

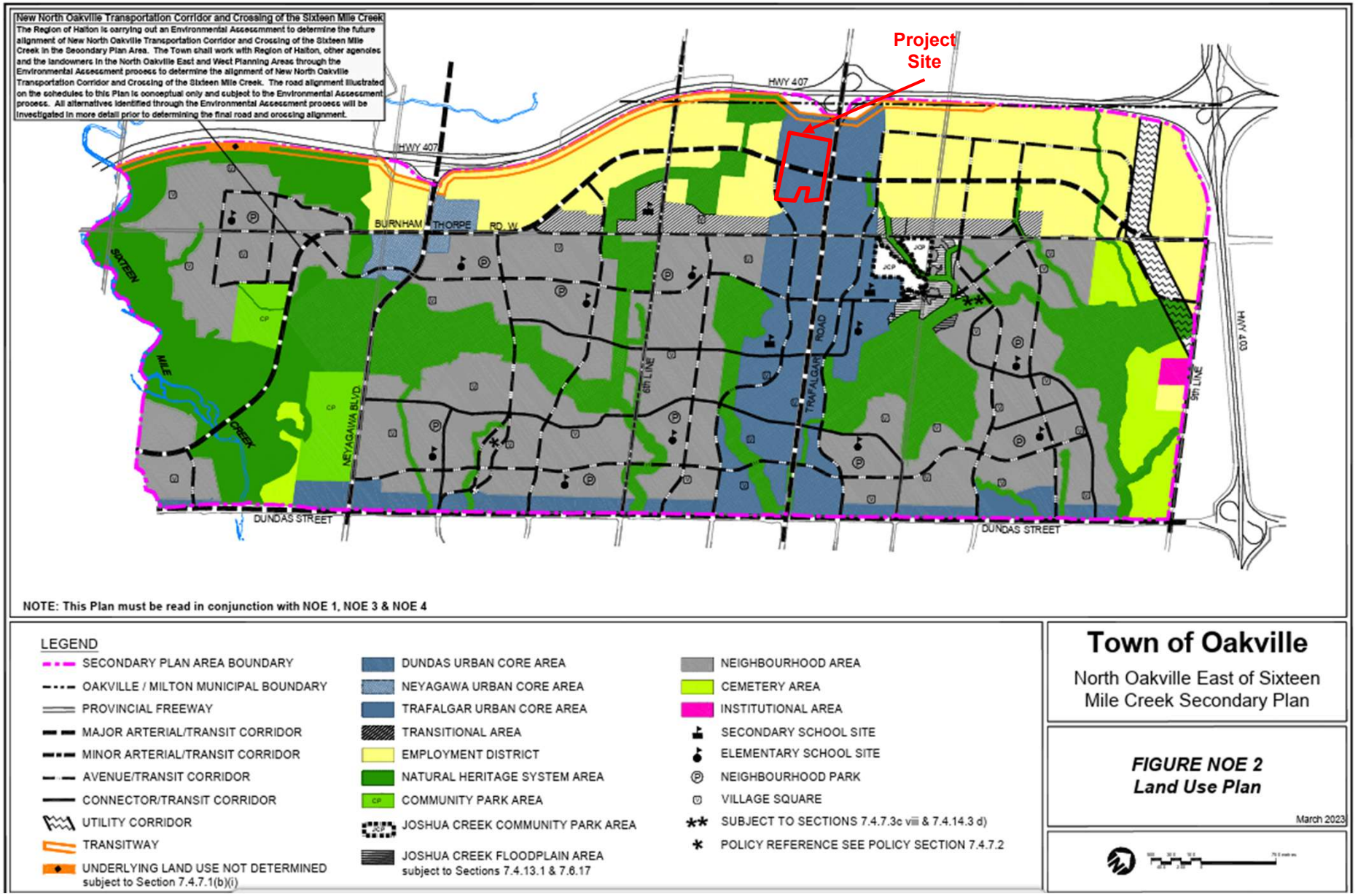
Infrastructure Ontario

SLR Project No.: 241.031032.00001

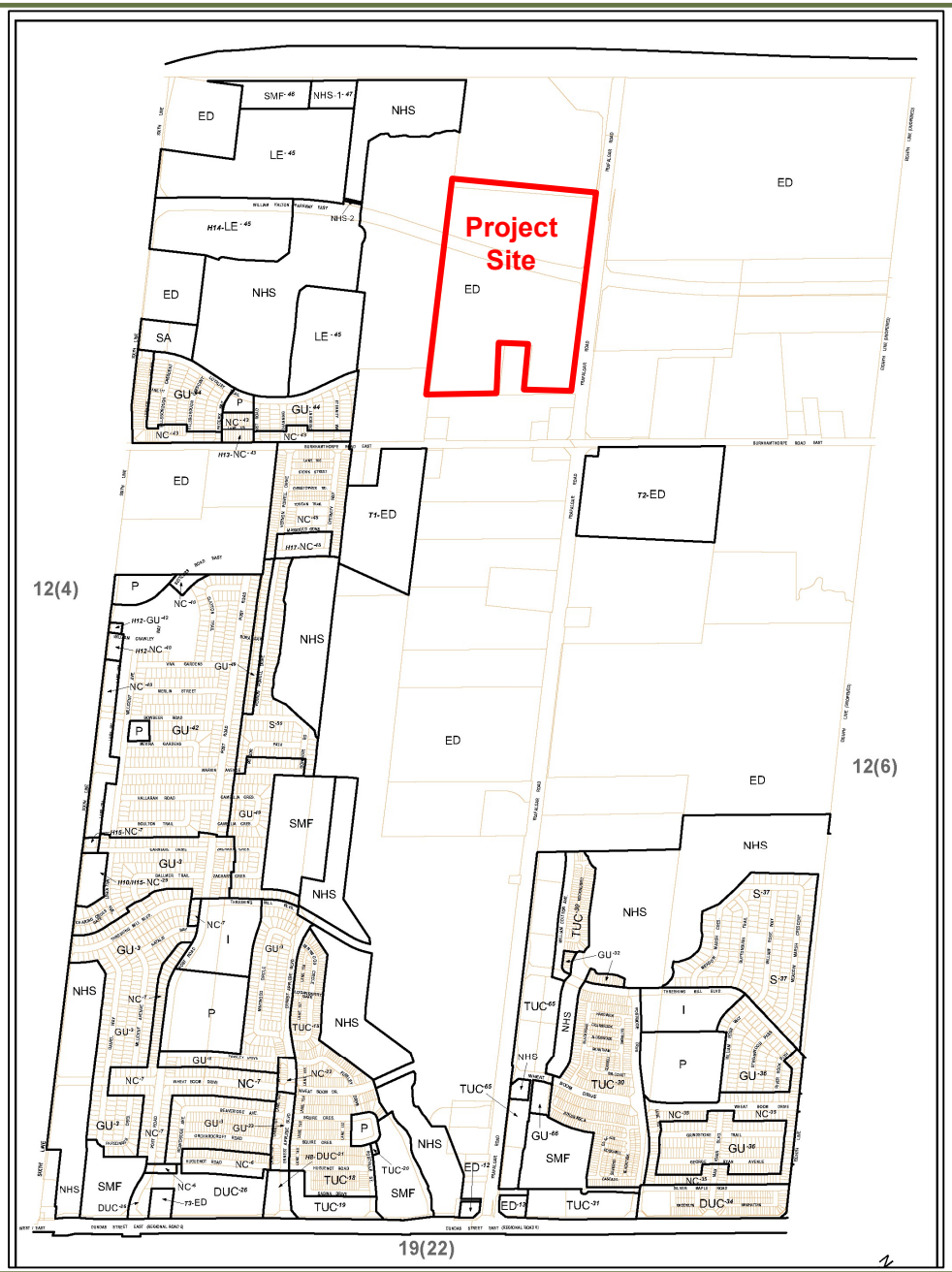
February 5, 2026

INFRASTRUCTURE ONTARIO	True North	Scale: 1:15,000	METRES
TRAFALGAR LANDS DEVELOPMENT – WEST LANDS – OAKVILLE, ONTARIO		Date: Feb. 5, 2026 Rev. 2	Figure No. **1**
CONTEXT PLAN - SITE AND SURROUNDING AREA		Project No. 241.031032.00001	

SLR



INFRASTRUCTURE ONTARIO	True North	Scale: N.T.S.	METRES	SLR
TRAFALGAR LANDS DEVELOPMENT – WEST LANDS – OAKVILLE, ONTARIO		Date: Feb. 5, 2026 Rev. 2	Figure No. **2A**	
LAND USE DESIGNATIONS FROM NORTH OAKVILLE EAST LAND USE PLAN		Project No. 241.031032.00001		



Zone Symbol	Zone
TUC	Trafalgar Urban Core
DUC	Dundas Urban Core
NUC	Neyagawa Urban Core
PUC	Palermo Village North Urban Core
NC	Neighbourhood Centre
GU	General Urban
S	Sub-urban
HDR	High Density Residential
LE	Light Employment
GE	General Employment
SA	Service Area-Employment
I, P, SMF	Institutional and Park Zones
ED	Existing Development
NHS	Natural Heritage System
CE	Cemetery
AS	Automobile Service Zone

Source:
https://www.oakville.ca/assets/general%20-%20town%20hall/2009-189-Section12-Maps.pdf

INFRASTRUCTURE ONTARIO

TRAFALGAR LANDS DEVELOPMENT – WEST LANDS – OAKVILLE, ONTARIO

ZONING DESIGNATIONS – NORTH OAKVILLE ZONING BY-LAW 2009-189

True North

Scale: N.T.S.

METRES

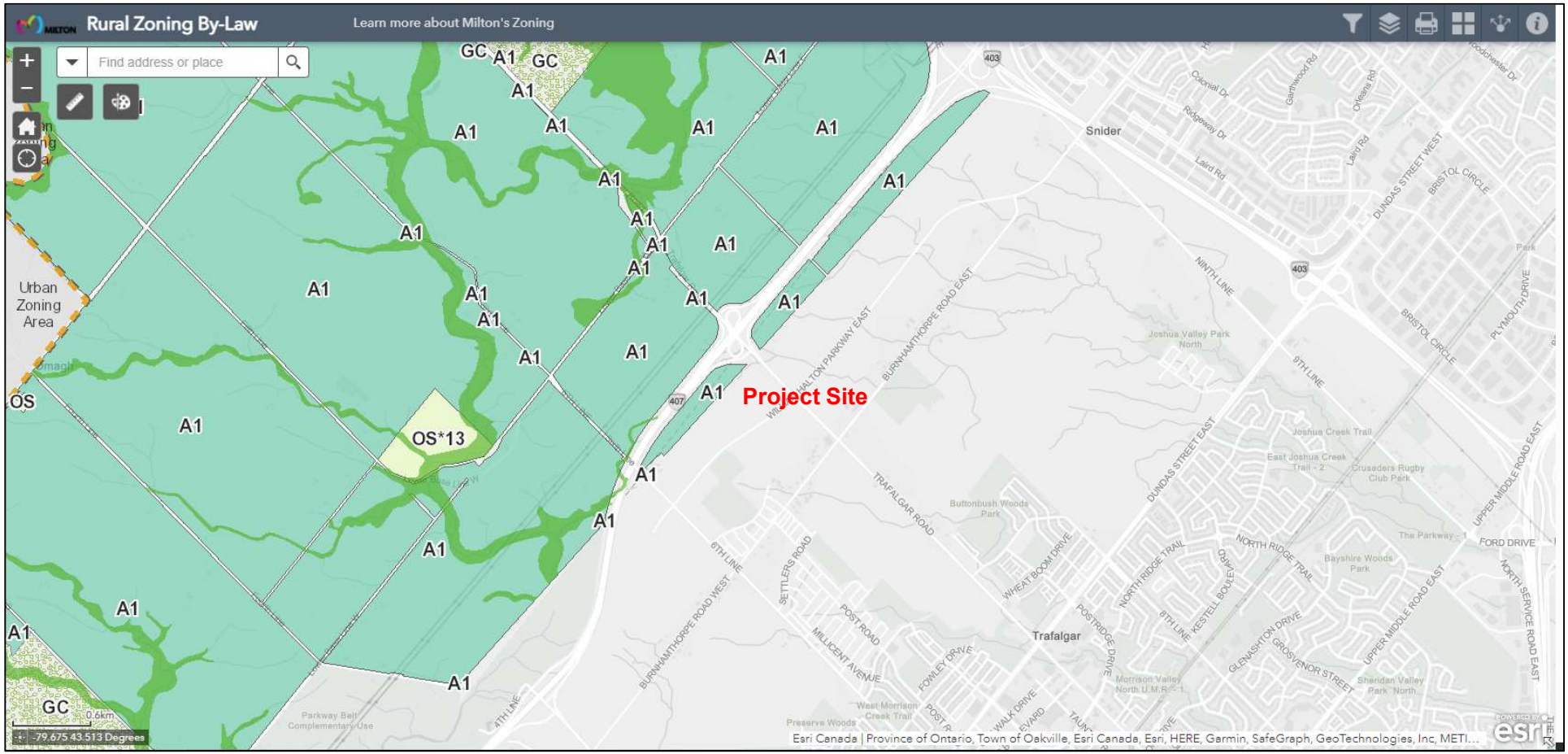
Date: Feb. 5, 2026

Rev. 2

Project No. 241.031032.00001

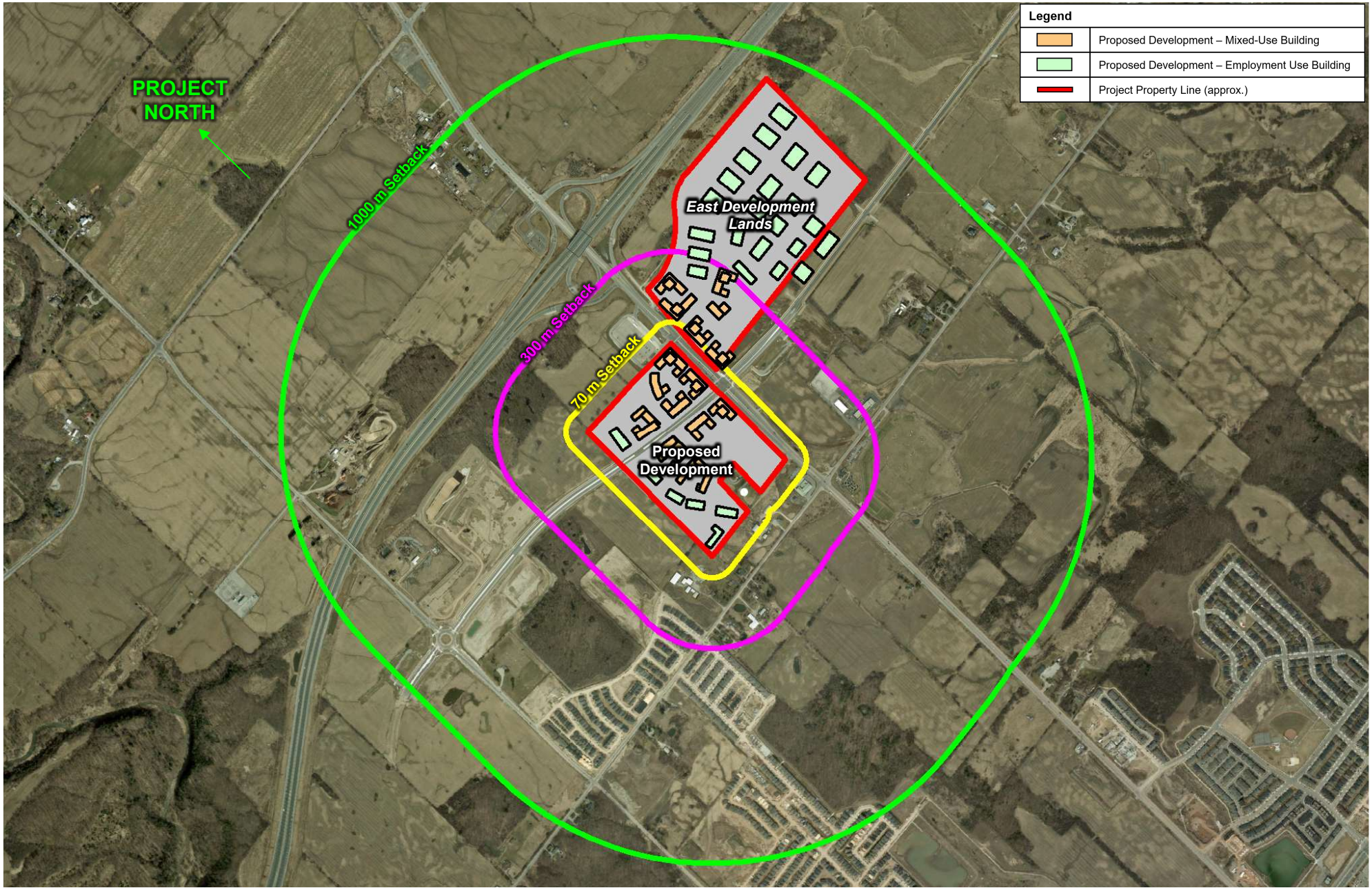
Figure No. **2B**

SLR



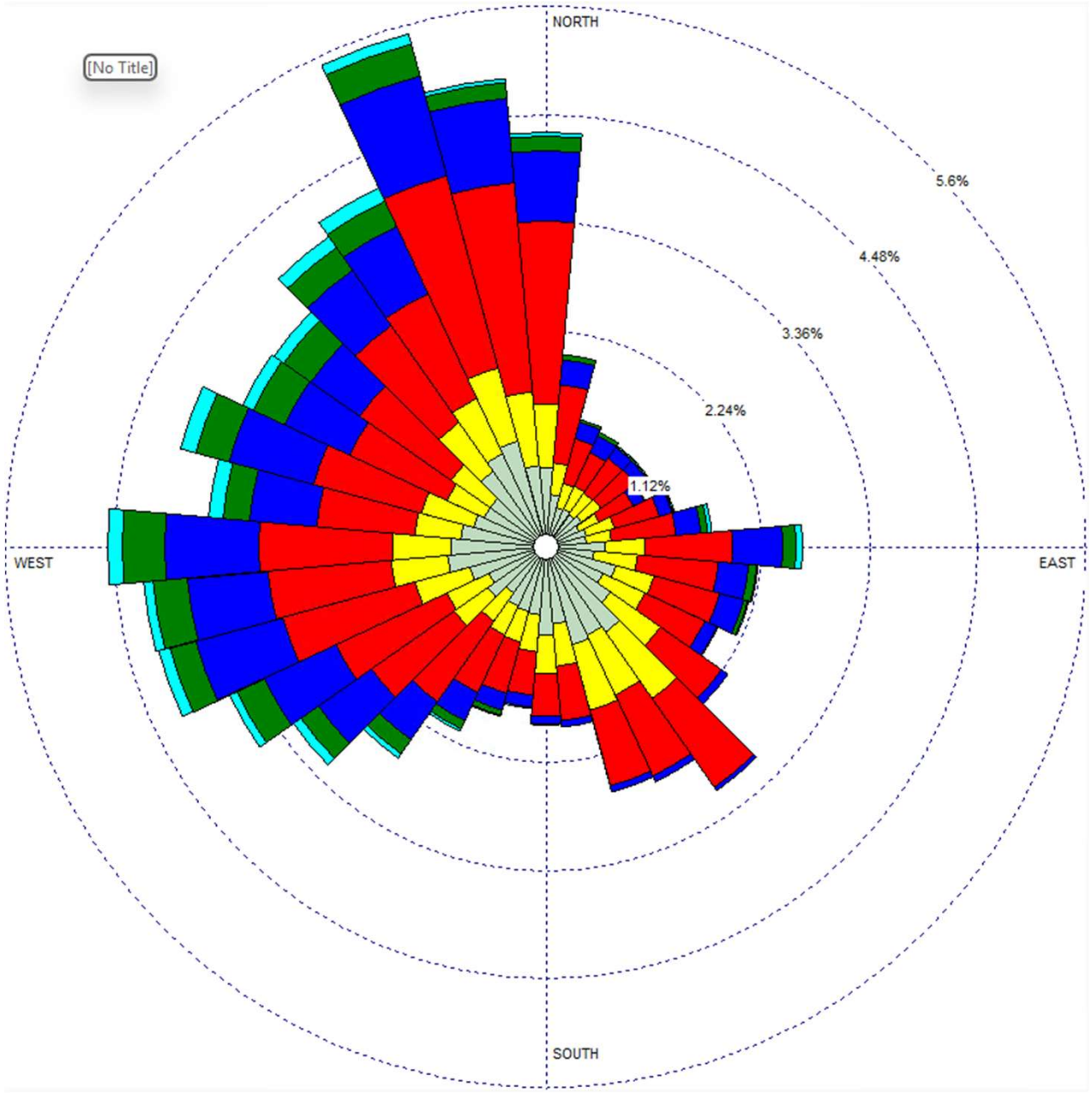
Source: https://milton.maps.arcgis.com/apps/MapSeries/index.html?appid=524c45113c8442e7952cd65a1be099e6&entry=2

INFRASTRUCTURE ONTARIO TRAFALGAR LANDS DEVELOPMENT – WEST LANDS – OAKVILLE, ONTARIO ZONING DESIGNATION – TOWN OF MILTON ZONING BY-LAW 144-2003	True North	Scale: N.T.S. Date: Feb. 5, 2026 Rev. 2 Project No. 241.031032.00001	METRES Figure No. **2C**	SLR

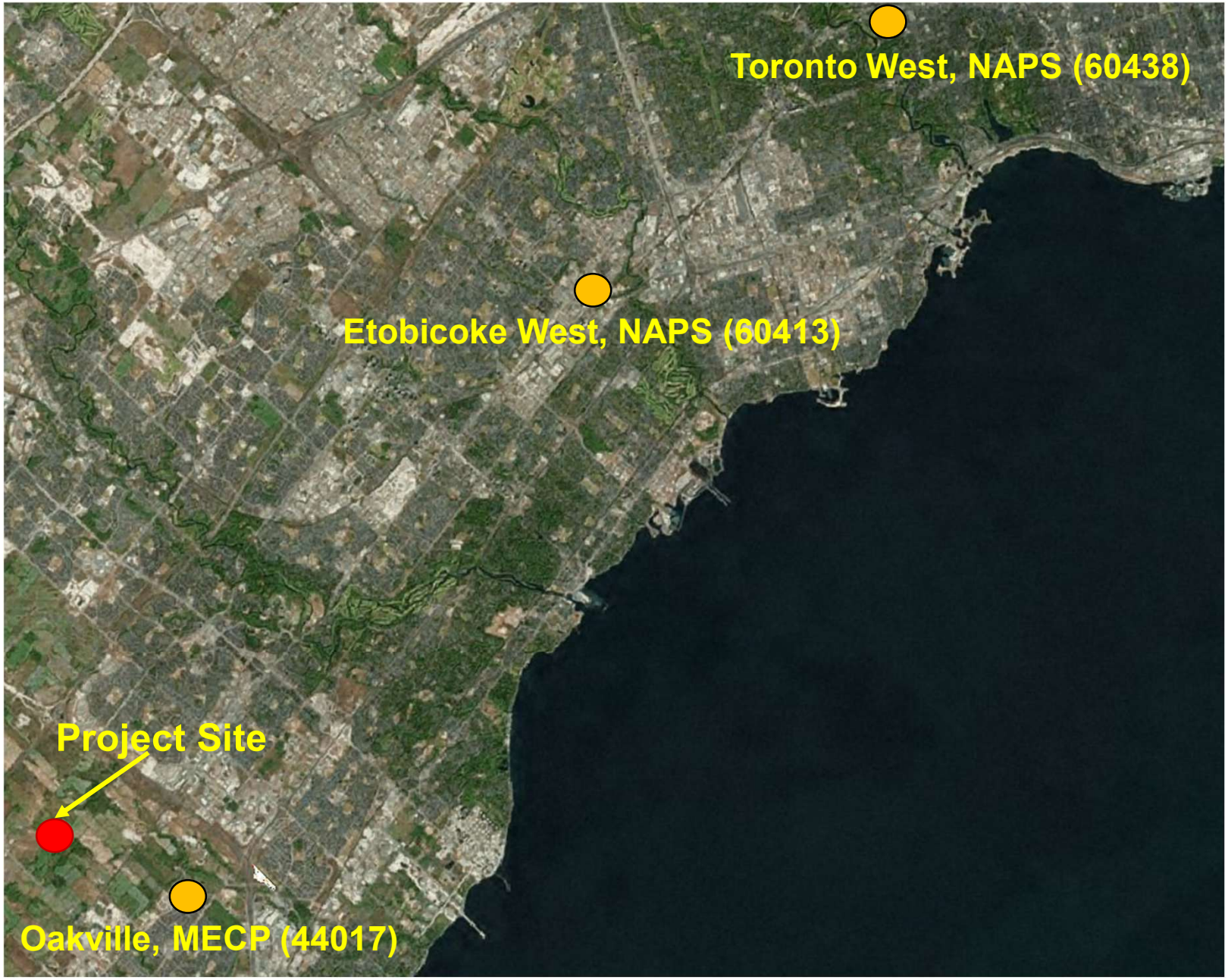


INFRASTRUCTURE ONTARIO	True North	Scale: 1:17,000	METRES
TRAFALGAR LANDS DEVELOPMENT – WEST LANDS – OAKVILLE, ONTARIO		Date: Feb. 5, 2026 Rev. 2	Figure No. **3**
MECP GUIDELINE D-6 SETBACK DISTANCES		Project No. 241.031032.00001	

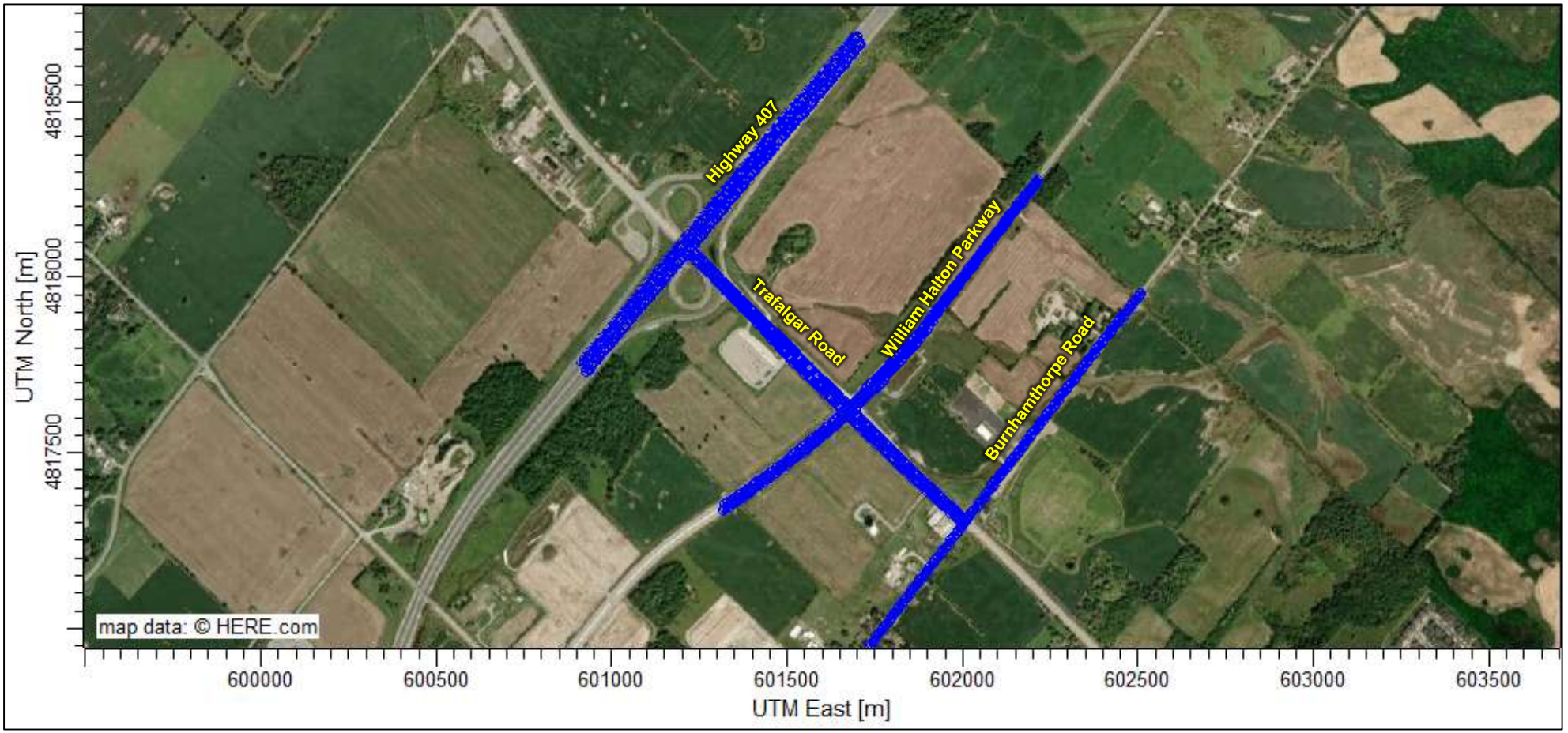
SLR



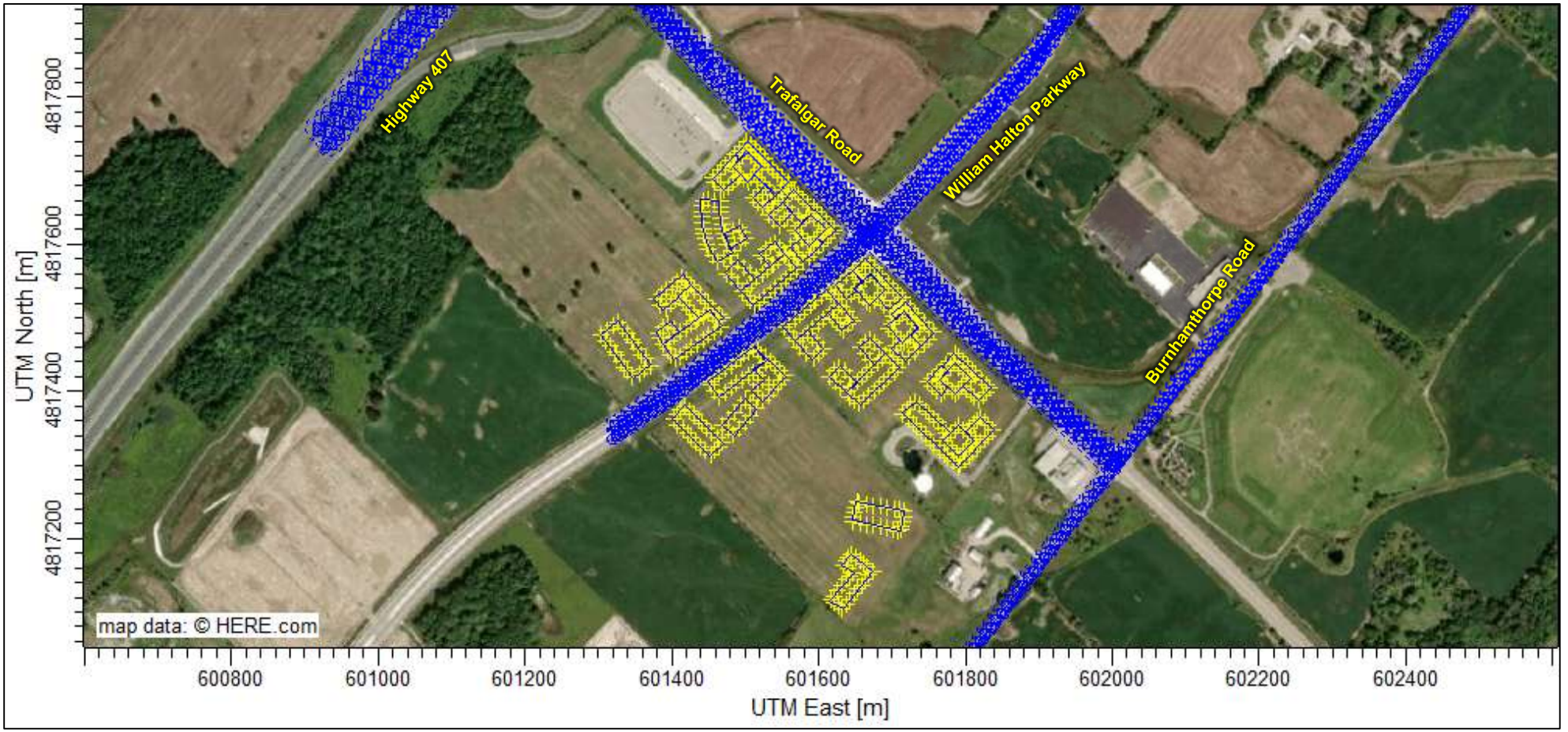
INFRASTRUCTURE ONTARIO	True North	Scale: n/a	METRES	SLR
TRAFALGAR LANDS DEVELOPMENT – WEST LANDS – OAKVILLE, ONTARIO		Date: Feb. 5, 2026 Rev. 2	Figure No. **4**	
WIND FREQUENCY DISTRIBUTION DIAGRAM (WIND ROSE) PEARSON INTERNATIONAL AIRPORT (1996-2000)		Project No. 241.031032.00001		



INFRASTRUCTURE ONTARIO TRAFALGAR LANDS DEVELOPMENT – WEST LANDS – OAKVILLE, ONTARIO MONITORING STATION LOCATIONS	True North	Scale: n/a	METRES	SLR
		Date: Feb. 5, 2026 Rev. 2	Figure No. **5**	
		Project No. 241.031032.00001		

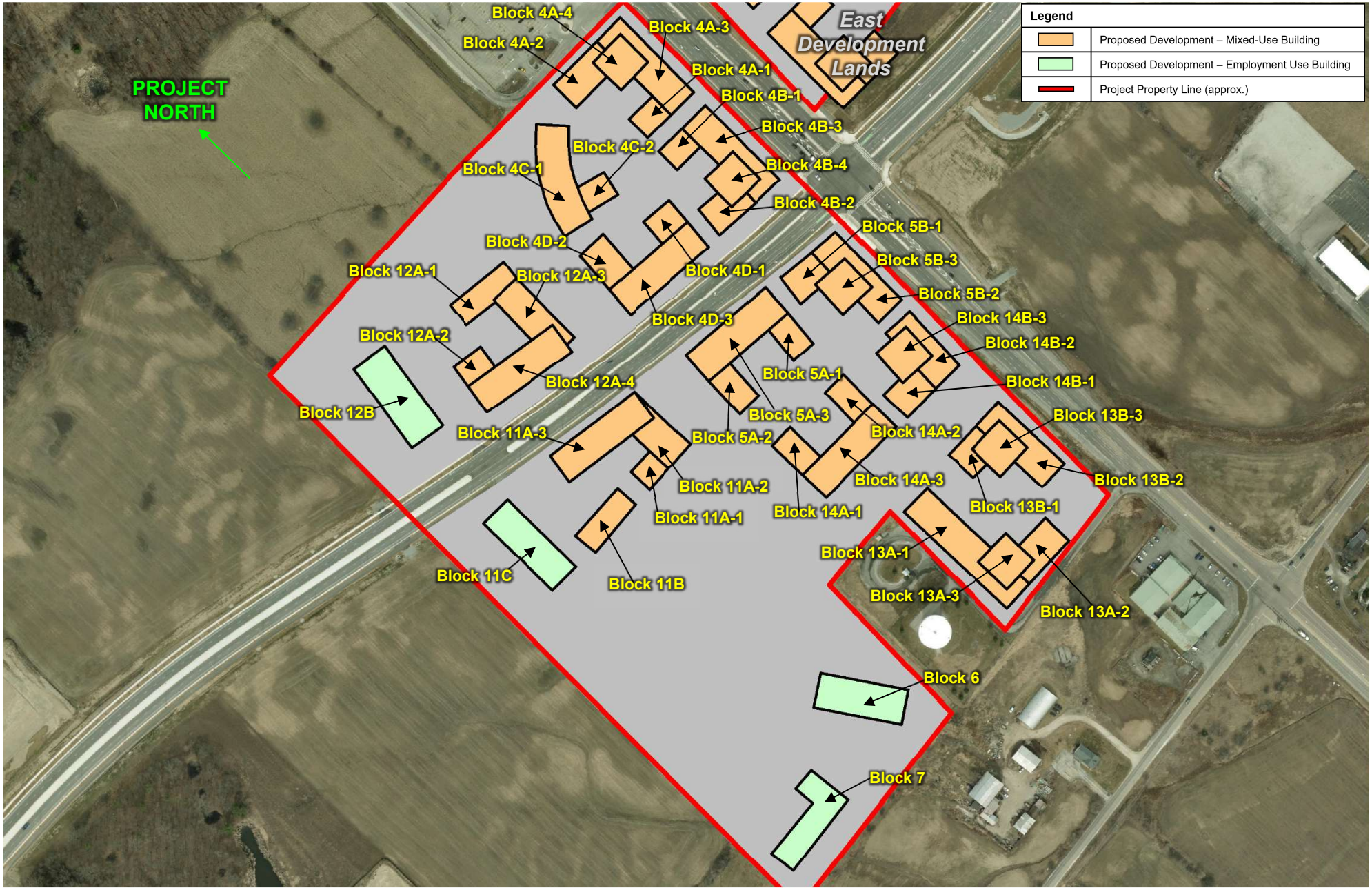


INFRASTRUCTURE ONTARIO	True North	Scale: n/a	METRES	SLR
TRAFALGAR LANDS DEVELOPMENT – WEST LANDS – OAKVILLE, ONTARIO		Date: Feb. 5, 2026 Rev. 2	Figure No. **6**	
AERMOD DISPERSION MODELLING SOURCES		Project No. 241.031032.00001		



INFRASTRUCTURE ONTARIO	True North	Scale: n/a	METRES	SLR
TRAFALGAR LANDS DEVELOPMENT – WEST LANDS – OAKVILLE, ONTARIO		Date: Feb. 5, 2026 Rev. 2	Figure No. **7**	
AERMOD DISPERSION MODELLING RECEPTORS		Project No. 241.031032.00001		

INFRASTRUCTURE ONTARIO	True North	Scale: n/a	METRES	SLR
TRAFALGAR LANDS DEVELOPMENT – WEST LANDS – OAKVILLE, ONTARIO		Date: Feb. 5, 2026 Rev. 2	Figure No. **8**	
AERMOD DISPERSION MODELLING 1-HR NO_2 CONTOUR PLOT – 2041		Project No. 241.031032.00001		



INFRASTRUCTURE ONTARIO	True North	Scale: 1:4,000	METRES
TRAFALGAR LANDS DEVELOPMENT – WEST LANDS – OAKVILLE, ONTARIO		Date: Feb. 5, 2026 Rev. 2	Figure No. **9**
PROPOSED DEVELOPMENT BUILDINGS – WITH BUILDING IDENTIFIERS		Project No. 241.031032.00001	

SLR

INFRASTRUCTURE ONTARIO

TRAFALGAR LANDS DEVELOPMENT – WEST LANDS – OAKVILLE, ONTARIO

PREDICTED FACADE SOUND LEVELS – ROAD TRAFFIC – DAYTIME

True North

Scale: 1:4,000

METRES

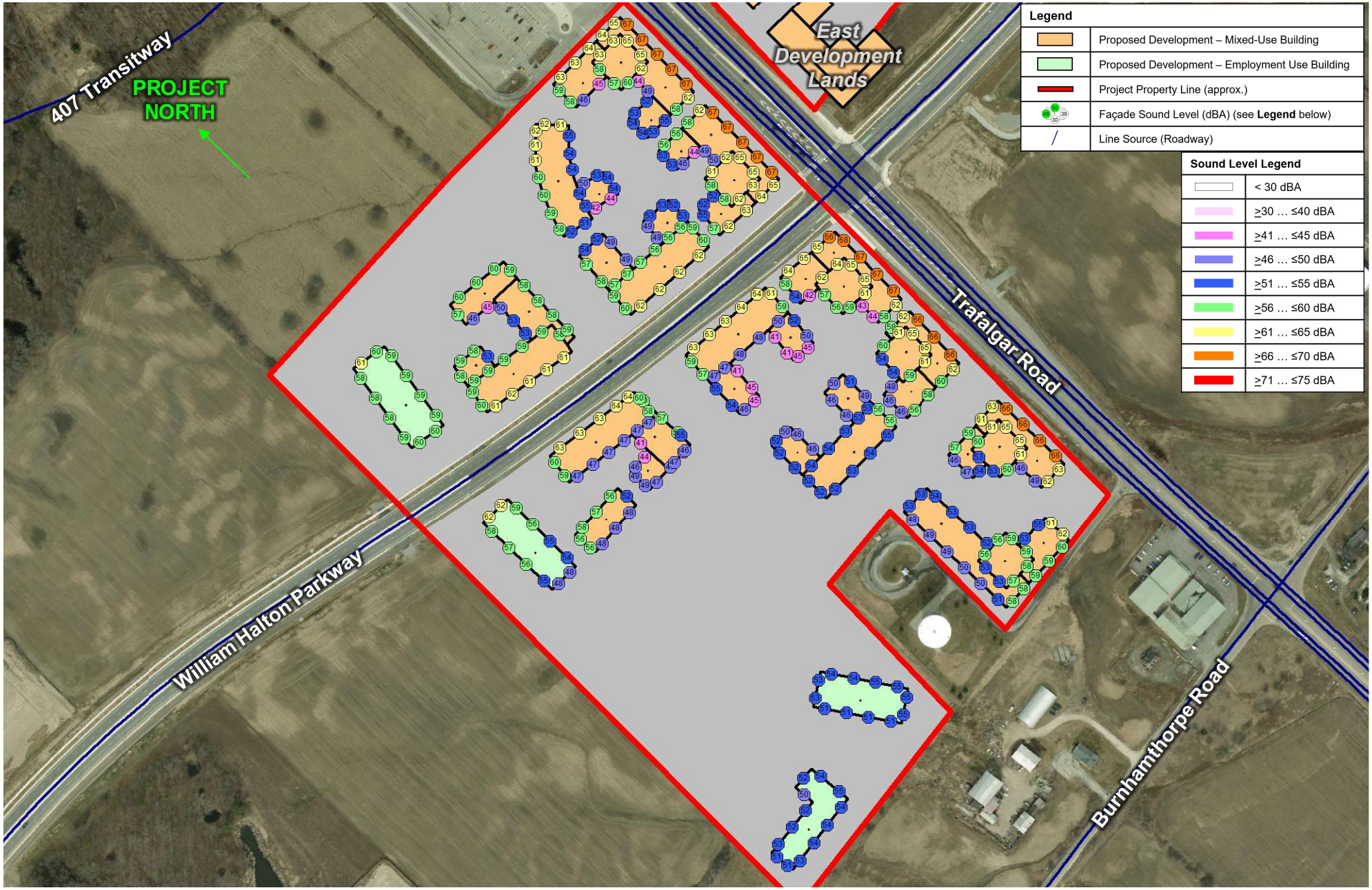
Date: Feb. 5, 2026

Rev. 2

Project No. 241.031032.00001

Figure No. **10**

SLR



INFRASTRUCTURE ONTARIO

TRAFALGAR LANDS DEVELOPMENT – WEST LANDS – OAKVILLE, ONTARIO

PREDICTED FACADE SOUND LEVELS – ROAD TRAFFIC – NIGHT-TIME

True North

Scale: 1:4,000

METRES

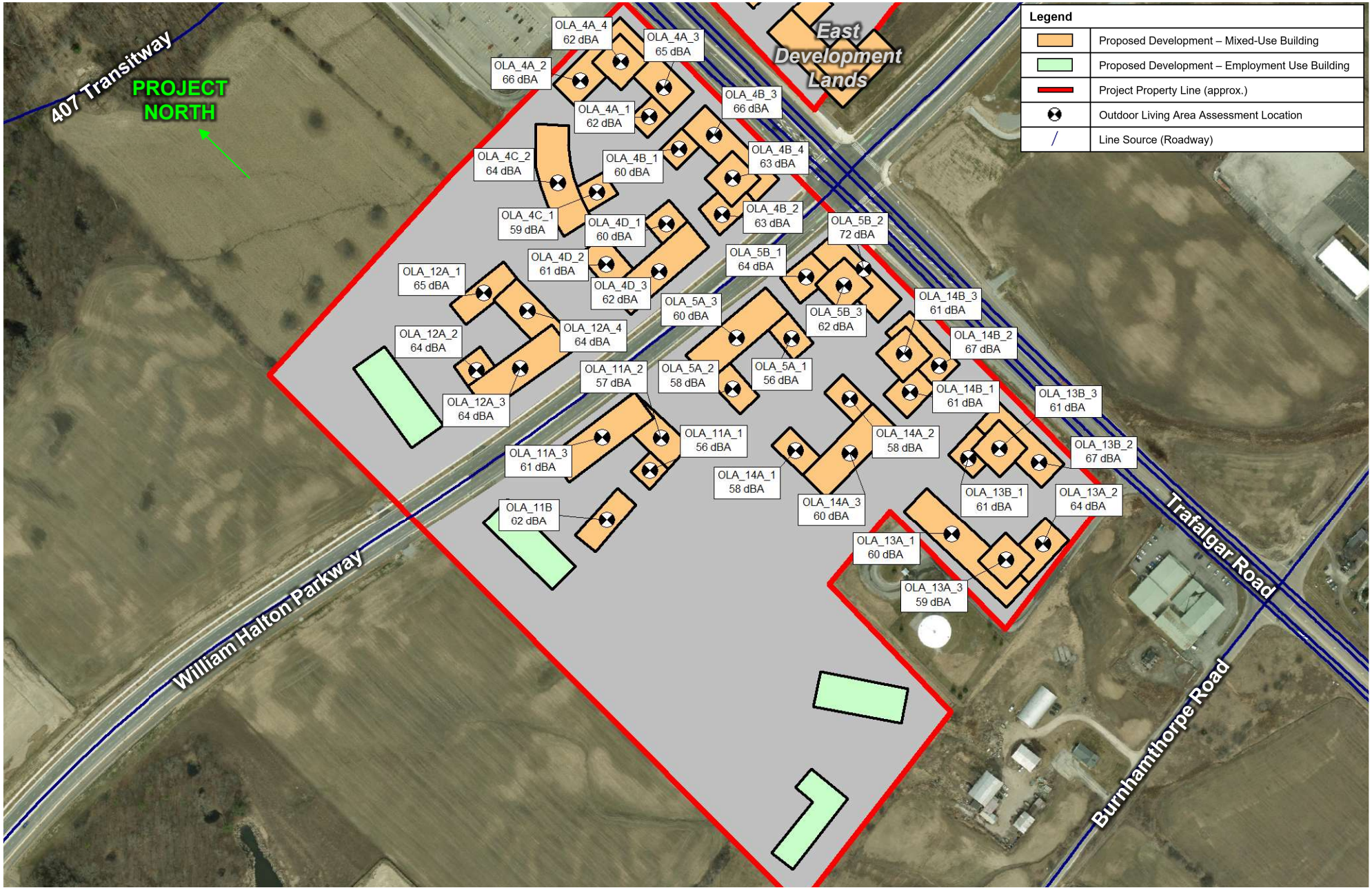
Date: Feb. 5, 2026

Rev. 2

Project No. 241.031032.00001

Figure No. **11**

SLR



INFRASTRUCTURE ONTARIO

TRAFALGAR LANDS DEVELOPMENT – WEST LANDS – OAKVILLE, ONTARIO

PREDICTED OUTDOOR LIVING AREA SOUND LEVELS – ROAD TRAFFIC – DAYTIME

True North

Scale: 1:3,500 METRES

Date: Feb. 5, 2026 Rev. 2

Project No. 241.031032.00001

Figure No. **12**

SLR

Appendix A Development Drawings

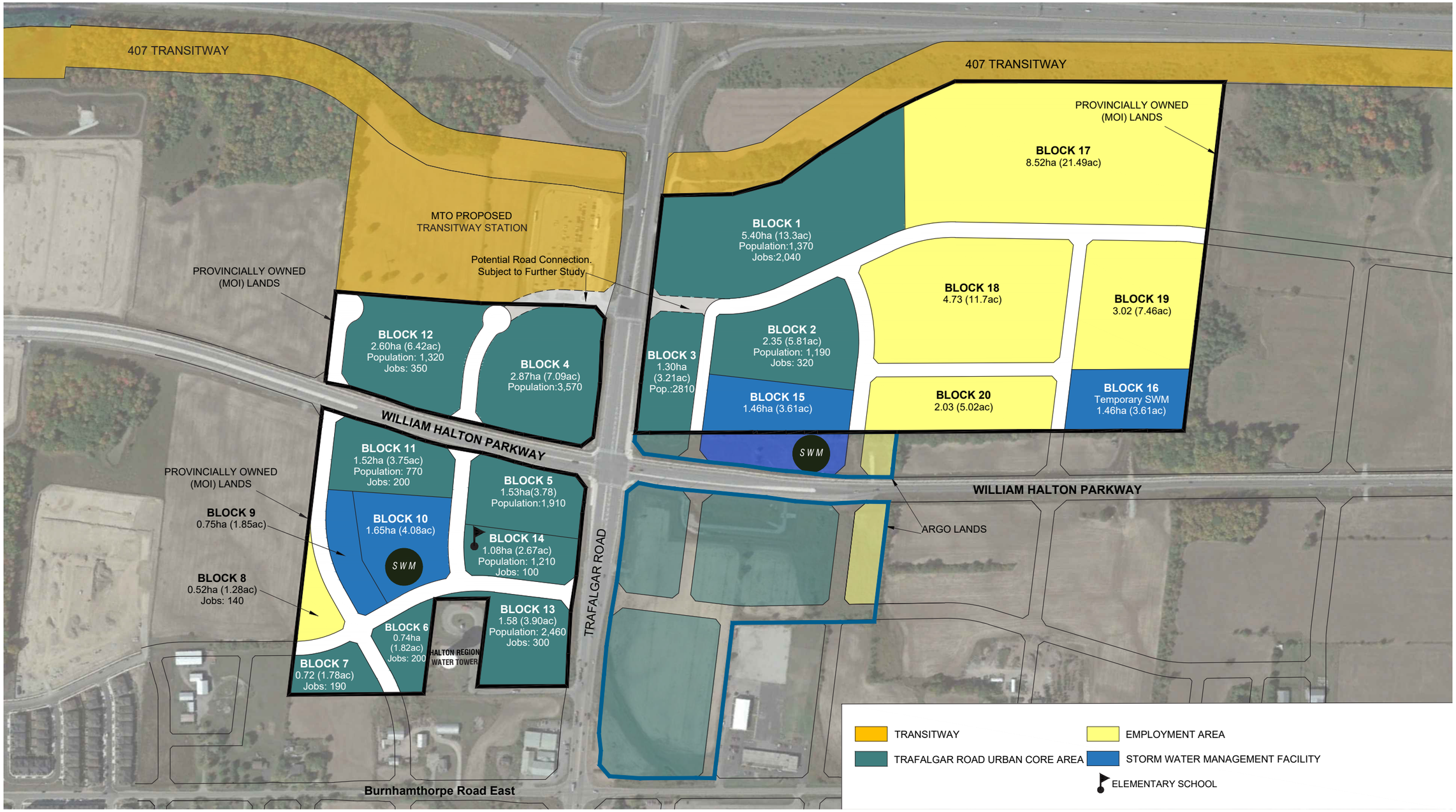
Compatibility & Mitigation Study – Air Quality, Dust, Odour, Noise & Vibration

Provincial Lands West of Trafalgar Road, Town of Oakville

Infrastructure Ontario

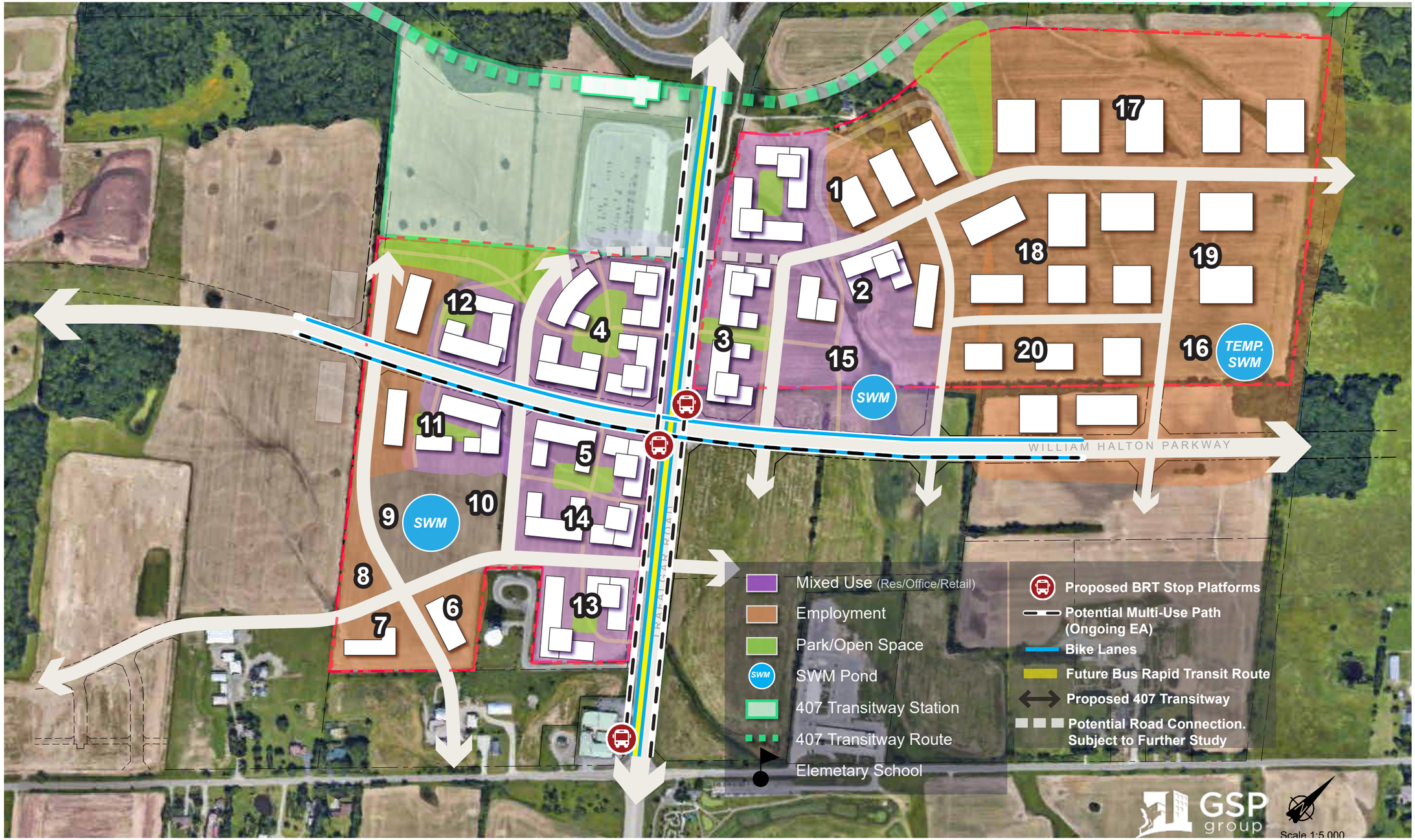
SLR Project No.: 241.031032.00001

February 5, 2026



GSP group

Figure
Block Projections
Source: GSP Group (2025)
A1



GSP group

Figure
Illustrative Concept
Source: GSP Group (2025)
A2

Appendix B Traffic Data and Correspondence

Compatibility & Mitigation Study – Air Quality, Dust, Odour, Noise & Vibration

Provincial Lands West of Trafalgar Road, Town of Oakville

Infrastructure Ontario

SLR Project No.: 241.031032.00001

February 5, 2026

Keni Mallinen

From: Krusto, Matt <Matt.Krusto@halton.ca>
Sent: February 14, 2022 9:27 AM
To: Keni Mallinen
Cc: Marcus Li
Subject: RE: Request for Ultimate Traffic Data - Trafalgar Road, William Hanlon Parkway, Burnhampthorpe Road

Hi Keni,

Further to your request, please use the following:

Trafalgar Road:

50,000 ultimate AADT, 6 lanes, truck percentages must be based on existing counts. For the existing counts to determine existing truck percentages, please send your request to trafficdatarequests@halton.ca

William Halton Parkway:

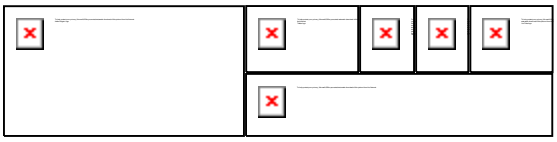
35,000 ultimate AADT, 4 lanes, 4% medium, 2% heavy.

Burnhamthorpe Rd:

Burnhamthorpe Road has now been downloaded from Halton Region to the Town of Oakville. Please contact Town staff for this information.

Matt

Matt Krusto
Supervisor, Transportation Development Review
Infrastructure Planning & Policy
Public Works
Halton Region
905-825-6000, ext. 7225 | 1-866-442-5866



From: Keni Mallinen <kmallinen@slrconsulting.com>
Sent: February 10, 2022 11:36 AM
To: Loro, Darren <Darren.Loro@halton.ca>

Cc: Krusto, Matt <Matt.Krusto@halton.ca>; Marcus Li <mli@slrconsulting.com>
Subject: FW: Request for Ultimate Traffic Data - Trafalgar Road, William Hanlon Parkway, Burnhampthorpe Road

Hi Darren,

I'm just forwarding this to you as it looks like Matt Krusto is out of the office, and I received your email in his automatic out-of-office response.

Is this request something you might be able to help with?

Thank you,
Keni

SLR

Keni Mallinen, P.Eng.
Acoustic Engineer

O +1 226 706 8080
C +1 226 203 7385
E kmallinen@slrconsulting.com

SLR Consulting (Canada) Ltd.
100 Stone Road West, Suite 201, Guelph, ON N1G 5L3

From: Keni Mallinen <kmallinen@slrconsulting.com>
Sent: February 10, 2022 11:32 AM
To: Matt.Krusto@halton.ca
Cc: Marcus Li <mli@slrconsulting.com>
Subject: Request for Ultimate Traffic Data - Trafalgar Road, William Hanlon Parkway, Burnhampthorpe Road

Hi Matt,

I hope this email finds you well.

We are working on a transportation noise assessment for a proposed development in Oakville, in the areas shown on the map below:

Would you be able to provide ultimate traffic count data for the following?

- Trafalgar Road (Regional Road 3), north of Burnhamthorpe Road
- William Hanlon Parkway (Regional Road 40) at Trafalgar Road
- Burnhamthorpe Road (Regional Road 27) at Trafalgar Road, if applicable (note: the Halton Region website only highlights Burnhamthorpe Road west of Sixth Line, but I wanted to double check).

Please let me know if you have any questions or require anything further regarding this traffic count request.

Best regards,
Keni

SLR

Keni Mallinen, P.Eng.
Acoustic Engineer

O +1 226 706 8080
C +1 226 203 7385
E kmallinen@slrconsulting.com

SLR Consulting (Canada) Ltd.
100 Stone Road West, Suite 201, Guelph, ON N1G 5L3

Prepared For: Halton Region

Prepared By: *PYRAMID* Traffic Inc.

Site ID: 100308

Location: REG. RD. #3 btwn Burnhamthorpe & Hwy 407 EB

Interval: 15 min.

Start Date: Tuesday Jun 5, 2018

Period Ending	Channel 1 NB	Channel 2 SB	Hourly Summary
0:15	34	22	
0:30	36	19	
0:45	30	9	
1:00	18	10	178
1:15	14	8	144
1:30	12	9	110
1:45	14	11	96
2:00	10	12	90
2:15	5	8	81
2:30	10	9	79
2:45	9	3	66
3:00	4	4	52
3:15	20	7	66
3:30	3	6	56
3:45	6	13	63
4:00	8	16	79
4:15	3	10	65
4:30	12	16	84
4:45	18	29	112
5:00	26	34	148
5:15	24	58	217
5:30	44	59	292
5:45	65	94	404
6:00	75	93	512
6:15	94	145	669
6:30	134	187	887
6:45	165	247	1140
7:00	201	336	1509
7:15	238	266	1774
7:30	312	352	2117
7:45	369	365	2439
8:00	325	398	2625
8:15	362	336	2819
8:30	322	363	2840
8:45	305	388	2799
9:00	257	350	2683
9:15	211	317	2513
9:30	181	291	2300
9:45	176	275	2058
10:00	166	196	1813
10:15	134	194	1613
10:30	138	166	1445
10:45	150	163	1307
11:00	139	168	1252
11:15	158	158	1240
11:30	150	174	1260
11:45	178	201	1326
12:00	180	158	1357
12:15	168	165	1374
12:30	167	172	1389
12:45	185	205	1400
13:00	159	199	1420
13:15	145	196	1428
13:30	164	208	1461
13:45	176	226	1473
14:00	196	212	1523
14:15	212	206	1600
14:30	219	243	1690
14:45	228	185	1701
15:00	259	230	1782
15:15	297	224	1885
15:30	315	249	1987
15:45	301	247	2122
16:00	385	252	2270
16:15	386	269	2404
16:30	395	281	2516
16:45	374	274	2616
17:00	431	324	2734
17:15	424	303	2806
17:30	416	333	2879
17:45	397	337	2965
18:00	389	328	2927
18:15	333	283	2816
18:30	314	275	2656
18:45	276	270	2468
19:00	202	228	2181
19:15	206	197	1968
19:30	192	190	1761
19:45	163	141	1519
20:00	170	117	1376
20:15	170	148	1291
20:30	154	147	1210
20:45	116	144	1166
21:00	114	133	1126
21:15	133	128	1069
21:30	118	121	1007
21:45	99	112	958
22:00	93	63	867
22:15	100	77	783
22:30	101	79	724
22:45	86	74	673
23:00	66	60	643
23:15	74	57	597
23:30	70	53	540
23:45	82	43	505
0:00	52	23	454

AM Peak:	2840	PM Peak:	2965	24 HR VOLUME:	31601

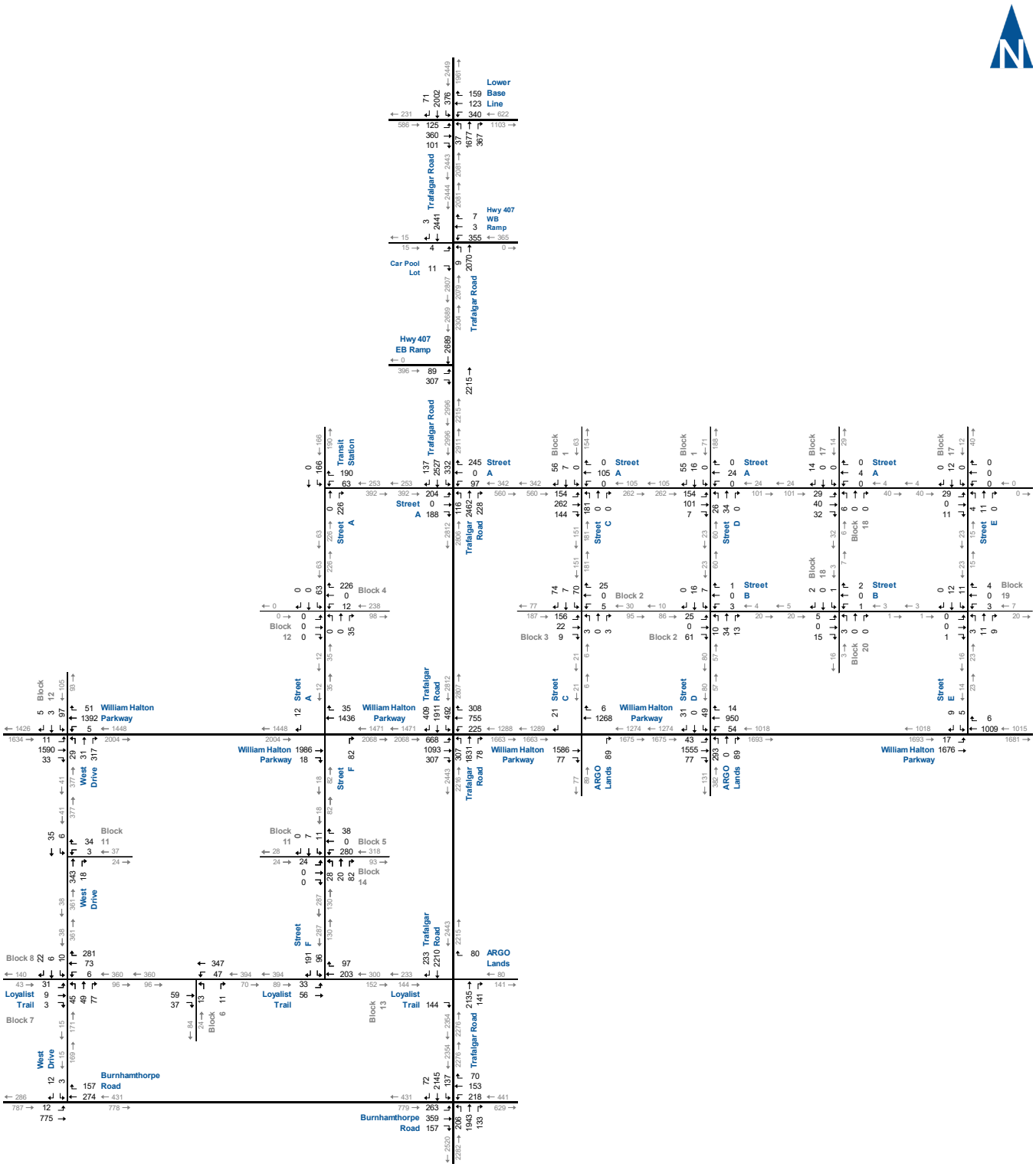
Period	Total	Percent of Total (%)
Day	28579	90%
Night	3022	10%
Total	**31601**	**100%**

Data From Halton Region:

Master Station	Description	Count date	total vol	ampk end	ampk vol	off pk end	offpk vol	pm pk end	pkhr vol
100308	Trafalgar Road - between Burnhamthorpe Road & Hwy 407 EB Off-Ramp	18-May-21	22,908	8:45	1,494	13:45	1,335	17:30	2,069

8hr vol	13hr vol	posted speed (km)	50% speed (km)	avg (km)	85percent.	Variance	exceeding (%)	#cars	# sml trk	med trk/bu	# hvy trk
12,534	18,981	80	70	78	92.30	12.30	44.30%	21,255	331	542	688

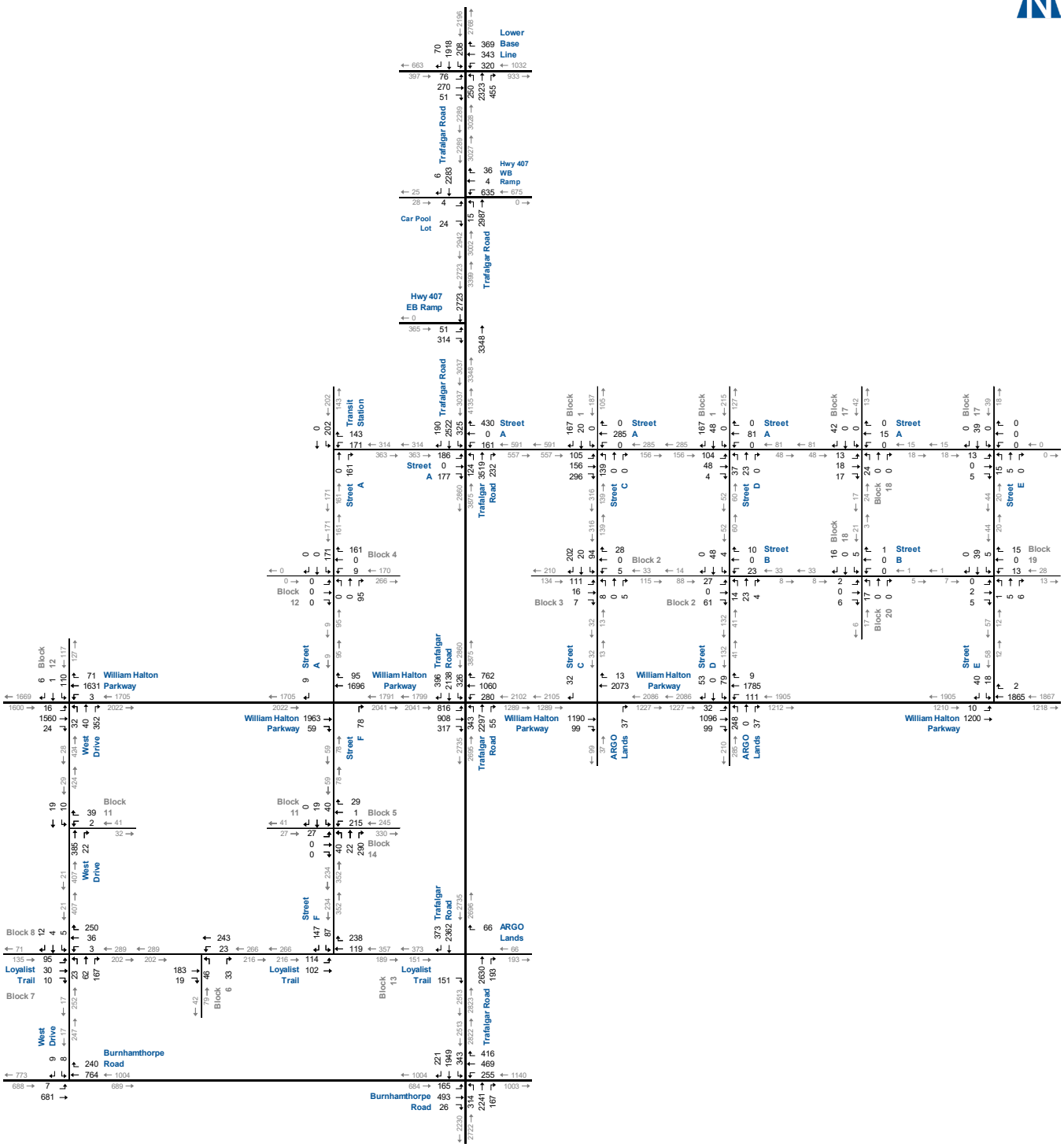
% cars	% smal trk	% med trk/bus	% hvy trk	headway max (sec)	headway min (sec)	temp min (C)	Temp max (C)	surface
93.2%	1.5%	2.4%	3.0%	1.61	100.00	15	45	Dry



2041 Total Traffic Volumes (AM Peak Hour)

IO Trafalgar & 407 Oakville, ON TIS
210156/210157

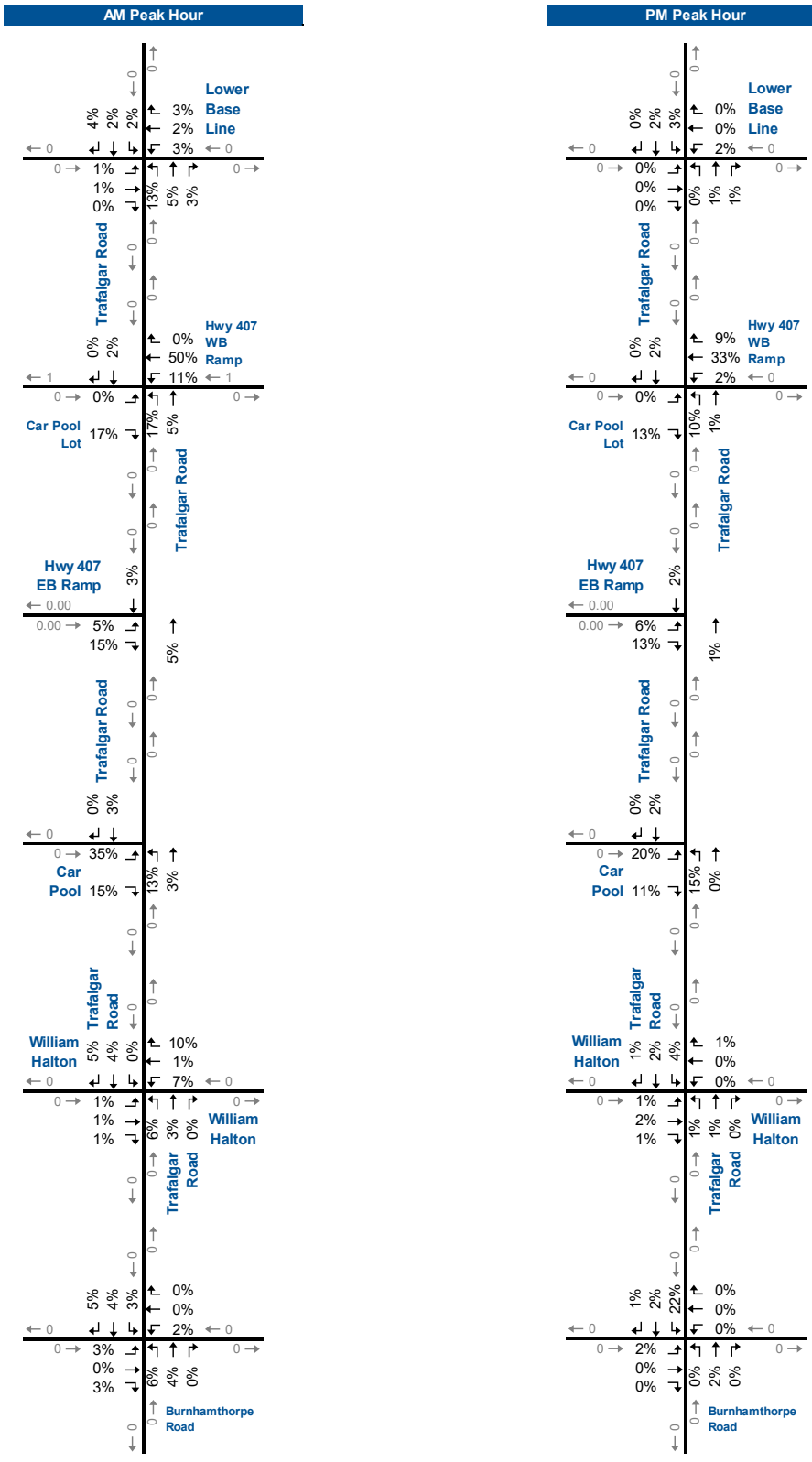
Figure 7A



2041 Total Traffic Volumes (PM Peak Hour)

IO Trafalgar & 407 Oakville, ON TIS
210156/210157

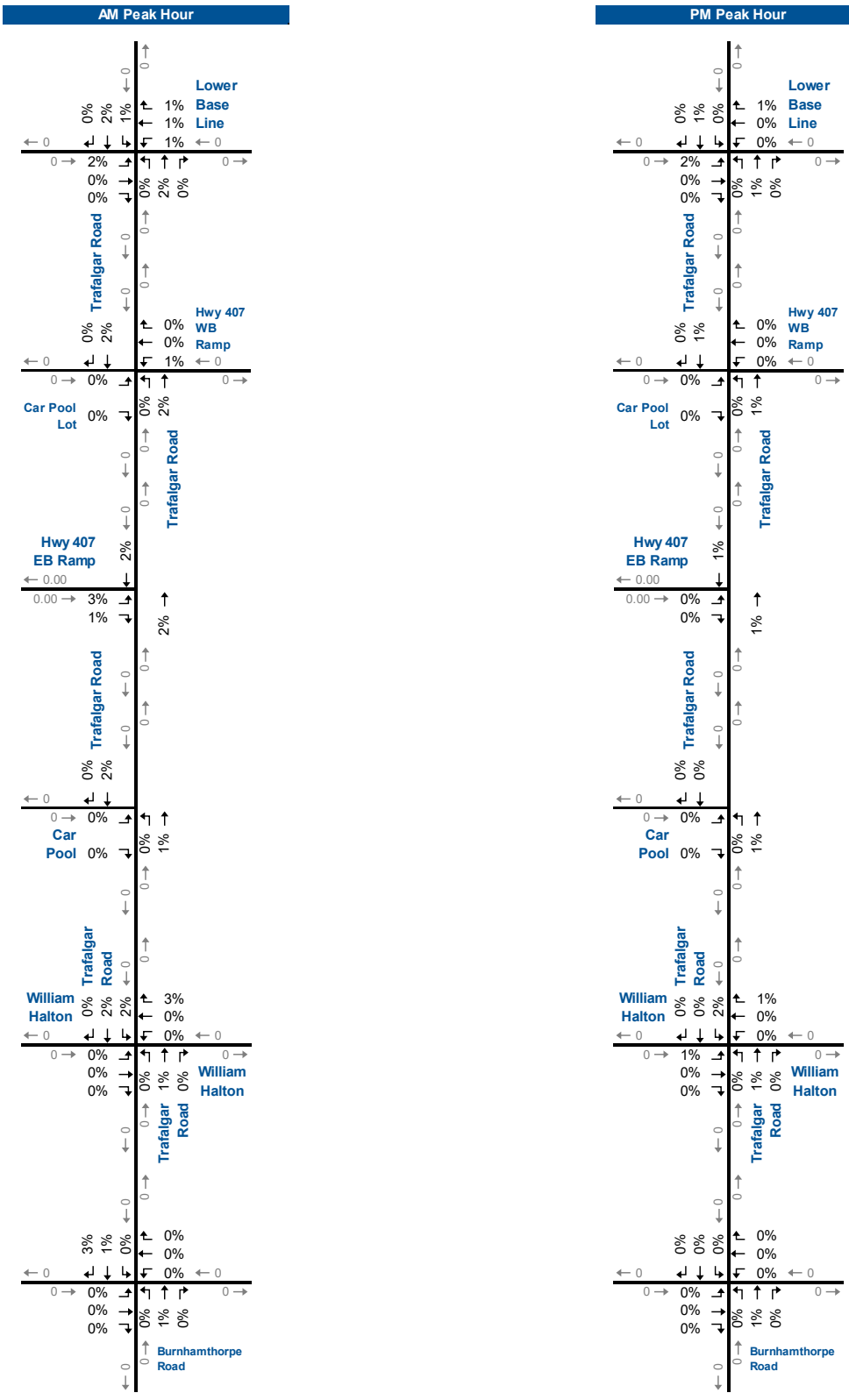
Figure 7B



Medium Trucks (Single Unit, Buses) Percentages

IO Trafalgar & 407 Oakville, ON TIS
210156/210157

Figure 1A



Heavy Truck (Multi-Axles) Percentages

Table 3. Road Traffic Data

Traffic Noise Source	Existing		Future "No Project"						Future "With Project"				
	Year 2011		Year 2021		Year 2031		Truck Percentage (% AADT)		HOV Lanes, Year 2021		BRT Lanes, Year 2031		Total Truck Percentage (% AADT)
	AADT	*Posted Speed Limit (km/h)*	*AADT*	*Posted Speed Limit (km/h)*	*AADT*	*Posted Speed Limit (km/h)*	*Medium Trucks*	*Heavy Trucks*	*AADT*	*Posted Speed Limit (km/h)*	*AADT*	*Posted Speed Limit (km/h)*	
Trafalgar Rd, Leighland Ave to McCraney St	37038	60	40169	60	43300	60	1.1	1.9	37474	60	39488	60	3-5[1a, 2]
Trafalgar Rd, McCraney St to Marlborough Ct	31275	60	35348	60	39600	60	2.0	2.0	34286	60	35400	60	3-5[1a, 2]
Trafalgar Rd, Marlborough Ct to Ceremonial Dr	29025	60	32563	60	36100	60	1.8	3.3	31109	60	31125	60	3-5[1a, 2]
Trafalgar Rd, Ceremonial Dr to Sheridan Access N.	24625	60	30913	60	37200	60	1.9	3.2	31396	60	30550	60	3-5[1a, 2]
Trafalgar Rd, Sheridan Access N. to Upper Middle Rd	33100	60	35250	60	37400	60	6.1	1.0	33548	60	32263	60	3-5[1a, 2]
Trafalgar Rd, Upper Middle Rd to River Oaks Blvd	24925	60	28813	60	32700	60	3.9	2.6	31591	60	29263	60	3-5[1a, 2]
Trafalgar Rd, River Oaks Blvd to Glenashton Dr	25375	60	30188	60	35000	60	2.8	2.9	29223	60	28038	60	3-5[1a, 2]
Trafalgar Rd, Glenashton Dr to Rosegate Way	24400	60	29500	60	34600	60	2.8	2.9	26496	60	25900	60	3-5[1a, 2]
Trafalgar Rd, Rosegate Way to Oak Park Blvd	26775	60	30188	60	33600	60	2.8	2.9	21300	60	18738	60	3-5[1a, 2]
Trafalgar Rd, Oak Park Blvd to Dundas St	20450	60	25925	60	31400	60	2.5	4.1	28977	60	23225	60	3-5[1a, 2]
BRT Lanes, McCraney St to Dundas St	-	-	-	-	-	-	-	-	-	-	600	60	100[1b, 3]
HOV Lanes, McCraney St to Marlborough Ct	-	-	-	-	-	-	-	-	3763	60	-	-	6.3[1a]
HOV Lanes, Marlborough Ct to Ceremonial Dr	-	-	-	-	-	-	-	-	3415	60	-	-	6.3[1a]
HOV Lanes, Ceremonial Dr to Sheridan Access N.	-	-	-	-	-	-	-	-	3446	60	-	-	6.3[1a]
HOV Lanes, Sheridan Access N. to Upper Middle Rd	-	-	-	-	-	-	-	-	3682	60	-	-	6.3[1a]
HOV Lanes, Upper Middle Rd to River Oaks Blvd	-	-	-	-	-	-	-	-	3468	60	-	-	6.3[1a]
HOV Lanes, River Oaks Blvd to Glenashton Dr	-	-	-	-	-	-	-	-	3208	60	-	-	6.3[1a]
HOV Lanes, Glenashton Dr to Rosegate Way	-	-	-	-	-	-	-	-	2908	60	-	-	6.3[1a]
HOV Lanes, Rosegate Way to Oak Park Blvd	-	-	-	-	-	-	-	-	2338	60	-	-	6.3[1a]
HOV Lanes, Oak Park Blvd to Dundas St	-	-	-	-	-	-	-	-	3181	60	-	-	6.3[1a]
Leighland Ave/Iroquois Shore Rd	10750	50	18175	50	23700	50	1.0	0.9	12713	50	10338	50	2-4[1a, 2]
McCraney St/White Oaks Blvd S.	8388	50	7994	50	7600	50	1.0	3.0	4188	50	4013	50	3-6[1a, 2]
Marlborough Ct	1200	50	1911	50	2600	50	5.2	5.2	1925	50	1763	50	3-6[1a, 2, 4]
Ceremonial Dr	388	20	894	20	1400	20	0.0	3.2	988	20	975	20	3-6[1a, 2, 4]
Sheridan Access N. / White Oaks Blvd N.	2625	50	3613	50	4600	50	1.4	7.1	2113	50	1413	50	3-6[1a, 2]
Upper Middle Rd	22325	60	21013	50	19700	50	0.6	1.5	19150	50	23538	50	2-4[1a, 2]
River Oaks Blvd	1213	50	1606	50	2000	50	1.0	5.2	925	50	338	50	2-5[1a, 2, 5]
Glenashton Dr	5763	50	6431	50	6500	50	3.3	2.2	11613	50	10350	50	2-5[1a, 2]
Rosegate Way	3538	50	3169	50	2800	50	2.5	1.1	4550	50	4875	50	2-5[1a, 2, 5]
Oak Park Blvd	10150	50	8225	50	6300	50	1.8	2.6	3738	50	2675	50	2-5[1a, 2, 5]
Dundas St	29013	80	29506	80	29800	80	2.7	2.0	19588	80	16300	80	2-5[1a, 2, 5]

Notes to Table 3:

1. Assumed day/night % of AADT traffic split of
   a. 90%/10%
   b. 100%/0%
2. Assumed medium and heavy trucks distributed as follows:
   - % medium trucks = 5/13 x Total Truck Percentage
   - % heavy Trucks = 8/13 x Total Truck Percentage
3. Assumed 100% medium trucks/buses
4. Assumed same medium and heavy truck percentages as McCraney Street/White Oaks Blvd South
5. Assumed same medium and heavy truck percentages as Glenashton Drive

BRT Bus Volume Estimate

O R N A M E N T - Sound Power Emissions & Source Heights

Ontario Road Noise Analysis Method for Environment and Transportation

Road Segment ID	Roadway Name	Link Description	Speed (kph)	Period (h)	Total Traffic Volumes	Auto %	Med %	Hvy %	Auto	Med	Heavy	Road Gradient (%)	PWL (dBA)	Source Height, s (m)
Trafalgar_NB_avg	Trafalgar Road - Northbound	Daytime Impacts	80	16	18450	91.6%	4.8%	3.7%	16898	878	675	0	**87.8**	**1.4**
		Nighttime Impacts	80	8	2050	91.6%	4.8%	3.7%	1878	98	75	0	**81.3**	**1.4**
Trafalgar_SB_avg	Trafalgar Road - Southbound	Daytime Impacts	80	16	18450	91.6%	4.8%	3.7%	16898	878	675	0	**87.8**	**1.4**
		Nighttime Impacts	80	8	2050	91.6%	4.8%	3.7%	1878	98	75	0	**81.3**	**1.4**
Trafalgar_HOV_NB_avg	Trafalgar Road HOV - Northbound	Daytime Impacts	80	16	4050	93.3%	6.7%	0.0%	3780	270	0	0	**79.3**	**0.5**
		Nighttime Impacts	80	8	450	93.3%	6.7%	0.0%	420	30	0	0	**72.8**	**0.5**
Trafalgar_HOV_SB_avg	Trafalgar Road HOV - Southbound	Daytime Impacts	80	16	4050	93.3%	6.7%	0.0%	3780	270	0	0	**79.3**	**0.5**
		Nighttime Impacts	80	8	450	93.3%	6.7%	0.0%	420	30	0	0	**72.8**	**0.5**
William_Halton_avg	William Halton Parkway	Daytime Impacts	60	16	31500	94.0%	4.0%	2.0%	29610	1260	630	0	**86.3**	**1.2**
		Nighttime Impacts	60	8	3500	94.0%	4.0%	2.0%	3290	140	70	0	**79.7**	**1.2**
Burnhamthorpe_avg	Burnhamthorpe Road East	Daytime Impacts	60	16	19287	98.0%	3.5%	0.2%	18901	675	39	0	**82.1**	**0.7**
		Nighttime Impacts	60	8	2143	98.0%	3.5%	0.2%	2100	75	4	0	**75.6**	**0.7**
407_Transitway_avg	407 Transitway Bus Traffic	Daytime Impacts	100	16	418	0.0%	100.0%	0.0%	0	418	0	0	**80.2**	**0.5**
		Nighttime Impacts	100	8	46	0.0%	100.0%	0.0%	0	46	0	0	**73.7**	**0.5**
Hwy407_EB_avg	Highway 407 - Eastbound	Daytime Impacts	100	16	40800	88.0%	6.0%	6.0%	35904	2448	2448	0	**94.5**	**1.6**
		Nighttime Impacts	100	8	7200	88.0%	6.0%	6.0%	6336	432	432	0	**90.0**	**1.6**
Hwy407_WB_avg	Highway 407 - Westbound	Daytime Impacts	100	16	40800	88.0%	6.0%	6.0%	35904	2448	2448	0	**94.5**	**1.6**
		Nighttime Impacts	100	8	7200	88.0%	6.0%	6.0%	6336	432	432	0	**90.0**	**1.6**

Appendix C STAMSON Output File and Validation

Compatibility & Mitigation Study – Air Quality, Dust, Odour, Noise & Vibration

Provincial Lands West of Trafalgar Road, Town of Oakville

Infrastructure Ontario

SLR Project No.: 241.031032.00001

February 5, 2026

STAMSON 5.0 NORMAL REPORT Date: 21-01-2026 14:21:00
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: st5valr1.te Time Period: 16 hours
Description:

Road data, segment # 1: Traf NB

Car traffic volume : 16898 veh/TimePeriod
Medium truck volume : 878 veh/TimePeriod
Heavy truck volume : 675 veh/TimePeriod
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Traf NB

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 47.41 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 2: Traf SB

Car traffic volume : 16898 veh/TimePeriod
Medium truck volume : 878 veh/TimePeriod
Heavy truck volume : 675 veh/TimePeriod
Posted speed limit : 80 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Traf SB

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 38.29 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Road data, segment # 3: Traf HOV NB

Car traffic volume : 3780 veh/TimePeriod
Medium truck volume : 270 veh/TimePeriod
Heavy truck volume : 0 veh/TimePeriod
Posted speed limit : 80 km/h

```
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 3: Traf HOV NB
---------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  52.95 m
Receiver height           :   1.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Road data, segment # 4: Traf HOV SB
-----------------------------------
Car traffic volume  :  3780 veh/TimePeriod
Medium truck volume :   270 veh/TimePeriod
Heavy truck volume  :     0 veh/TimePeriod
Posted speed limit  :    80 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 4: Traf HOV SB
---------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  32.82 m
Receiver height           :   1.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Road data, segment # 5: Bnhamthorpe
-----------------------------------
Car traffic volume  : 18901 veh/TimePeriod
Medium truck volume :   675 veh/TimePeriod
Heavy truck volume  :    39 veh/TimePeriod
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 5: Bnhamthorpe
---------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 298.88 m
Receiver height           :   1.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

Results segment # 1: Traf NB

Source height = 1.38 m

ROAD (0.00 + 64.77 + 0.00) = 64.77 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	72.77	0.00	-5.00	-3.01	0.00	0.00	0.00	64.77

Segment Leq : 64.77 dBA

Results segment # 2: Traf SB

Source height = 1.38 m

ROAD (0.00 + 65.69 + 0.00) = 65.69 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	72.77	0.00	-4.07	-3.01	0.00	0.00	0.00	65.69

Segment Leq : 65.69 dBA

Results segment # 3: Traf HOV NB

Source height = 0.50 m

ROAD (0.00 + 55.78 + 0.00) = 55.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	64.27	0.00	-5.48	-3.01	0.00	0.00	0.00	55.78

Segment Leq : 55.78 dBA

Results segment # 4: Traf HOV SB

Source height = 0.50 m

ROAD (0.00 + 57.86 + 0.00) = 57.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	64.27	0.00	-3.40	-3.01	0.00	0.00	0.00	57.86

Segment Leq : 57.86 dBA

Results segment # 5: Bnhamthorpe

Source height = 0.67 m

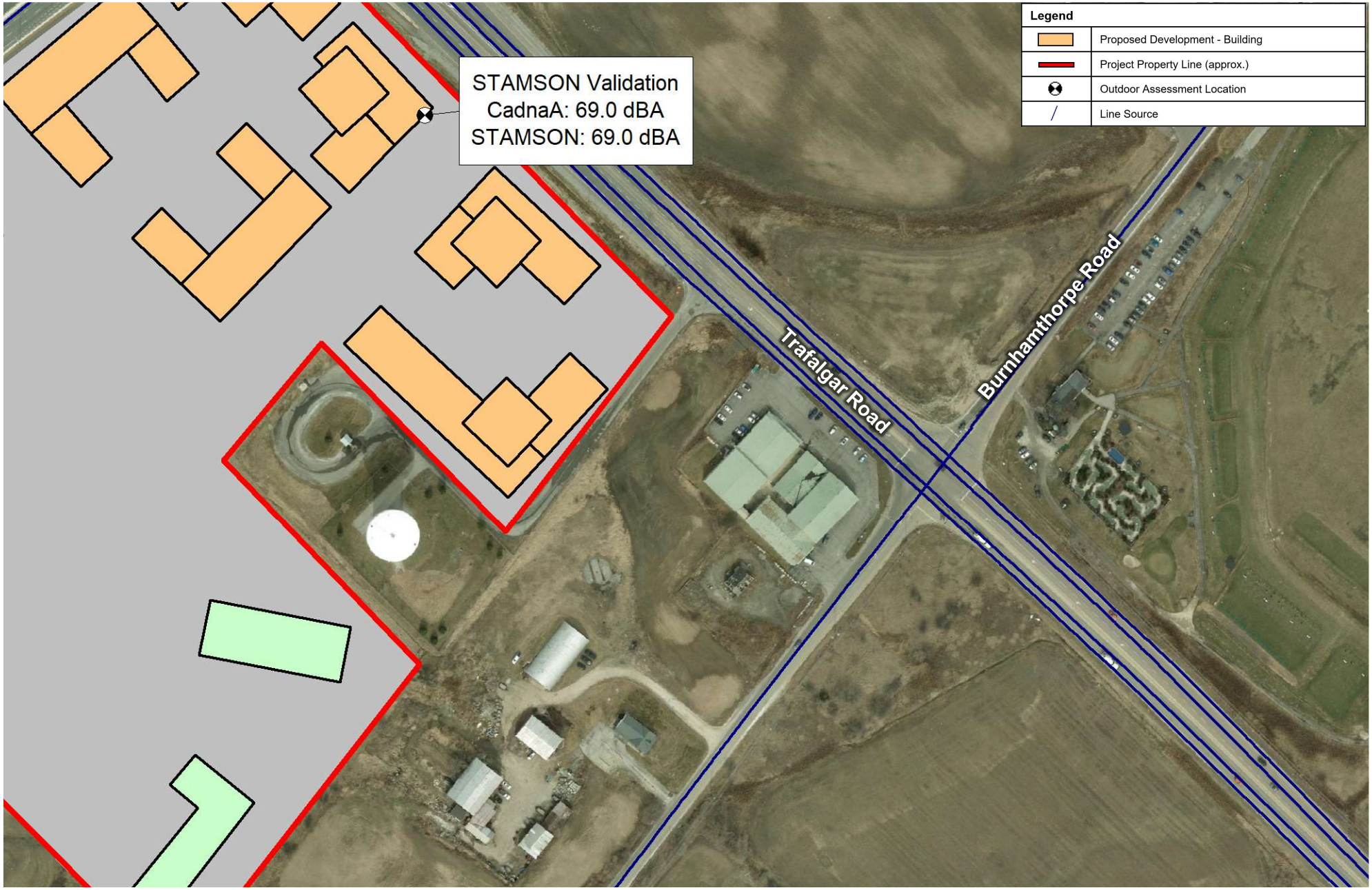
ROAD (0.00 + 54.06 + 0.00) = 54.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	67.05	0.00	-12.99	0.00	0.00	0.00	0.00	54.06

Segment Leq : 54.06 dBA

Total Leq All Segments: 69.00 dBA

TOTAL Leq FROM ALL SOURCES: 69.00



INFRASTRUCTURE ONTARIO	True North	Scale: 1:2,500	METRES	SLR
TRAFALGAR LANDS DEVELOPMENT – WEST LANDS – OAKVILLE, ONTARIO		Date: Feb. 5, 2026 Rev. 2	Figure No. **C1**	
STAMSON VALIDATION – COMPARISON OF CADNA/A & STAMSON OUTPUT		Project No. 241.031032.00001		

Appendix D Transportation Noise Assessment Summary Tables

Compatibility & Mitigation Study – Air Quality, Dust, Odour, Noise & Vibration

Provincial Lands West of Trafalgar Road, Town of Oakville

Infrastructure Ontario

SLR Project No.: 241.031032.00001

February 5, 2026

Appendix D – Summary of Worst-Case Transportation Façade Sound Levels – All Buildings

The following table (Table D1) summarizes the maximum predicted sound levels at each building, and the façade on which it is predicted to occur.

Table D1: Summary of Transportation Facade Sound Levels for All Buildings

Assessment Location	Assumed/Modelled Building Height (m)	Worst-Case Façade(s) [1]	Road Traffic Sound Levels	
			L_{eq} Daytime (dBA)	L_{eq} Night-time (dBA)
Mixed-Use Buildings				
Block 4A-1	9	South	62	55
Block 4A-2	9	North	69	64
Block 4A-3	9	East	74	67
Block 4A-4	60	East	72	65
Block 4B-1	9	North	62	56
Block 4B-2	9	South	70	63
Block 4B-3	9	East	74	67
Block 4B-4	60	East	72	65
Block 4C-1	24	North, East	59	54
Block 4C-2	9	North, West	67	62
Block 4D-1	9	East	59	53
Block 4D-2	9	North	63	58
Block 4D-3	24	South	69	62
Block 5A-1	9	East	58	52
Block 5A-2	9	West	61	55
Block 5A-3	24	East	70	64
Block 5B-1	9	North	71	65
Block 5B-2	9	East	74	68
Block 5B-3	60	East	72	65
Block 11A-1	9	East	62	56
Block 11A-2	9	North	70	64
Block 11A-3	24	North	70	64
Block 11B	24	North	63	58
Block 12A-1	9	North	65	60
Block 12A-2	9	North	64	59
Block 12A-3	9	South	68	62
Block 12A-4	24	East	64	59

Assessment Location	Assumed/Modelled Building Height (m)	Worst-Case Façade(s) [1]	Road Traffic Sound Levels	
			L_{eq} Daytime (dBA)	L_{eq} Night-time (dBA)
Block 13A-1	9	South	64	58
Block 13A-2	9	East	68	62
Block 13A-3	60	East	66	59
Block 13B-1	9	North	65	59
Block 13B-2	9	East	73	66
Block 13B-3	60	East	71	65
Block 14A-1	9	North	58	52
Block 14A-2	9	East	57	51
Block 14A-3	24	East	63	56
Block 14B-1	9	South	64	58
Block 14B-2	9	East	73	66
Block 14B-3	60	East	71	65
Employment Use Buildings				
Block 6	24	South	62	55
Block 7	9	East, South	61	55
Block 11C	9	North	69	62
Block 12B	9	South	66	61
Notes: [1] Façade directions relative to 'Project North' shown on Figure 9 and Figure 10.				

Appendix D – Summary of Worst-Case Transportation OLA Sound Levels – All Buildings

The following table (Table D2) summarizes the maximum predicted OLA sound levels at each building based on assumed common rooftop amenity terraces atop all development buildings.

Table D2: Summary of Transportation OLA Sound Levels and Mitigation Requirements

Building	OLA Assessment Location	Predicted L_{eq}(Daytime) (dBA)[3]	Meets Maximum Criteria? [1],[2] (Y/N)
Block 4A-1	OLA_4A_1	62	N
Block 4A-2	OLA_4A_2	66	N
Block 4A-3	OLA_4A_3	65	N
Block 4A-4	OLA_4A_4	62	N
Block 4B-1	OLA_4B_1	60	Y
Block 4B-2	OLA_4B_2	63	N
Block 4B-3	OLA_4B_3	66	N
Block 4B-4	OLA_4B_4	63	N
Block 4C-1	OLA_4C_1	59	Y
Block 4C-2	OLA_4C_2	64	N
Block 4D-1	OLA_4D_1	60	Y
Block 4D-2	OLA_4D_2	61	N
Block 4D-3	OLA_4D_3	62	N
Block 5A-1	OLA_5A_1	56	Y
Block 5A-2	OLA_5A_2	58	Y
Block 5A-3	OLA_5A_3	60	Y
Block 5B-1	OLA_5B_1	64	N
Block 5B-2	OLA_5B_2	72	N
Block 5B-3	OLA_5B_3	62	N
Block 11A-1	OLA_11A_1	56	Y
Block 11A-2	OLA_11A_2	57	Y
Block 11A-3	OLA_11A_3	61	N
Block 11B	OLA_11B	62	N
Block 12A-1	OLA_12A_1	65	N
Block 12A-2	OLA_12A_2	64	N
Block 12A-3	OLA_12A_3	64	N
Block 12A-4	OLA_12A_4	64	N
Block 13A-1	OLA_13A_1	60	Y

Building	OLA Assessment Location	Predicted L_{eq}(Daytime) (dBA)[3]	Meets Maximum Criteria? [1],[2] (Y/N)
Block 13A-2	OLA_13A_2	64	N
Block 13A-3	OLA_13A_3	59	Y
Block 13B-1	OLA_13B_1	61	N
Block 13B-2	OLA_13B_2	67	N
Block 13B-3	OLA_13B_3	61	N
Block 14A-1	OLA_14A_1	58	Y
Block 14A-2	OLA_14A_2	58	Y
Block 14A-3	OLA_14A_3	60	Y
Block 14B-1	OLA_14B_1	61	N
Block 14B-2	OLA_14B_2	67	N
Block 14B-3	OLA_14B_3	61	N

Notes: [1] Maximum permitted sound level is 60 dBA with mitigation and a Type B warning clause (if the sound level is between 56 dBA and 60 dBA inclusive).
Sound levels between 56 dBA and 60 dBA inclusive without a barrier require a Type A warning clause.
Sound levels below 55 dBA do not require mitigation or warning clauses.
[2] Further assessment will be required for OLAs that do not meet the maximum criteria at the detailed design stage of the planning and development process (zoning by-law and site plan approval stages), to determine sound barrier requirements.
[3] Refer to Figure 12 for assessment locations.

Appendix D – Summary of Worst-Case Façade Requirements– All Buildings

The following table (Table D3) summarizes the worst-case sound transmission class (STC) glazing requirements.

Table D3: Summary of Building Component Sound Transmission Class (STC) Requirements

Block	Building	Worst-Case Facade	STC Rating - Non-Glazing Component	Glazing STC Requirements[1]				
				Living/Dining Room	Bedroom	Corner Living/Dining Room	Corner Bedroom	Corner Office
Block 4	Block 4A-1	South	45	OBC	OBC	OBC	OBC	OBC
	Block 4A-2	North	45	OBC	OBC	30	32	OBC
	Block 4A-3	East	45	32	35	35	38	OBC
	Block 4A-4	East	45	30	32	33	35	OBC
	Block 4B-1	North	45	OBC	OBC	OBC	OBC	OBC
	Block 4B-2	South	45	OBC	30	31	33	OBC
	Block 4B-3	East	45	32	35	35	38	OBC
	Block 4B-4	East	45	30	32	33	35	OBC
	Block 4C-1	North, East	45	OBC	OBC	OBC	OBC	OBC
	Block 4C-2	North, West	45	OBC	OBC	OBC	30	OBC
	Block 4D-1	East	45	OBC	OBC	OBC	OBC	OBC
	Block 4D-2	North	45	OBC	OBC	OBC	OBC	OBC
	Block 4D-3	South	45	OBC	OBC	30	32	OBC
Block 5	Block 5A-1	East	45	OBC	OBC	OBC	OBC	OBC
	Block 5A-2	West	45	OBC	OBC	OBC	OBC	OBC
	Block 5A-3	East	45	OBC	30	31	33	OBC
	Block 5B-1	North	45	OBC	31	32	34	OBC
	Block 5B-2	East	45	32	35	35	38	OBC
	Block 5B-3	East	45	30	32	33	35	OBC
Block 11	Block 11A-1	East	45	OBC	OBC	OBC	OBC	OBC
	Block 11A-2	North	45	OBC	OBC	OBC	30	OBC

Block	Building	Worst-Case Facade	STC Rating - Non-Glazing Component	Glazing STC Requirements[1]				
				Living/Dining Room	Bedroom	Corner Living/Dining Room	Corner Bedroom	Corner Office
	Block 11A-3	North	45	OBC	30	31	33	OBC
	Block 11B	North	45	OBC	OBC	OBC	OBC	OBC
Block 12	Block 12A-1	North	45	OBC	OBC	OBC	OBC	OBC
	Block 12A-2	North	45	OBC	OBC	OBC	OBC	OBC
	Block 12A-3	South	45	OBC	OBC	OBC	31	OBC
	Block 12A-4	East	45	OBC	OBC	OBC	OBC	OBC
Block 13	Block 13A-1	South	45	OBC	OBC	OBC	OBC	OBC
	Block 13A-2	East	45	OBC	OBC	OBC	31	OBC
	Block 13A-3	East	45	OBC	OBC	OBC	OBC	OBC
	Block 13B-1	North	45	OBC	OBC	OBC	OBC	OBC
	Block 13B-2	East	45	31	34	34	37	OBC
	Block 13B-3	East	45	OBC	31	32	34	OBC
Block 14	Block 14A-1	North	45	OBC	OBC	OBC	OBC	OBC
	Block 14A-2	East	45	OBC	OBC	OBC	OBC	OBC
	Block 14A-3	East	45	OBC	OBC	OBC	OBC	OBC
	Block 14B-1	South	45	OBC	OBC	OBC	OBC	OBC
	Block 14B-2	East	45	31	34	34	37	OBC
	Block 14B-3	East	45	OBC	31	32	34	OBC
Employment Use Buildings								
Block 6	Block 6	South	45	---[2]	---[2]	---[2]	---[2]	OBC
Block 7	Block 7	East, South	45	---[2]	---[2]	---[2]	---[2]	OBC
Block 11	Block 11C	North	45	---[2]	---[2]	---[2]	---[2]	OBC
Block 12	Block 12B	South	45	---[2]	---[2]	---[2]	---[2]	OBC

Notes: [1] OBC = meets minimum structural and thermal requirements of the Ontario Building Code, meeting a rating of STC 29.
[2] The proposed development building is designated as “Employment Use” and therefore will not have living/dining rooms or bedrooms.

Appendix E Detailed Façade Calculations

Compatibility & Mitigation Study – Air Quality, Dust, Odour, Noise & Vibration

Provincial Lands West of Trafalgar Road, Town of Oakville

Infrastructure Ontario

SLR Project No.: 241.031032.00001

February 5, 2026

Appendix E – Detailed Façade Calculations

BPN 56 Calculation Procedure - Required Glazing STC Rating (Fixed Veneer)

IO Trafalgar, Oakville - West Development Lands - 241.031032.00001

Receptor ID	Source Description	Sound Levels		Room / Façade Inputs					Source Inputs		Veneer - Component 1		Glazing - Component 2	
		Façade Sound Level (dBA)	Required Indoor Sound Level (dBA)	Glazing as % of Wall Area	Exposed Wall Height (m)	Exposed Wall Length (m)	Room Depth (m)	Room Absorption	Incident Sound Angle (deg)	Spectrum Type	Assumed Veneer STC (STC)	Component Category	Component Category	Required Glazing STC (STC)
DAYTIME - BEDROOMS														
WEST Block 4A-1 - MAX	Roadways, Daytime	62	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	22
WEST Block 4A-2 - MAX	Roadways, Daytime	69	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	29
WEST Block 4A-3 - MAX	Roadways, Daytime	74	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	35
WEST Block 4A-4 - MAX	Roadways, Daytime	72	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	32
WEST Block 4B-1 - MAX	Roadways, Daytime	62	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	22
WEST Block 4B-2 - MAX	Roadways, Daytime	70	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	30
WEST Block 4B-3 - MAX	Roadways, Daytime	74	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	35
WEST Block 4B-4 - MAX	Roadways, Daytime	72	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	32
WEST Block 4C-1 - MAX	Roadways, Daytime	59	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	19
WEST Block 4C-2 - MAX	Roadways, Daytime	67	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	27
WEST Block 4D-1 - MAX	Roadways, Daytime	59	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	19
WEST Block 4D-2 - MAX	Roadways, Daytime	63	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	23
WEST Block 4D-3 - MAX	Roadways, Daytime	69	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	29
WEST Block 5A-1 - MAX	Roadways, Daytime	58	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	18
WEST Block 5A-2 - MAX	Roadways, Daytime	61	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	21
WEST Block 5A-3 - MAX	Roadways, Daytime	70	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	30
WEST Block 5B-1 - MAX	Roadways, Daytime	71	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	31
WEST Block 5B-2 - MAX	Roadways, Daytime	74	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	35
WEST Block 5B-3 - MAX	Roadways, Daytime	72	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	32
WEST Block 11A-1 - MAX	Roadways, Daytime	62	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	22
WEST Block 11A-2 - MAX	Roadways, Daytime	67	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	27
WEST Block 11A-3 - MAX	Roadways, Daytime	70	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	30
WEST Block 11B - MAX	Roadways, Daytime	63	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	23
WEST Block 12A-1 - MAX	Roadways, Daytime	65	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	25
WEST Block 12A-2 - MAX	Roadways, Daytime	64	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	24
WEST Block 12A-3 - MAX	Roadways, Daytime	64	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	24
WEST Block 12A-4 - MAX	Roadways, Daytime	68	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	28
WEST Block 13A-1 - MAX	Roadways, Daytime	64	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	24
WEST Block 13A-2 - MAX	Roadways, Daytime	68	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	28
WEST Block 13A-3 - MAX	Roadways, Daytime	66	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	26
WEST Block 13B-1 - MAX	Roadways, Daytime	65	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	25
WEST Block 13B-2 - MAX	Roadways, Daytime	73	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	34
WEST Block 13B-3 - MAX	Roadways, Daytime	71	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	31
WEST Block 14A-1 - MAX	Roadways, Daytime	58	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	18
WEST Block 14A-2 - MAX	Roadways, Daytime	57	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	17
WEST Block 14A-3 - MAX	Roadways, Daytime	63	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	23
WEST Block 14B-1 - MAX	Roadways, Daytime	64	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	24
WEST Block 14B-2 - MAX	Roadways, Daytime	73	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	34
WEST Block 14B-3 - MAX	Roadways, Daytime	71	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	31
WEST Block 6 - MAX	Roadways, Daytime	62	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	22
WEST Block 7 - MAX	Roadways, Daytime	61	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	21
WEST Block 11C - MAX	Roadways, Daytime	69	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	29
WEST Block 12B - MAX	Roadways, Daytime	66	45	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	26

Appendix E – Detailed Façade Calculations (continued)

BPN 56 Calculation Procedure - Required Glazing STC Rating (Fixed Veneer)

IO Trafalgar, Oakville - West Development Lands - 241.031032.00001

Receptor ID	Source Description	Sound Levels		Room / Façade Inputs					Source Inputs		Veneer - Component 1		Glazing - Component 2	
		Façade Sound Level (dBA)	Required Indoor Sound Level (dBA)	Glazing as % of Wall Area	Exposed Wall Height (m)	Exposed Wall Length (m)	Room Depth (m)	Room Absorption	Incident Sound Angle (deg)	Spectrum Type	Assumed Veneer STC (STC)	Component Category	Component Category	Required Glazing STC (STC)
NIGHT-TIME - BEDROOMS														
WEST Block 4A-1 - MAX	Roadways, Night-time	55	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	20
WEST Block 4A-2 - MAX	Roadways, Night-time	64	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	29
WEST Block 4A-3 - MAX	Roadways, Night-time	67	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	32
WEST Block 4A-4 - MAX	Roadways, Night-time	65	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	30
WEST Block 4B-1 - MAX	Roadways, Night-time	56	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	21
WEST Block 4B-2 - MAX	Roadways, Night-time	63	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	28
WEST Block 4B-3 - MAX	Roadways, Night-time	67	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	32
WEST Block 4B-4 - MAX	Roadways, Night-time	65	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	30
WEST Block 4C-1 - MAX	Roadways, Night-time	54	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	19
WEST Block 4C-2 - MAX	Roadways, Night-time	62	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	27
WEST Block 4D-1 - MAX	Roadways, Night-time	53	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	18
WEST Block 4D-2 - MAX	Roadways, Night-time	58	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	23
WEST Block 4D-3 - MAX	Roadways, Night-time	62	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	27
WEST Block 5A-1 - MAX	Roadways, Night-time	52	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	17
WEST Block 5A-2 - MAX	Roadways, Night-time	55	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	20
WEST Block 5A-3 - MAX	Roadways, Night-time	64	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	29
WEST Block 5B-1 - MAX	Roadways, Night-time	65	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	30
WEST Block 5B-2 - MAX	Roadways, Night-time	68	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	34
WEST Block 5B-3 - MAX	Roadways, Night-time	65	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	30
WEST Block 11A-1 - MAX	Roadways, Night-time	56	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	21
WEST Block 11A-2 - MAX	Roadways, Night-time	64	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	29
WEST Block 11A-3 - MAX	Roadways, Night-time	64	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	29
WEST Block 11B - MAX	Roadways, Night-time	58	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	23
WEST Block 12A-1 - MAX	Roadways, Night-time	60	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	25
WEST Block 12A-2 - MAX	Roadways, Night-time	59	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	24
WEST Block 12A-3 - MAX	Roadways, Night-time	59	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	24
WEST Block 12A-4 - MAX	Roadways, Night-time	62	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	27
WEST Block 13A-1 - MAX	Roadways, Night-time	58	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	23
WEST Block 13A-2 - MAX	Roadways, Night-time	62	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	27
WEST Block 13A-3 - MAX	Roadways, Night-time	59	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	24
WEST Block 13B-1 - MAX	Roadways, Night-time	59	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	24
WEST Block 13B-2 - MAX	Roadways, Night-time	66	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	31
WEST Block 13B-3 - MAX	Roadways, Night-time	65	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	30
WEST Block 14A-1 - MAX	Roadways, Night-time	52	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	17
WEST Block 14A-2 - MAX	Roadways, Night-time	51	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	16
WEST Block 14A-3 - MAX	Roadways, Night-time	56	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	21
WEST Block 14B-1 - MAX	Roadways, Night-time	58	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	23
WEST Block 14B-2 - MAX	Roadways, Night-time	66	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	31
WEST Block 14B-3 - MAX	Roadways, Night-time	65	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	30
WEST Block 6 - MAX	Roadways, Night-time	55	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	20
WEST Block 7 - MAX	Roadways, Night-time	55	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	20
WEST Block 11C - MAX	Roadways, Night-time	62	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	27
WEST Block 12B - MAX	Roadways, Night-time	61	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	26

Appendix E – Detailed Façade Calculations (continued)

BPN 56 Calculation Procedure - Required Glazing STC Rating (Fixed Veneer)

IO Trafalgar, Oakville - West Development Lands - 241.031032.00001

Receptor ID	Source Description	Sound Levels		Room / Façade Inputs					Source Inputs		Veneer - Component 1		Glazing - Component 2	
		Façade Sound Level	Required Indoor Sound Level	Glazing as % of Wall Area	Exposed Wall Height (m)	Exposed Wall Length (m)	Room Depth (m)	Room Absorption	Incident Sound Angle	Spectrum Type	Assumed Veneer STC	Component Category	Component Category	Required Glazing STC
		(dBA)	(dBA)						(deg)		(STC)			(STC)
DAYTIME - LIVING ROOMS / DINING ROOMS														
WEST Block 4A-1 - MAX	Roadways, Daytime	62	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	20
WEST Block 4A-2 - MAX	Roadways, Daytime	69	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	27
WEST Block 4A-3 - MAX	Roadways, Daytime	74	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	32
WEST Block 4A-4 - MAX	Roadways, Daytime	72	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	30
WEST Block 4B-1 - MAX	Roadways, Daytime	62	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	20
WEST Block 4B-2 - MAX	Roadways, Daytime	70	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	28
WEST Block 4B-3 - MAX	Roadways, Daytime	74	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	32
WEST Block 4B-4 - MAX	Roadways, Daytime	72	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	30
WEST Block 4C-1 - MAX	Roadways, Daytime	59	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	17
WEST Block 4C-2 - MAX	Roadways, Daytime	67	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	25
WEST Block 4D-1 - MAX	Roadways, Daytime	59	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	17
WEST Block 4D-2 - MAX	Roadways, Daytime	63	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	21
WEST Block 4D-3 - MAX	Roadways, Daytime	69	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	27
WEST Block 5A-1 - MAX	Roadways, Daytime	58	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	16
WEST Block 5A-2 - MAX	Roadways, Daytime	61	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	19
WEST Block 5A-3 - MAX	Roadways, Daytime	70	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	28
WEST Block 5B-1 - MAX	Roadways, Daytime	71	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	29
WEST Block 5B-2 - MAX	Roadways, Daytime	74	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	32
WEST Block 5B-3 - MAX	Roadways, Daytime	72	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	30
WEST Block 11A-1 - MAX	Roadways, Daytime	62	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	20
WEST Block 11A-2 - MAX	Roadways, Daytime	67	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	25
WEST Block 11A-3 - MAX	Roadways, Daytime	70	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	28
WEST Block 11B - MAX	Roadways, Daytime	63	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	21
WEST Block 12A-1 - MAX	Roadways, Daytime	65	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	23
WEST Block 12A-2 - MAX	Roadways, Daytime	64	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	22
WEST Block 12A-3 - MAX	Roadways, Daytime	64	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	22
WEST Block 12A-4 - MAX	Roadways, Daytime	68	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	26
WEST Block 13A-1 - MAX	Roadways, Daytime	64	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	22
WEST Block 13A-2 - MAX	Roadways, Daytime	68	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	26
WEST Block 13A-3 - MAX	Roadways, Daytime	66	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	24
WEST Block 13B-1 - MAX	Roadways, Daytime	65	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	23
WEST Block 13B-2 - MAX	Roadways, Daytime	73	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	31
WEST Block 13B-3 - MAX	Roadways, Daytime	71	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	29
WEST Block 14A-1 - MAX	Roadways, Daytime	58	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	16
WEST Block 14A-2 - MAX	Roadways, Daytime	57	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	15
WEST Block 14A-3 - MAX	Roadways, Daytime	63	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	21
WEST Block 14B-1 - MAX	Roadways, Daytime	64	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	22
WEST Block 14B-2 - MAX	Roadways, Daytime	73	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	31
WEST Block 14B-3 - MAX	Roadways, Daytime	71	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	29
WEST Block 6 - MAX	Roadways, Daytime	62	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	20
WEST Block 7 - MAX	Roadways, Daytime	61	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	19
WEST Block 11C - MAX	Roadways, Daytime	69	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	27
WEST Block 12B - MAX	Roadways, Daytime	66	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	24

Appendix E – Detailed Façade Calculations (continued)

BPN 56 Calculation Procedure - Required Glazing STC Rating (Fixed Veneer)

IO Trafalgar, Oakville - West Development Lands - 241.031032.00001

Receptor ID	Source Description	Sound Levels		Room / Façade Inputs					Source Inputs		Veneer - Component 1		Glazing - Component 2	
		Façade Sound Level (dBA)	Required Indoor Sound Level (dBA)	Glazing as % of Wall Area	Exposed Wall Height (m)	Exposed Wall Length (m)	Room Depth (m)	Room Absorption	Incident Sound Angle (deg)	Spectrum Type	Assumed Veneer STC (STC)	Component Category	Component Category	Required Glazing STC (STC)
NIGHT-TIME - LIVING ROOMS / DINING ROOMS														
WEST Block 4A-1 - MAX	Roadways, Night-time	55	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	13
WEST Block 4A-2 - MAX	Roadways, Night-time	64	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	22
WEST Block 4A-3 - MAX	Roadways, Night-time	67	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	25
WEST Block 4A-4 - MAX	Roadways, Night-time	65	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	23
WEST Block 4B-1 - MAX	Roadways, Night-time	56	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	14
WEST Block 4B-2 - MAX	Roadways, Night-time	63	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	21
WEST Block 4B-3 - MAX	Roadways, Night-time	67	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	25
WEST Block 4B-4 - MAX	Roadways, Night-time	65	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	23
WEST Block 4C-1 - MAX	Roadways, Night-time	54	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	12
WEST Block 4C-2 - MAX	Roadways, Night-time	62	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	20
WEST Block 4D-1 - MAX	Roadways, Night-time	53	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	11
WEST Block 4D-2 - MAX	Roadways, Night-time	58	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	16
WEST Block 4D-3 - MAX	Roadways, Night-time	62	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	20
WEST Block 5A-1 - MAX	Roadways, Night-time	52	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	10
WEST Block 5A-2 - MAX	Roadways, Night-time	55	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	13
WEST Block 5A-3 - MAX	Roadways, Night-time	64	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	22
WEST Block 5B-1 - MAX	Roadways, Night-time	65	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	23
WEST Block 5B-2 - MAX	Roadways, Night-time	68	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	26
WEST Block 5B-3 - MAX	Roadways, Night-time	65	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	23
WEST Block 11A-1 - MAX	Roadways, Night-time	56	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	14
WEST Block 11A-2 - MAX	Roadways, Night-time	64	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	22
WEST Block 11A-3 - MAX	Roadways, Night-time	64	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	22
WEST Block 11B - MAX	Roadways, Night-time	58	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	16
WEST Block 12A-1 - MAX	Roadways, Night-time	60	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	18
WEST Block 12A-2 - MAX	Roadways, Night-time	59	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	17
WEST Block 12A-3 - MAX	Roadways, Night-time	59	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	17
WEST Block 12A-4 - MAX	Roadways, Night-time	62	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	20
WEST Block 13A-1 - MAX	Roadways, Night-time	58	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	16
WEST Block 13A-2 - MAX	Roadways, Night-time	62	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	20
WEST Block 13A-3 - MAX	Roadways, Night-time	59	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	17
WEST Block 13B-1 - MAX	Roadways, Night-time	59	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	17
WEST Block 13B-2 - MAX	Roadways, Night-time	66	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	24
WEST Block 13B-3 - MAX	Roadways, Night-time	65	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	23
WEST Block 14A-1 - MAX	Roadways, Night-time	52	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	10
WEST Block 14A-2 - MAX	Roadways, Night-time	51	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	9
WEST Block 14A-3 - MAX	Roadways, Night-time	56	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	14
WEST Block 14B-1 - MAX	Roadways, Night-time	58	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	16
WEST Block 14B-2 - MAX	Roadways, Night-time	66	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	24
WEST Block 14B-3 - MAX	Roadways, Night-time	65	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	23
WEST Block 6 - MAX	Roadways, Night-time	55	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	13
WEST Block 7 - MAX	Roadways, Night-time	55	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	13
WEST Block 11C - MAX	Roadways, Night-time	62	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	20
WEST Block 12B - MAX	Roadways, Night-time	61	45	70%	2.8	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	19

Appendix E – Detailed Façade Calculations (continued)

BPN 56 Calculation Procedure - Required Glazing STC Rating (Fixed Veneer)

IO Trafalgar, Oakville - West Development Lands - 241.031032.00001

Receptor ID	Source Description	Sound Levels		Room / Façade Inputs					Source Inputs		Veneer - Component 1		Glazing - Component 2	
		Façade Sound Level (dBA)	Required Indoor Sound Level (dBA)	Glazing as % of Wall Area	Exposed Wall Height (m)	Exposed Wall Length (m)	Room Depth (m)	Room Absorption	Incident Sound Angle (deg)	Spectrum Type	Assumed Veneer STC (STC)	Component Category	Component Category	Required Glazing STC (STC)
DAYTIME - OFFICE SPACES														
WEST Block 4A-1 - MAX	Roadways, Daytime	62	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	83
WEST Block 4A-2 - MAX	Roadways, Daytime	69	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	18
WEST Block 4A-3 - MAX	Roadways, Daytime	74	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	23
WEST Block 4A-4 - MAX	Roadways, Daytime	72	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	21
WEST Block 4B-1 - MAX	Roadways, Daytime	62	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	11
WEST Block 4B-2 - MAX	Roadways, Daytime	70	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	19
WEST Block 4B-3 - MAX	Roadways, Daytime	74	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	23
WEST Block 4B-4 - MAX	Roadways, Daytime	72	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	21
WEST Block 4C-1 - MAX	Roadways, Daytime	59	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	8
WEST Block 4C-2 - MAX	Roadways, Daytime	67	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	16
WEST Block 4D-1 - MAX	Roadways, Daytime	59	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	8
WEST Block 4D-2 - MAX	Roadways, Daytime	63	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	12
WEST Block 4D-3 - MAX	Roadways, Daytime	69	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	18
WEST Block 5A-1 - MAX	Roadways, Daytime	58	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	7
WEST Block 5A-2 - MAX	Roadways, Daytime	61	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	10
WEST Block 5A-3 - MAX	Roadways, Daytime	70	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	19
WEST Block 5B-1 - MAX	Roadways, Daytime	71	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	20
WEST Block 5B-2 - MAX	Roadways, Daytime	74	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	23
WEST Block 5B-3 - MAX	Roadways, Daytime	72	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	21
WEST Block 11A-1 - MAX	Roadways, Daytime	62	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	11
WEST Block 11A-2 - MAX	Roadways, Daytime	67	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	16
WEST Block 11A-3 - MAX	Roadways, Daytime	70	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	19
WEST Block 11B - MAX	Roadways, Daytime	63	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	12
WEST Block 12A-1 - MAX	Roadways, Daytime	65	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	14
WEST Block 12A-2 - MAX	Roadways, Daytime	64	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	13
WEST Block 12A-3 - MAX	Roadways, Daytime	64	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	13
WEST Block 12A-4 - MAX	Roadways, Daytime	68	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	17
WEST Block 13A-1 - MAX	Roadways, Daytime	64	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	13
WEST Block 13A-2 - MAX	Roadways, Daytime	68	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	17
WEST Block 13A-3 - MAX	Roadways, Daytime	66	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	15
WEST Block 13B-1 - MAX	Roadways, Daytime	65	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	14
WEST Block 13B-2 - MAX	Roadways, Daytime	73	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	22
WEST Block 13B-3 - MAX	Roadways, Daytime	71	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	20
WEST Block 14A-1 - MAX	Roadways, Daytime	58	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	7
WEST Block 14A-2 - MAX	Roadways, Daytime	57	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	6
WEST Block 14A-3 - MAX	Roadways, Daytime	63	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	12
WEST Block 14B-1 - MAX	Roadways, Daytime	64	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	13
WEST Block 14B-2 - MAX	Roadways, Daytime	73	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	22
WEST Block 14B-3 - MAX	Roadways, Daytime	71	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	20
WEST Block 6 - MAX	Roadways, Daytime	62	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	11
WEST Block 7 - MAX	Roadways, Daytime	61	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	10
WEST Block 11C - MAX	Roadways, Daytime	69	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	18
WEST Block 12B - MAX	Roadways, Daytime	66	50	70%	2.8	15.0	15.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	15

Appendix F Ventilation, Warning Clause and Mitigation Summary

Compatibility & Mitigation Study – Air Quality, Dust, Odour, Noise & Vibration

Provincial Lands West of Trafalgar Road, Town of Oakville

Infrastructure Ontario

SLR Project No.: 241.031032.00001

February 5, 2026

Ventilation, Warning Clause and Barrier Summary

The following Warning Clauses are recommended for inclusion in agreements registered on Title for the residential units, and included in all agreements of purchase and sale or lease, and all rental agreements.

Note: Requirements do not apply to 'Employment Use' buildings.

A summary of the warning clause, ventilation and barrier requirements is included in Table F1 on the following pages.

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

MECP 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 and rail traffic may on occasions interfere with some activities of the dwelling occupants, as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment."

MECP Type C: "This dwelling unit has been supplied 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."

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

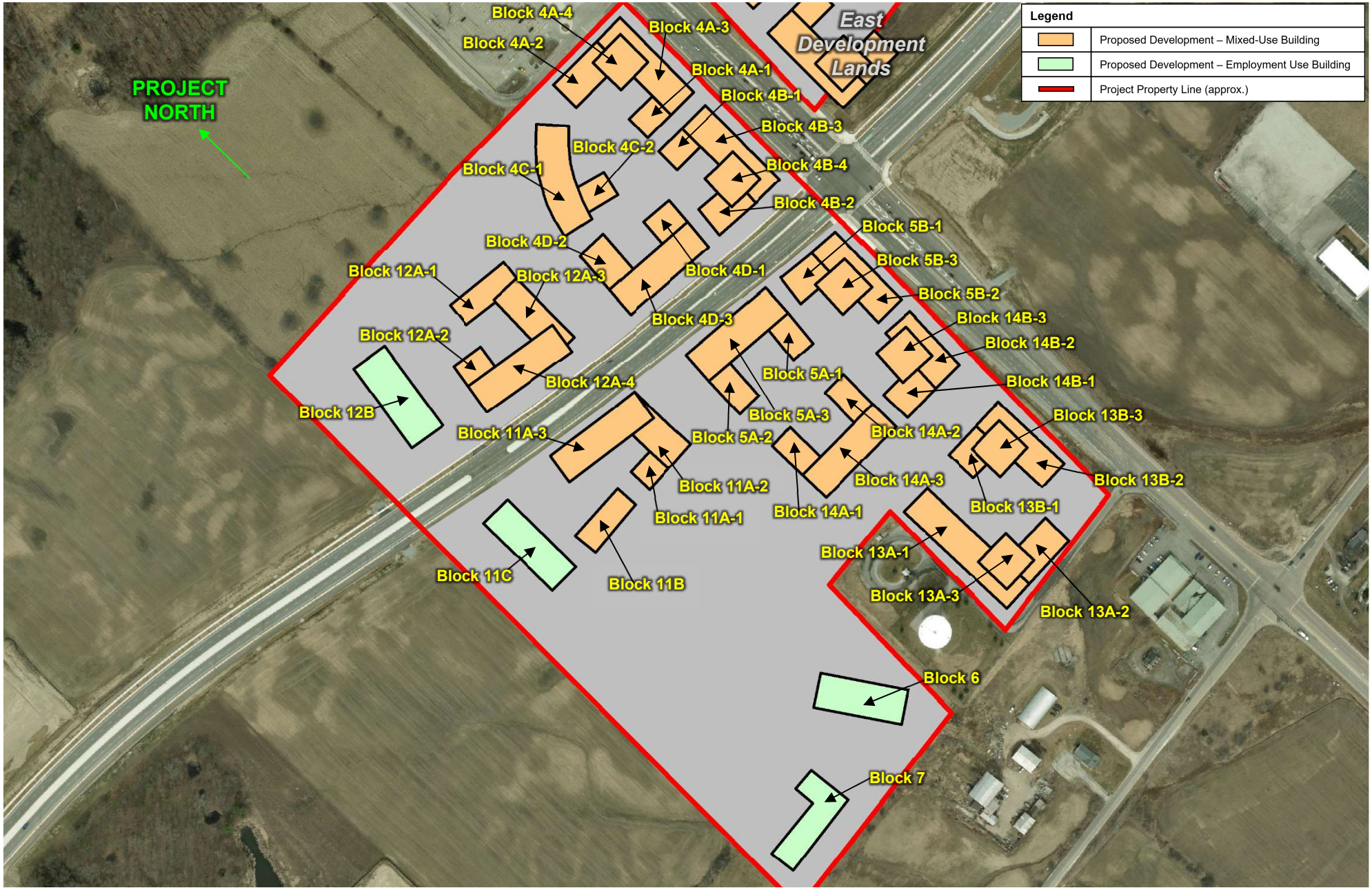
Table F1: Summary of Ventilation and Warning Clause and Barrier Requirements

Building	Barrier (Y/N)[1]	Ventilation Requirement	Required Warning Clause(s)
Block 4A-1	Y	Provision for AC	Type B, Type C
Block 4A-2	Y	Central AC	Type B, Type D
Block 4A-3	Y	Central AC	Type B, Type D
Block 4A-4	Y	Central AC	Type B, Type D
Block 4B-1	N	Provision for AC	Type A, Type C
Block 4B-2	Y	Central AC	Type B, Type D
Block 4B-3	Y	Central AC	Type B, Type D
Block 4B-4	Y	Central AC	Type B, Type D
Block 4C-1	N	Provision for AC	Type A, Type C
Block 4C-2	Y	Central AC	Type B, Type D
Block 4D-1	N	Provision for AC	Type A, Type C
Block 4D-2	Y	Provision for AC	Type B, Type C
Block 4D-3	Y	Central AC	Type B, Type D
Block 5A-1	N	Provision for AC	Type A, Type C
Block 5A-2	N	Provision for AC	Type A, Type C
Block 5A-3	N	Central AC	Type A, Type D
Block 5B-1	Y	Central AC	Type B, Type D
Block 5B-2	Y	Central AC	Type B, Type D
Block 5B-3	Y	Central AC	Type B, Type D
Block 11A-1	N	Provision for AC	Type A, Type C
Block 11A-2	N	Central AC	Type A, Type D
Block 11A-3	Y	Central AC	Type B, Type D
Block 11B	Y	Provision for AC	Type B, Type C
Block 12A-1	Y	Provision for AC	Type B, Type C
Block 12A-2	Y	Provision for AC	Type B, Type C

Table F1: Summary of Ventilation and Warning Clause and Barrier Requirements (continued)

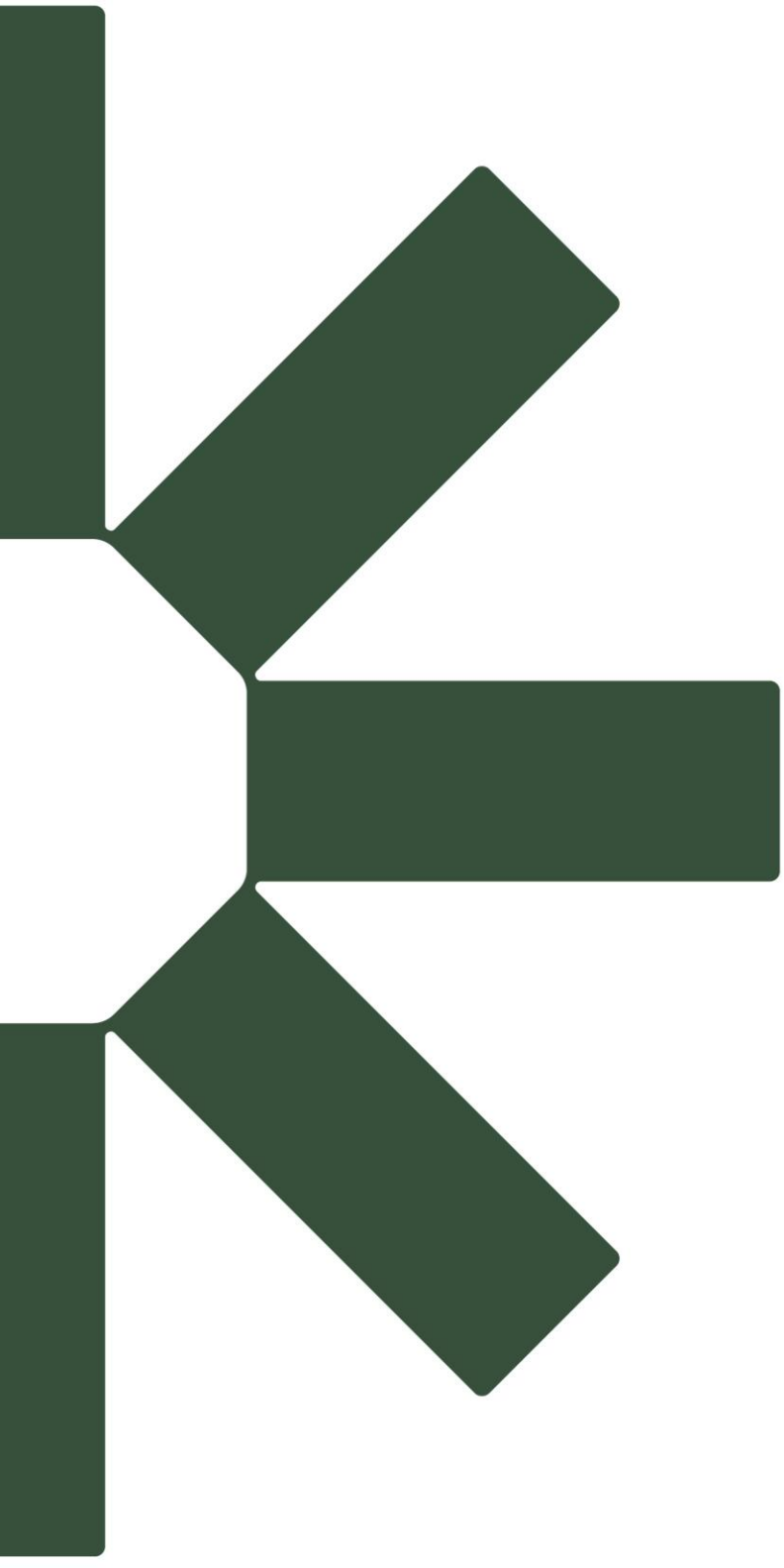
Building	Barrier (Y/N)?	Ventilation Requirement	Required Warning Clause(s)
Block 12A-3	Y	Central AC	Type B, Type C
Block 12A-4	Y	Provision for AC	Type B, Type D
Block 13A-1	N	Provision for AC	Type A, Type C
Block 13A-2	Y	Central AC	Type B, Type D
Block 13A-3	N	Central AC	Type A, Type D
Block 13B-1	Y	Provision for AC	Type B, Type C
Block 13B-2	Y	Central AC	Type B, Type D
Block 13B-3	Y	Central AC	Type B, Type D
Block 14A-1	N	Provision for AC	Type A, Type C
Block 14A-2	N	Provision for AC	Type A, Type C
Block 14A-3	N	Provision for AC	Type A, Type C
Block 14B-1	Y	Provision for AC	Type B, Type C
Block 14B-2	Y	Central AC	Type B, Type D
Block 14B-3	Y	Central AC	Type B, Type D
Block 6	---	---	---
Block 7	---	---	---
Block 11C	---	---	---
Block 12B	---	---	---

Notes: [1] The exact specifications and extent of the required mitigation measures will be fully determined as part of noise studies which will be required as part of future planning applications, including Zoning By-law Amendments and Site Plan Approvals.



INFRASTRUCTURE ONTARIO	True North	Scale: 1:4,000	METRES
TRAFALGAR LANDS DEVELOPMENT – WEST LANDS – OAKVILLE, ONTARIO		Date: Feb. 5, 2026 Rev. 1	Figure No. **F1**
PROPOSED DEVELOPMENT BUILDINGS – WITH BUILDING IDENTIFIERS		Project No. 241.031032.00001	

SLR



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