Choice Properties Limited Partnership 683-685 Warden Avenue

Compatibility & Mitigation Study Toronto, ON

> SLR Project No: 241.30167.00000 June 2021



Compatibility & Mitigation Study 683-685 Warden Avenue Toronto, ON

SLR Project No.: 241.30167.00000, Version 1

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for

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1. INTRODUCTION

SLR Consulting (Canada) Ltd. (SLR), was retained by Choice Properties Limited Partnership (Choice) to conduct a Compatibility / Mitigation Study for their proposed mixed-use development, to be located at 683-685 Warden Avenue in Toronto, Ontario ("the Project"). This assessment has been completed in support of the Zoning By-law Amendment ("ZBA") application with the City of Toronto.

Potential environmental impacts from the following sources have been considered:

- Industrial noise and vibration; and
- Transportation-related noise and vibration (road, rail, and air traffic).

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

- The City of Toronto's Terms of Reference for Compatibility/ Mitigation Studies;
- The Provincial Policy Statement;
- Ministry of the Environment, Conservation and Parks ("MECP") Guidelines D-1 and D-6;
- MECP Publication NPC-300 noise guidelines for industrial and transportation;
- The City Noise By-law (Chapter 591 of the Municipal Code); and
- MECP Publication NPC-207 draft vibration guidelines for industry.

This report is intended to meet the requirements "Compatibility/ Mitigation Study" Terms of Reference published by the City of Toronto. This report identifies existing and potential land use compatibility issues and identifies and evaluates 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.

Appendix A summarizes the any mitigation measures and warning clause recommendations developed in this report.

2. DESCRIPTION OF DEVELOPMENT AND SURROUNDINGS

2.1 PROPOSED DEVELOPMENT

The proposed development is located at 683-685 Warden Avenue in the City of Toronto. Currently, the site is an open field. A context plan can be found in **Figure 1**. Excerpts from the site plan is shown in **Figure 2**. The site plan and available architectural drawings are provided in **Appendix B**.

The proposed development includes multiple new buildings. The westerly building consists of four towers (Towers C through F) that range in height between 19 and 36 storeys and are atop a common single storey podium. The easterly building consists of two mid-rise towers (Buildings A and B) that are both 13-storeys in height with a common single storey podium.

Outdoor amenity spaces associated with the new development are located on the podium roof (Level 2). There is an outdoor bridge connecting the east building and west building at Level 2. There are also grade level amenity areas that slope upwards towards the central amenity space from the east and west edges of the site. A proposed park is planned at the east edge of the site.

2.2 SURROUNDINGS

Immediately surrounding the site are Warden Woods and Taylor Massey Creek to the southwest through northwest, a low-rise commercial development and Warden Transformer Station to the north, low-rise residential buildings to the northeast through southeast, and low-rise commercial and residential developments to the south. Immediately southwest of the site is an existing high-rise residential building. Lake Ontario is located approximately 2.6km to the southeast.

3. 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 Ontario's planning regime are organized such that generic policy is informed by specific policy, guidance, and legislation, as follows:

- The Provincial Policy Statement ("PPS" sets out goals making sure adjacent land uses are compatible from a health and safety perspective and are appropriately buffered; then
- The Ministry of the Environment, Conservation & Parks ("MECP") D-series of guidelines set out methods to determine if assessments are required (areas of influence, recommended 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 PROVINCIAL POLICY STATEMENT

The PPS "provides policy direction on matters of provincial interest related to land use planning and development. As a key part of Ontario's policy-led planning system, the Provincial Policy 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's 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, such as Halton Region's Regional Official Plan. The current 2020 PPS came into effect on May 1, 2020. Policy direction concerning land use compatibility is provided in Section 1.2.6 of the PPS.

From the current 2020 version:

"1.2.6 Land Use Compatibility

1.2.6.1 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.

1.2.6.2 Where avoidance is not possible in accordance with policy 1.2.6.1, planning authorities shall protect the long-term viability of existing or planned industrial, manufacturing or other uses that are vulnerable to encroachment by ensuring that the planning and development of proposed adjacent sensitive land uses are only permitted if the following are demonstrated in accordance with provincial guidelines, standards and procedures:

- a) there is an identified need for the proposed use;
- b) alternative locations for the proposed use have been evaluated and there are no reasonable

alternative locations;

- c) adverse effects to the proposed sensitive land use are minimized and mitigated; and
- d) potential impacts to industrial, manufacturing or other uses are minimized and mitigated."

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.

3.2 CITY OF TORONTO OFFICIAL PLAN AMENDMENT NO. 231

The City of Toronto has recently released a Terms of Reference for Compatibility/ Mitigation Studies, based on the framework developed under Official Plan Amendment No. 231 (OPA 231). The Terms of Reference can be found on the City's website at:

https://www.toronto.ca/city-government/planning-development/application-forms-fees/building-toronto-together-a-development-guide/application-support-material-terms-of-reference/

The purpose of the compatibility/mitigation study is to identify any existing and potential land use compatibility issues and identify and evaluate options to achieve appropriate design, including buffering and/or separation distances between land uses.

The compatibility/mitigation study is to provide a written description of:

- Potential land use compatibility impacts by type (traffic, noise, vibration, dust, odour, etc.), including severity, frequency and duration of impacts that may cause an adverse effect on the proposed development;
- Existing approvals from the MECP;
- Within the immediate area of the proposed development, the history of complaints received by the City or MECP;
- Potential intensification or operational changes such as expansion plans for existing major facilities in the area;
- Potential land use compatibility issues that may have a negative impact on nearby employment areas and major facilities

Where a land use compatibility issue is identified, the compatibility/mitigation study should identify options to achieve appropriate design, such as buffering/separation distance, at-source mitigation or at-receptor mitigation.

3.3 D-SERIES OF GUIDELINES

The D-series of guidelines were developed by the MECP in 1995 as a means to assess recommended 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 D3), 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 guideline specifically addresses 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".

To minimize the potential to cause an adverse effect, potential areas of influence and recommended minimum setback distances are included within the guidelines. The areas of influence and recommended separation distances from the guidelines are provided in the table below.

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

Industry Classification	Area of Influence	Recommended Minimum Setback Distance
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 the following table:

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

Category	Outputs	Scale	Process	Operations / Intensity	Possible Examples
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 annoyance 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
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

3.3.1 REQUIREMENTS FOR ASSESSMENTS

Guideline D-6 requires 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 in force, still 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 and Publication NPC-300).

3.3.2 **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 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 and noise guidelines are met.

4. NOISE ASSESSMENT

4.1 INDUSTRIAL (STATIONARY) SOURCES

4.1.1 GUIDELINES

4.1.1.1 MECP Publication NPC-300 Guidelines for Stationary Noise

The applicable MECP noise guidelines for new sensitive land uses adjacent to existing industrial commercial uses are provided in MECP Publication NPC-300. NPC-300 revokes and replaces the previous noise assessment guideline, Publication LU-131 and Publication NPC-205, which was previously used for assessing noise impacts as part of Certificates of Approval / Environmental Compliance Approvals granted by the MECP for industries.

The new guideline sets out noise limits for two main types of noise sources:

- Non-impulsive, "continuous" noise sources such as ventilation fans, mechanical equipment, and vehicles while moving within the property boundary of an industry. Continuous noise is measured using 1-hour average sound exposures (Leq (1-hr) values), in dBA; and
- Impulsive noise, which is a "banging" type noise characterized by rapid rise time and decay. Impulsive noise is measured using a logarithmic mean (average) level (L_{LM}) of the impulses in a one-hour period, in dBAI.

Furthermore, the guideline requires an assessment at, and provides separate guideline limits for:

- Outdoor points of reception (e.g., back yards, communal outdoor amenity areas); and
- Façade points of reception such as the plane of windows on the outdoor façade which connect onto noise sensitive spaces, such as living rooms, dens, eat-in kitchens, dining rooms and bedrooms.

The applicable noise limits at a point of reception are the higher of:

- The existing ambient sound level due to road traffic, or
- The exclusion limits set out in the guideline.

The following tables set out the exclusion limits from the guideline.

Table 3: NPC-300 Exclusion Limits for Non-Impulsive Sounds (Leq (1-hr), dBA)

	Class :	1 Area	Class 4 Area		
Time of Day	Plane of Windows of Noise Sensitive Spaces	Outdoor Points of Reception	Plane of Windows of Noise Sensitive Spaces	Outdoor Points of Reception	
7 am to 7 pm	50	50	60	55	
7 pm to 11 pm	50	50	60	55	
11 pm to 7 am	45	n/a	55	n/a	

	No. of Impulses	Class 1 Area		Class 4 Area	
Time of Day	in a 1-hour Period	Plane of Windows of Noise Sensitive Spaces	Outdoor Points of Reception	Plane of Windows of Noise Sensitive Spaces	Outdoor Points of Reception
	9 or more	50	50	60	55
	7 to 8	55	55	65	60
	5 to 6	60	60	70	65
7 am to 11 pm	4	65	65	75	70
	3	70	70	80	75
	2	75	75	85	80
	1	80	80	90	85
	9 or more	45	n/a	55	n/a
	7 to 8	50	n/a	60	n/a
	5 to 6	55	n/a	65	n/a
11 pm to 7 am	4	60	n/a	70	n/a
	3	65	n/a	75	n/a
	2	70	n/a	80	n/a
	1	75	n/a	85	n/a

Table 4: NPC-300 Exclusion Limits for Impulsive Sounds (LLLM, dBAI)

Notes:

n/aNot Applicable. Outdoor points of reception are not considered to be noise sensitive during the overnight period.-Area classifications are:Class 1 - UrbanClass 4 - Urban Redevelopment

The applicable guideline limits for infrequent events such as emergency generator set testing are +5 dB higher than the values above.

4.1.2 APPLICATION OF THE NPC-300 GUIDELINES

The stationary noise guidelines apply only to residential land uses and to noise-sensitive commercial and institutional uses, as defined in NPC-300 (e.g., schools, daycares, hotels). For the Project, the stationary noise guidelines only apply to the residential portions of the development, including:

- Individual residences;
- Communal indoor amenity areas; and
- Communal outdoor amenity areas.

All of the above have been considered as noise-sensitive points of reception in the analysis.

4.1.3 PROPOSED AREA CLASSIFICATION

Under Ministry of the Environment, Conservation & Parks (MECP) Publication NPC-300 noise guidelines, noise sensitive receptors are defined using area classifications. The receptor areas are classified as either:

- Class 1 Urban areas
- Class 2 Suburban / semi-rural areas
- Class 3 Rural areas
- Class 4 Infill areas

Depending on the receptor area classification, different guideline limits apply. Classes 1, 2 and 3 were included in the predecessor guidelines to NPC-300, namely MECP Publications NPC-205, NPC-232, and LU-131. The Class 4 designation is a new designation, intended to allow for infill and redevelopment, whilst still protecting residences from undue noise.

Based on the nature of the area, the Class 1 area urban sound level limits apply. The area is urban in nature and dominated by man-made sounds, including road traffic noise and an "urban hum", 24-hours per day.

4.1.3.1 City of Toronto Noise By-law

The City of Toronto Noise By-law (Chapter 591 of the Municipal Code) applies to noise emissions within the City, including from industrial/ commercial uses. The following provisions of the By-law apply:

Section 591-2.4. Loading and unloading.

No person shall emit or cause or permit the emission of sound resulting from loading, unloading, delivering, packing, unpacking, and otherwise handling any containers, products or materials from 11 p.m. to 7 a.m. the next day, except until 9 a.m. on Saturdays, Sundays and statutory holidays.

And:

Section 591-2.8. Stationary sources and residential air conditioners.

A. No person shall cause or permit the emission of sound from a stationary source or residential air conditioner that, when measured with a sound level meter a point of reception, has a sound level (expressed in terms of Leq for a one-hour period) exceeding 50 dB(A) or the applicable sound level limit prescribed in provincial noise pollution control guidelines.

B. Subsection A does not apply to the emission of sound from a stationary source that is in compliance with a provincial environmental compliance approval.

4.1.3.2 Guideline Summary And Interpretation

The following presents a summary of the guidelines and settlements presented above.

- The applicable Ministry of the Environment noise guideline for assessing new residential development applications is Publication NPC-300, which is also referenced in the City Noise Bylaw. Noise levels from industry meeting NPC-300 requirements will meet the requirements of Bylaw Section 591-2.8
- The Class 1 limits have been adopted in this study.

4.1.4 SITE VISIT AND NOISE OBSERVATIONS

A site visit was conducted in the area on June 15, 2021, by SLR personnel to identify significant sources of noise or vibration in the Project neighbourhood.

During the site visit, it was observed that the acoustic environment surrounding the proposed development is dominated by traffic noise on Warden Avenue.

Figure 3 shows the location of the surrounding commercial building and facilities mentioned in the below.

The Warden bus terminal is located approximately 500 m north of the proposed development and had the potential to be a major source of noise. During the site visit, it was noted that the main noise source from the terminal corresponds to the bus traffic entering and leaving the station as well as subways entering and leaving the station. Subway noise was included in the transportation noise below. Based on a preliminary assessment of stationary noise impacts using TTC traffic data for the bus terminal, the

terminal noise is expected to be insignificant at the Project. Noise from rooftop HVAC equipment from the station building was not audible on TTC property, at ground level areas surrounding the Terminal.

The Warden Transformer Substation is located approximately 200 m north of the Project. Nonetheless, no significant noise was detected from this facility. As the substation transformers are expected to meet the NPC-300 guideline limits at the closer residential units to the east, the guideline limits are also expected to be met at the Project. Therefore, a detailed assessment from the substations was not completed.

Additionally, no audible noise was detected from the commercial/manufacturing building to the north, the Access Storage facility to the south and the TD Canada building to the south. Therefore, a detailed assessment from these sources was not completed.

4.1.5 SUMMARY OF SURROUNDING STATIONARY NOISE SOURCES

As noted above, there are no significant surrounding sources of stationary noise that are anticipated to affect the Project.

4.1.6 REQUIRED NOISE MITIGATION MEASURES

No mitigation measures are required for the proposed development.

4.2 TRANSPORTATION SOURCES

4.2.1 MECP PUBLICATION NPC-300 GUIDELINES FOR TRANSPORTATION SOURCES

4.2.1.1 Indoor Criteria

The following table summarizes the criteria in terms of energy equivalent sound exposure (L_{eq}) levels for specific indoor noise-sensitive locations. These indoor criteria vary with sensitivity of the space. As a result, sleep areas have more stringent criteria than Living / Dining room space.

Type of Space	Time Period	Energy Equivalent Sound Exposure Level L _{eq} (dBA) [1]		Assessment Location		
		Road	Rail [2]			
Criteria for Residential Units						
	Daytime (7 am to 11 pm)	45	40	Indoors		
Living / Dining Room	Night-time (11 pm to 7 am)	45	40	Indoors		
	Daytime (7 am to 11 pm)	45	40	Indoors		
Sleeping Quarters	Night-time (11 pm to 7 am)	40	35	Indoors		
Supplementary Criteria for Non-Residential Uses	Supplementary Criteria for Non-Residential Uses					
General offices, reception areas, retail stores, etc.	Daytime (7 am to 11 pm)	50	45	Indoors		
Living/dining areas of residences, hospitals, schools, nursing/retirement homes, day-care centres, theatres, places of worship, libraries,	Daytime (7 am to 11 pm))	445	40	Indoors		

Table 5: NPC-300 Sound Level Criteria for Road and Rail Noise

Type of Space	Time Period	Energy Equivalent Sound Exposure Level L _{eq} (dBA) [1]		Assessment Location	
		Road	Rail [2]		
individual or semi-private offices, conference rooms, reading rooms, etc.					
Sleeping quarters of hotels/motels	Night-time (11 pm to 7 am)	45	40	Indoors	
Sleeping quarters of residences, hospitals, nursing/retirement homes, etc.	Night-time (11 pm to 7 am)	40	35	Indoors	

 Notes:
 [1] Road and Rail noise impacts are to be combined for assessment of impacts.

 [2] Whistle/warning bell noise is excluded for OLA noise assessments and included for indoor assessments, where applicable.

4.2.1.2 Ventilation and Warning Clauses

The following table summarizes requirements for ventilation where windows potentially would have to remain closed as a means of noise control. Despite the implementation of ventilation measures where required, some occupants may choose not to use the ventilation means provided, and as such, warning clauses advising future occupants of the potential excess over the indoor guideline limits are required.

Assessment Time Period		Energy Equiv Exposure Lev	valent Sound vel - L _{eq} (dBA)	Ventilation and		
Location		Road Rail ^[1]		Warning Clause Requirements		
		≤ 55		≤ 55		None
	Daytime (7am to 11 pm)	56 to 65 incl.		Forced Air Heating with provision to add AC + Applicable Warning Clause(s)		
Plane of Window		> 65		Central AC + Applicable Warning Clause(s)		
window .	Night-time (11 pm to 7 am)	51 to 60 incl.		Forced Air Heating with provision to add AC+ Applicable Warning Clause(s)		
		> 60		Central AC + Applicable Warning Clause(s)		

Table 6: NPC-300 Ventilation and Warning Clause Requirements

Notes: [1] Whistle/warning bell noise is excluded.

[2] Road and Rail noise is combined for determining Ventilation and Warning Clause requirements.

4.2.1.3 Building Shell Requirements

The following table provides sound exposure (L_{eq}) thresholds which if exceeded, require the building shell and components (i.e., wall, windows) to be designed and selected accordingly to ensure that the indoor location criteria are met.

Assessment	Time Period	Energy Equiva Exposure Leve	llent Sound ll - L _{eq} (dBA)	Component Requirements	
Location		Road	Rail [1]		
Frank	Daytime (7am to 11 pm)	> 65	> 60	Designed/ Selected to Meet	
Facade	Night-time (11 pm to 7 am)	> 60	> 55	Indoor Requirements [2]	

Table 7: NPC-300 Building Component Requirements

Notes: [1] Including whistle/warning bell noise.

[2] The resultant sound isolation parameter from Road and Rail are to be combined for determining the overall acoustic parameter.

4.2.1.4 Outdoor Sound Level Criteria

The following table summarizes criteria in terms of energy equivalent sound exposure (L_{eq}) levels for the outdoor noise-sensitive locations, with a focus of outdoor areas being amenity spaces (called Outdoor Living Areas (OLAs) per NPC-300).

Table 8: NPC-300 Outdoor Sound Level Criteria for Road and Rail Noise

Type of Space	Time Period	Energy Equivalent Sound Exposure Level L _{eq} (dBA) [1, 2]	Assessment Location	
OLA	Daytime (0700-2300h)	55	Outdoors	

Notes: [1] Excluding whistle/warning bell noise for OLA noise assessments

[2] Road and Rail noise impacts are to be combined for assessment of OLA impacts.

4.2.1.5 Mitigation and Warning Clauses

The following table summarizes mitigation and warning clause requirements for outdoor amenity spaces.

Table 9: NPC-300 Outdoor Living Area Mitigation & Warning Clause Requirements

Assessment Location	Time Period	Energy Equivalent Sound Exposure Level - L _{eq} ^{[1][2]} (dBA)	Mitigation and Warning Claus Requirements ^[3]	
		≤ 55	None	
ΟΙΑ	Daytime	56 to 60 incl.	Noise Control Measures may be applied, and/o Applicable Warning Clause(s)	
OLA (0700-23	(0700-2300h)	> 60	Noise barrier to reduce noise to 55 dBA, or Noise barrier to reduce noise to 60 dBA and Applicable Warning Clause(s)	

Notes: [1] Whistle/warning bell noise is excluded.

[2] Road and Rail noise is combined for determining Ventilation and Warning Clause requirements.

As indicated in NPC-300, noise control measures may be applied to reduce sound levels to 55 dBA. If measures are not provided, potential purchasers/tenants are required to be informed of potential noise problems with the applicable Warning Clause(s).

If noise impacts are predicted to be greater than 60 dBA, noise control measures are required to reduce noise levels to 55 dBA. If noise control measures are not technically feasible for meeting 55 dBA, an excess of up to 5 dBA is allowed, with the inclusion of the applicable Warning Clause(s).

4.2.2 TRAFFIC DATA AND FUTURE PROJECTIONS

Road traffic data was obtained from the project traffic consultant BA Consulting Group Ltd., including 2031 Turning Movement Counts (TMC's) for Warden Avenue. Future AADTs were calculated based on the provided TMC's.

Copies of all traffic data used and calculations can be found in **Appendix C**. The following summarizes the road traffic volumes used in the analysis.

Table 10: Summary of Road Traffic Data Used in the Analysis

Boodway Liek	Future Year 2031 Traffic	% Day Volur	/ Night ne Split	% Comme Break	Vehicle	
KUduway Lilik	Volume (AADT) ^[1]	Daytime	Night-time	Medium Trucks	Heavy Trucks	(km/h)
Warden Avenue	21010	90	10	3.3	2.8	50

Notes: [1] Calculated from TMC's provided by BA Consulting Group Ltd.

Rail (subway) traffic data was obtained directly from TTC. Copies of all rail traffic data used, and calculations can be found in **Appendix C**. The following summarizes the rail traffic volumes used in the analysis.

Table 11: Summary of Rail Traffic Data Used in the Analysis

Train Tyne	No. of Trains	(subways) ^[1]	Typical No. of	Typical No. of	Observed	
	Daytime	Night-time	Locomotives	Cars (Consist)	Speed (km/h)	
TTC	101	6	-	6	30	

Notes: [1] Data provided by TTC.

4.2.3 PROJECTED SOUND LEVELS

Road traffic sound levels at the proposed development were predicted using Cadna/A, a commercially available noise propagation modelling software. 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.

Noise from TTC subway railway lines was modelled using the environmental noise prediction algorithms produced by the United States Department of Transportation's Federal Transit Authority (FTA) for commuter rail cars. These up-to-date algorithms have been accepted by the MECP as a replacement for the MECP Sound from Trains Evaluation and Analysis Method (STEAM) model referenced in the Draft Protocol. Sound levels were predicted along the façades 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.

Ground absorption was assessed as reflective surfaces, as the majority of the intervening ground is asphalt or concrete. In calculating road and rail traffic noise levels to determine façade and outdoor

amenity areas, no reflections from building surfaces were accounted for, in keeping with NPC-300 requirements (order of reflection set to 0).

Total façade sound levels are shown in **Figures 4 and 5** for daytime and nighttime respectively. Overall predicted sound levels are provided in the following table:

Dettetter						
Section	Facade	Road	Rail Locomotive	Rail Wheel	Rail Bell/Whistle	Overall
Daytime (7am to	o 11 pm)					
	North	52	-	35	-	52
Building A	East	38	-	26	-	39
Building A	South	47	-	32	-	48
	West	51	-	34	-	52
	North	49	-	33	-	49
	East	36	-	26	-	37
Building B	South	51	-	34	-	51
	West	52	-	35	-	52
	North	54	-	34	-	55
	East	42	-	27	-	42
Tower C	South	53	-	37	-	53
	West	56	-	40	-	56
	North	53	-	36	-	53
	East	40	-	26	-	41
Tower D	South	55	-	36	-	55
	West	56	-	39	-	56
	North	62	-	40	-	62
	East	45	-	31	-	45
Tower E	South	62	-	39	-	62
	West	66	-	43	-	66
	North	62	-	40	-	62
	East	45	-	31	-	45
Tower F	South	62	-	37	-	62
	West	66	-	42	-	66
Night-time (11 p	m to 7 am)					
	North	45	-	26	-	46
	East	32	-	16	-	32
Building A	South	41	-	22	-	41
	West	45	-	25	-	45
	North	43	-	24	-	43
Building B	East	30	-	16	-	30
	South	45	-	25	-	45

Table 12: Overall Projected Sound Levels

Duilding						
Section	Facade	Road	Rail Locomotive	Rail Wheel	Rail Bell/Whistle	Overall
	West	45	-	26	-	45
	North	48	-	28	-	48
TowarC	East	35	-	18	-	35
TowerC	South	47	-	28	-	47
	West	49	-	31	-	49
	North	46	-	26	-	46
	East	34	-	17	-	34
TowerD	South	48	-	26	-	48
	West	49	-	30	-	49
	North	55	-	31	-	55
Tauran F	East	39	-	22	-	39
TowerE	South	55	-	30	-	55
	West	59	-	34	-	59
	North	55	-	31	-	55
	East	38	-	22	-	38
Tower F	South	56	-	28	-	56
	West	59	-	33	-	59

The façade railway sound levels are predicted to be below 60 dBA and 55 dBA during the daytime and nighttime periods, respectively. The first few floors of the west façade of Tower E and F (facing directly onto Warden Ave.) are predicted to be above the 65 dBA daytime criteria. The remainder of the roadway impacts are predicted to be at or below the daytime and nighttime criteria. Therefore, an assessment of building components is required for these facades of the development.

4.2.4 OUTDOOR LIVING AREA REQUIREMENTS

Common amenity space Outdoor Living Areas (OLA) of the proposed development will be located on the second floor in the west and east side of the development.

As the development includes a common amenity space for all occupants, the private terraces are not considered to be the only outdoor amenity space available. Therefore, an assessment of private terraces was excluded based on the definitions outlined in NPC-300. In addition, private terraces are less than 4 m in depth and do not meet the MECP minimum requirements for inclusion. Therefore, only an assessment of impacts within the outdoor common amenity spaces was completed.

Predicted overall sound levels are provided in the following table, and are also shown in Figure 6.

Amenity Area	Predicted Sound Level (dBA)	Guideline Limit [1] (dBA)	Warning Clause / Noise Mitigation Measure	Meets Guideline?
Floor 2 – West Side (OLA 1)	54	55 / 60	None / None	Yes
Floor 2 - East Side (OLA 2)	34	55 / 60	None / None	Yes

Table 13: Predicted Outdoor Amenity Area Sound Levels

Notes: [1] Sound levels up to 60 dBA are allowed with the use of a Type A or Type B Warning Clause.

Sound levels are predicted to be below 60 dBA at all outdoor amenity spaces, therefore, physical noise control measures and warning clauses are not required.

4.3 FAÇADE ASSESSMENT

Based on the roadway levels shown in **Table 13**, façade sound levels were predicted to exceed the above criteria at the west façade of Towers E and F. Therefore, an assessment of glazing requirements is necessary for meeting the indoor sound level requirements outlined in **Table 6**.

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

4.3.1 GLAZING ASSUMPTIONS AND CALCULATION INPUTS

The following assumptions were considered for the Towers E and F, as detailed floor plans were not available at the time of the assessment:

- 50% glazing for bedroom facades;
- 70% glazing for living room facades;
- sleeping quarters were assumed to have a façade-to-floor area ratio of 100%;
- living/dining rooms were assumed to have a façade-to-floor area ratio of 50%;
- non-glazing portion of wall was assumed to have a rating of STC 45 for all locations.

4.3.2 GLAZING REQUIREMENTS

Typical OBC windows and walls are expected to be sufficient. Any glazing configuration meeting the minimum structural and safety requirements of the Ontario Building Code, which generally produces a minimum STC for glazed elements of STC 29, is sufficient. Corner rooms of the building (two exposed facades) may require slightly higher STC construction.

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

Final acoustical requirements should be reviewed as part of the final design prior to the issuance of building permit drawings.

4.3.3 VENTILATION REQUIREMENTS

Based on the predicted façade noise levels, forced air heating with provisions for future installation of central air-conditioning and a **Type C** warning clause is recommended for all the units in Towers E and F, except for the first few floor units on Tower E and F that face west.

Based on the predicted façade noise levels, mandatory air conditioning and a **Type D** Warning Clause is recommended for Tower E and F, first few floors facing west.

See **Appendix A** for warning clause details. The warning clauses must be registered on Title and included in all agreements of purchase and sale or lease and all rental agreements.

4.4 SUMMARY OF NOISE CONCLUSIONS AND RECOMMENDATIONS

The potential for noise impacts on and the proposed development have been assessed. Based on the results of our studies:

- Adverse noise impacts from industrial facilities are not anticipated at the Project. The requirements of MECP Guideline D-6 are met.
- With the inclusion of warning clauses, adverse noise impacts from transportation sources are not anticipated.

5. **VIBRATION ASSESSMENT**

5.1 TRANSPORTATION VIBRATION SOURCES

The main cause of vibration, at the proposed site, is due subway trains in operation along the TTC Bloor-Danforth subway line operates approximately 80m west of the proposed development.

5.2 TRANSPORTATION VIBRATION CRITERIA

5.2.1 TTC REQUIREMENTS

There are no MECP guidelines with respect to TTC vibration for land use approvals. Additionally, the TTC has not specified vibration limits or criteria for developments surrounding its infrastructure. However, the MECP has published criteria for specific TTC transit projects in the past, and has draft criteria for general transit projects in the Province.

Both the former MECP/TTC 1993 "Protocols for Noise and Vibration Assessment" and the MECP 2010 Draft "Guideline for Noise and Vibration Assessment of Transit Projects" require that vibration levels from TTC vehicle pass-bys, measured in terms of root-mean-square (RMS) vibration, should not exceed 0.10 mm/s at the point of reception, which in this case would be the proposed building foundation.

5.3 VIBRATION ASSESSMENT

The TTC Bloor-Danforth subway line operates approximately 80m west of the proposed development. Vibration levels were measured to assess compliance with the applicable TTC guidelines. As the development lands are close to the subway system, a detailed transportation vibration assessment is required under the guidelines.

A site visit was conducted on June 15, 2021 by SLR staff to conduct measurements of ground-borne vibrations on the proposed site. Measurements were conducted at a single location on Warden Avenue. The location was chosen at the closest setbacks available, similar to the western façade of the proposed development. The measurement location is shown in **Figure 7**.

Several measurements were conducted at the mentioned location, to measure several subway passbys. The data were post-processed to compute the 1-second sliding window RMS amplitudes of vibration velocity in units of mm/s. The measured vertical velocities ranged from 0.02 mm/s RMS to 0.04 mm/s RMS. This is well below the applicable limits of 0.10 mm/s RMS and no mitigation measures are required.

5.4 INDUSTRIAL (STATIONARY) SOURCES

There are no existing or proposed significant industrial vibration sources within 75 m of the Project, such as large stamping presses or forges. Any future industries which may use significant vibration sources will be able to incorporate vibration isolation into their design. Under applicable MECP guidelines, a detailed vibration assessment is not required. Adverse impacts from industrial vibration are not anticipated.

5.5 SUMMARY OF VIBRATION CONCLUSIONS AND RECOMMENDATIONS

The potential for vibration impacts on and the proposed development have been assessed. Based on the results of our studies:

- Vibration levels from TTC subway activities are expected to meet the 0.10 mm/s RMS criterion in the proposed development.
- Adverse vibration impacts from industrial facilities are not anticipated at the Project. The requirements of MECP Guideline D-6 are met.

6. CONCLUSIONS

A compatibility/ mitigation assessment has been completed, examining the potential for noise and vibration impacts from road and rail sources and from nearby industrial land uses to could affect the proposed development Project.

Warning clauses are required to ensure that the applicable transportation noise guidelines are met.

Industrial and transportation vibration impacts have been assessed. Adverse impacts from vibration are not anticipated.

The required warning clauses are summarized in **Appendix A**. These measures can be secured as part of conditions for site plan approval.

7. **REFERENCES**

City of Toronto Noise By-law, Municipal Code Chapter 591

International Organization for Standardization, (ISO, 1989), ISO 2631-2: 2003 (1989) *Evaluation of human exposure to whole-body vibration — Part 2: Continuous and shock-induced vibrations in buildings (1 to 80 Hz)*

National Research Council Canada (NRCC, 1985), Building Practice Note BPN 56: Controlling Sound Transmission Into Buildings

Ontario Ministry of the Environment, Conservation & Parks (MECP), 1989, ORNAMENT Ontario Road Noise Analysis Method for Environment and Transportation – Technical Document.

Ontario Ministry of the Environment, Conservation & Parks (MECP), 1994, Environmental Noise Guidelines for Installation of Residential Air Conditioning Devices

Ontario Ministry of the Environment, Conservation & Parks (MECP, 1995), Guideline D-1: Land Use Compatibility

Ontario Ministry of the Environment, Conservation & Parks (MECP, 1995), Guideline D-6: *Compatibility Between Industrial Facilities and Sensitive Land Uses*

Ontario Ministry of the Environment, Conservation & Parks (MECP, 2011), *Guideline for Noise and Vibration Assessment of Transit Projects (Draft)*

Ontario Ministry of the Environment, Conservation & Parks (MECP), 2013, Publication NPC-300: Environmental Noise Guideline: Stationary and Transportation Sources – Approval and Planning

Ontario Ministry of Municipal Affairs and Housing (MMAH, 2014). Provincial Policy Statement

Ontario Ministry of Municipal Affairs and Housing (MMAH, 2019). Draft Provincial Policy Statement.

U.S. Federal Transit Administration (FTA, 2013), Transit Noise and Vibration Impact Assessment Manual

8. STATEMENT OF LIMITATIONS

This report has been prepared and the work referred to in this report has been undertaken by SLR Consulting (Canada) Ltd. (SLR) for Choice Properties Limited Partnership, hereafter referred to as the "Client". It is intended for the sole and exclusive use of the Client. The report has been prepared in accordance with the Scope of Work and agreement between SLR and the Client. Other than by the Client and as set out herein, copying or distribution of this report or use of or reliance on the information contained herein, in whole or in part, is not permitted unless payment for the work has been made in full and express written permission has been obtained from SLR.

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CHOICE PROPERTIES LIMITED PARTNERSHIP	True North	Scale:	1:10,000	METRES	
685 WARDEN AVENUE		Date: Jun 22, 2021	Pov 10		
SITE AND CONTEXT PLAN		Project No. 241-3016	67-0000		global environmental solutions
		-			





CHOICE PROPERTIES LIMITED PARTNERSHIP	True North	Scale: 1:7,0	0 METRES	
685 WARDEN AVENUE		Date: Jun 22 2021 Rev 1		
STATIONARY NOISE SOURCE LOCATIONS		Project No. 241-30167-0000	3	global environmental solutions



CHOICE PROPERTIES LIMITED PARTNERSHIP	True North	Scale: 1:800	METRES	
685 WARDEN AVENUE		Date: Jun 22 2021 Rev. 1.0		
FAÇADE SOUND LEVELS – ROADWAY + RAILWAY – DAYTIME	\bigcirc	Project No. 241-30167-0000	4	global environmental solutions



CHOICE PROPERTIES LIMITED PARTNERSHIP	True North	Scale: 1:800	METRES	
685 WARDEN AVENUE		Date: Jun 22 2021 Rev. 1.0		
FAÇADE SOUND LEVELS – ROADWAY + RAILWAY – NIGHTTIME	$\left \left\{ \right\} \right.$	Project No. 241-30167-0000	5	global environmental solutions



Date: Jun 22 2021 Rev 1.0		
Project No. 241-30167-0000	6	global environmental solutions
Date: Proje	Jun 22, 2021 Rev 1.0 ct No. 241-30167-0000	Jun 22, 2021 Rev 1.0 Figure No. ct No. 241-30167-0000 6



CHOICE PROPERTIES LIMITED PARTNERSHIP	True North	Scale: 1:800	METRES	<u> </u>
685 WARDEN AVENUE		Date: Jun 22 2021 Rev. 1.0		
VIBRATION MEASUREMENT LOCATION		Project No. 241-30167-0000	6	global environmental solutions



Warning Clauses

The following Warning Clauses should be registered on Title and/or included in the Agreement of Purchase and Sale or Lease and in the relevant Development Agreement:

MECP Type C – all units in Towers E and F, except west facades of first few floors

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

MECP Type D _ – First few floors of west facade in Towers E and F

"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."







1 TYPICAL FLOORS (09-11 BLDG F) & (09-12 BLDG D) 1: 200





3 TYPICAL FLOORS 12-13 (BLDG F) RZ159 1:200 2 TYPICAL FLOORS 13-17 (BLDG D) RZ159 1:200



685 Warden Avenue

685 Warden Avenue, Scarborough, ON

DESCRIPTION

DATE





Intersection	Mumt	Adjusted Bas	eline Existing	Heavy V	y Vehicle % 2031 Future Background		2031 Future Total		
intersection	www.	AM Peak Hr	PM Peak Hr	AM Peak Hr	PM Peak Hr	AM Peak Hr	PM Peak Hr	AM Peak Hr	PM Peak Hr
	NBL	175	115	3%	3%	175	115	225	140
	NBT	625	445	4%	3%	730	530	830	580
	NBR	285	265	19%	13%	285	265	295	270
	SBL	225	295	7%	2%	245	330	245	330
	SBT	325	510	4%	1%	380	590	400	645
Warden & St Clair	SBR	160	190	9%	1%	215	240	215	240
Warden & St clair	EBL	150	150	5%	3%	130	195	130	195
	EBT	710	995	5%	2%	750	995	750	995
	EBR	80	135	3%	1%	80	135	95	185
	WBL	65	85	3%	1%	65	85	65	90
	WBT	1015	735	2%	1%	1015	775	1015	775
	WBR	315	165	3%	2%	325	230	325	230
			-		-			-	
	NBL	0	0			0	0	0	0
	NBT	782	618			1175	855	1180	870
	NBR	0	0			0	0	25	65
	SBL	0	0			0	0	35	110
	SBT	471	747			485	780	495	785
Warden & Site Dwy (South)	SBR	0	0	Δεειιη	ad 2%	0	0	0	0
Warden & Site Dwy (South)	EBL	0	0	Assuit	100 270	0	0	0	0
	EBT	0	0			0	0	0	0
	EBR	0	0			0	0	0	0
	WBL	0	0			0	0	85	45
	WBT	0	0			0	0	0	0
	WBR	0	0			0	0	80	40

Notes:

2019 volumes at Warden & St Clair used as a baseline and adjusted using other historical data

Corridor Growth Assumptions								
Direction	AM	PM						
Warden - Northbound	1.0%	0.0%						
Warden - Southbound	0.0%	0.0%						
St Clair - Eastbound	2.5%	0.0%						
St Clair - Westbound	0.0%	2.5%						

Notes:

All rounded to nearest 0.5% *first 5 years capped at 2.5% **next 5 years capped at 1.0%

WARDEN STATION

YEARLY SUMMARY

		ALL DAY			MAXIMU	M HOUR	
YEAR	TO	FROM	TOTAL	A.M.	DIR.	P.M.	DIR.
1955		NO DATA AVAILA	BLE		NO DATA	A AVAILABLE	
1956							
1957							
1958							
1959							
1060							
1900							
1961							
1962							
1963							
1964							
1965							
1966							
1967							
1069							
1000	12 002	14.450	27.252	2 021	то	2 741	FROM
1969	12,803	14,450	27,255	5,651	10	3,741	FROIVI
1970	14,202	10,650	51,058	4,322	10	4,380	FROIVI
1971	17,065	18,090	35,155	4,470	TO	4,578	FROM
1972	20,480	19,369	39,849	5,971	TO	4,375	FROM
1973	18,390	20,886	39,276	5,616	TO	4,987	FROM
1974	24,020	25,220	49,240	6,349	TO	5,520	FROM
1975	27,403	28,166	55,569	7,189	то	5,976	FROM
1976	27.216	29.222	56.438	6.754	то	5.992	FROM
1977	22 539	25 944	48 483	5 903	TO	5,606	FROM
1079	20,754	23,544	40,405 61 166	7 1 2 4	то	5,000	EROM
1978	25,754	31,412	51,100	7,124	TO	0,088	FRON
1979	26,368	28,196	54,564	6,840	10	5,851	FROM
1980	26,213	27,111	53,324	7,277	TO	5,829	FROM
1981	18,527	21,561	40,088	4,561	TO	4,449	FROM
1982	19,543	22,543	42,086	3,778	TO	4,705	FROM
1983	16,967	21,359	38,326	3,950	TO	4,479	FROM
1984	18,391	21,739	40,130	4,391	TO	4,179	FROM
1985	17.738	21.873	39.611	3.552	то	3.824	FROM
1986	14.422	20.613	35.035	3,213	то	3,835	FROM
1987	16,200	18 432	34 632	3 643	TO	2 964	FROM
1000	14,260	10,452	22 751	2 051	то	2,504	EROM
1080	14,200	10,401	24 710	2,351	то	2,110	FROM
1989	10,514	18,205	34,719	3,237	10	3,110	FROIVI
1990	18,821	16,492	57,515	5,697	10	5,082	FROIVI
1991	15,682	17,036	32,/18	3,228	10	2,845	FROM
1992	15,131	16,191	31,322	2,853	TO	2,390	FROM
1993	12,056	15,524	27,580	2,561	TO	2,765	FROM
1994	11,201	17,080	28,281	2,120	TO	2,857	FROM
1995	11,978	14,690	26,668	2,550	TO	2,399	FROM
1996	12,495	14,843	27,338	2,468	TO	2,486	FROM
1997	13,185	14,006	27,191	2,808	TO	2,046	FROM
1998	12.181	15.966	28.147	2.867	то	2.352	FROM
1999	12,171	15.618	27,789	2,228	то	2,448	FROM
2000	10 01 2	15,010	25,705	2,220	то	2,440	FROM
2001	11 01 /	14 002	25,000	2,014	то	2,343	EROM
2001	11,014	14,595	20,607	2,202	10	2,409	FROM
2002	12,6/3	10,896	29,569	2,696	10	2,596	FRUIVI
2003	14,189	18,489	32,678	2,636	10	2,819	FROM
2004	11,590	15,199	26,789	1,917	TO	1,928	FROM
2005	12,126	14,825	26,951	2,751	то	2,136	FROM
2006	11,635	16,414	28,049	2,423	TO	2,375	FROM
2007	11,444	14,684	26,128	2,320	то	2,044	FROM
2008	10,168	16,247	26,415	2,362	то	2,803	FROM
2009	11.118	15,707	26.825	2,436	то	2.691	FROM
2010	13.050	16 430	29,480	2 748	то	2 761	FROM
2011	12,010	16 500	20,400	2,740	то ТО	2,701	FROM
2011	11 700	14 425	23,013	2,707	10	2,033	ERONA
2012	11,796	14,425	26,221	2,114	10	1,990	FRUIVI
2013	18,247	16,583	34,830	3,139	10	2,699	FROM
2014	13,909	18,196	32,105	2,401	10	2,859	FROM
2015	12,007	17,732	29,739	2,226	то	3,143	FROM
2016	12,790	16,710	29,500	2,598	TO	2,100	FROM
2017	16,733	16,409	33,142	2,890	то	2,652	FROM
2018	23,799	16,183	39,982	4,723	то	2,732	FROM
2019	17,185	21,839	39,024	3,541	то	3,802	FROM



NOTE: Bloor-Danforth line extended beyond Woodbine station to Warden station on May 11, 1968.

WARDEN STATION

SUBWAY PLATFORM USAGE COUNT

2019

								MAXIMU	IM HOUR
	TIME	то	SUBTOTAL	FROM	SUBTOTAL	COMBINED	SUBTOTAL	то	FROM
	06:00 - 06:14	170		12		182			
	06:15 - 06:29	209		108		317			
	06:30 - 06:44	318		140		458			
	06:45 - 06:59	430		121		551			
т	07:00 - 07:14	424		152		576			
ŝ	07:15 - 07:29	743		176		919			
μ	07:30 - 07:44	692		249		941			
A	07:45 - 07:59	901		323		1,224			
	08:00 - 08:14	987		371		1,358			
	08:15 - 08:29	895		387		1,282			
	08:30 - 08:44	758		396		1,154		3,541	
	08:45 - 08:59	561	7,088	334	2,769	895	9,857		
	09:00 - 09:14	507		203		710			
	09:15 - 09:29	472		171		643			
	09:30 - 09:44	363		132		495			
	09:45 - 09:59	279		167		446			
	10:00 - 10:29	426		253		679			
≿	10:30 - 10:59	343		247		590			
DA	11:00 - 11:29	285		233		518			
	11:30 - 11:59	354		257		611			
_	12:00 - 12:29	338		255		593			
	12:30 - 12:59	358		280		638			
	13:00 - 13:29	337		279		616			
	13:30 - 13:59	353		349		702			
	14:00 - 14:29	392		286		678			
	14:30 - 14:59	442	5,249	519	3,631	961	8,880		
	15:00 - 15:14	208		442		650			
	15:15 - 15:29	301		509		810			
	15:30 - 15:44	305		600		905			
	15:45 - 15:59	303		/31		1,034			
	16:00 - 16:14	289		709		998			
	16:15 - 16:29	211		680 700		891			
ISH	16:30 - 16:44	283		790		1,073			
RU	10:45 - 10:59	217		820 800		1,045			
Σd	17:00 - 17:14	310		899		1,209			
	17:15 - 17:29	54Z 204		1 1 4 1		1,270			2 002
	17:30 - 17:44	204		1,141 925		1,545			5,002
	18:00 - 18:14	203		840		1 151			
	18.15 - 18.29	314		859		1 173			
	18:30 - 18:44	101		404		505			
	18:45 - 18:59	101	4,010	403	11,594	511	15,604		
	19:00 - 19:29	158	,	503	,	661	,		
	19:30 - 19:59	120		521		641			
	20:00 - 20:29	108		618		726			
	20:30 - 20:59	97		506		603			
	21:00 - 21:29	93		438		531			
۶L	21:30 - 21:59	72	648	360	2,946	432	3,594		
I Z	22:00 - 22:29	68		308		376			
S	22:30 - 22:59	30		168		198			
	23:00 - 23:29	25		136		161			
	23:30 - 23:59	24		104		128			
	24:00 - 24:29	20		74		94			
	24:30 - 24:59	13		58		71			
	25:00 - 25:29	10	190	51	899	61	1,089		
	TOTALS		17,185		21,839		39,024		

ROUTE: 69 WARDEN SOUTH ROUTING CODE(S): A0, B0, COUNT: 3256 ON 2019-OCT-14:M-F (FROM 06:10 TO 25:59) STOP CARD: 24 COUNT COVERAGE/METHOD: FULL(2X)/APC STOPS: 1 TO 299 COMMENTS:

NORTHBOUND ALL DAY

ROUTE

<u>STOP</u>	LOCATION	<u>STARTS</u>	<u>ONS</u>	<u>OFFS</u>	ACCUM.	<u>VEHICLES</u>	<u>AVG. LOAD</u>
1	BIRCHMOUNT AT KINGSTON RD	99	30	0	129	82	1.6
2	BIRCHMOUNT AT HOLLIS	0	79	11	197	82	2.4
3	BIRCHMOUNT AT DANFORTH AVE	0	67	30	234	82	2.9
4	BIRCHMOUNT AT PINE GROVE	0	18	2	250	82	3.0
5	BIRCHMOUNT AT HIGHVIEW	0	73	13	310	82	3.8
6	BIRCHMOUNT AT RALEIGH	0	28	5	333	82	4.1
7	BIRCHMOUNT AT PARNELL	0	81	14	400	82	4.9
8	BIRCHMOUNT AT DANFORTH RD	0	294	69	625	82	7.6
9	BIRCHMOUNT AT SADLER	0	107	13	719	82	8.8
10	BIRCHMOUNT AT ZENITH	0	175	21	873	82	10.6
11	ST CLAIR AVE E AT BIRCHMOUNT	0	86	73	886	82	10.8
12	ST CLAIR AVE E AT SANTAMONICA	0	1	5	882	82	10.8
13	BIRCHMOUNT AT KINGSTON RD	148	7	0	155	84	1.8
14	KINGSTON RD AT BIRCHCLIFF	0	20	9	166	84	2.0
15	KINGSTON RD AT EASTWOOD	0	13	4	175	84	2.1
16	KINGSTON RD AT MANDERLEY	0	17	11	181	84	2.2
17	WARDEN AVE AT KINGSTON RD	0	101	17	265	84	3.2
18	WARDEN AVE AT IONSON	0	12	0	277	84	3.3
19	WARDEN AVE AT HOLLIS	0	14	0	291	84	3.5
20	WARDEN AVE AT DANFORTH AVE	0	60	4	347	84	4.1
21	WARDEN AVE AT DANFORTH RD	0	46	2	391	84	4.7
22	WARDEN AVE AT DANFORTH RD	0	35	0	426	83	5.1
23	WARDEN AVE AT MACK	0	211	23	614	83	7.4
24	WARDEN AVE AT CATARAQUI	0	117	2	729	83	8.8
25	WARDEN AVE AT FIRVALLEY	0	131	11	849	83	10.2
26	WARDEN AVE OPP 682	0	159	13	995	83	12.0
27	WARDEN AVE AT 689	0	2	0	997	83	12.0
28	WARDEN AVE AT ST CLAIR AVE E	0	3	85	915	83	11.0
31	WARDEN STATION	0	0	1797	0	165	0.0
TOTALS I	FOR NORTHBOUND ALL DAY	247	1987	2234	13611	2486	5.5





ROUTE: 69 WARDEN SOUTH ROUTING CODE(S): A0, B0, COUNT: 3256 ON 2019-OCT-14:**M-F** (FROM 06:10 TO 25:59) STOP CARD: 24 COUNT COVERAGE/METHOD: **FULL(2X)/APC** STOPS: 1 TO 299 COMMENTS:



NB CONTROL POINT: 31 WARDEN STATION

NORTHBOUND ALL DAY

PERIOD RIDING INDEX = 5.5 (AVERAGE OCCUPANCY) AVERAGE TRIP LENGTH = 6.9 STOPS AVERAGE ONS/VEHICLE-STOP = 0.8 AVERAGE ONS/TRIP = 12.0

ROUTE: 69 WARDEN SOUTH ROUTING CODE(S): A0, B0, COUNT: 3256 ON 2019-OCT-14:M-F (FROM 05:55 TO 25:50) STOP CARD: 24 COUNT COVERAGE/METHOD: FULL(2X)/APC STOPS: 1 TO 299 COMMENTS:

SB CONTROL POINT: 1 WARDEN STATION

WARDEN AVE AT ST CLAIR AVE E

WARDEN AVE AT FIRVALLEY

WARDEN AVE AT CATARAQUI

WARDEN AVE AT CLONMORE

WARDEN AVE AT KINGSTON RD

KINGSTON RD AT MANDERLEY

WARDEN AVE AT IONSON

WARDEN AVE AT DANFORTH RD

WARDEN AVE AT DANFORTH AVE

WARDEN AVE AT BURN HILL

SOUTHBOUND ALL DAY

LOCATION

WARDEN STATION

WARDEN AVE OPP 689

WARDEN AVE AT 682

ROUTE

STOP

TOTALS

0	1	7	125	
0	2	19	108	
0	0	9	99	
0	2	1	1015	
0	6	4	1017	
0	95	36	1076	
0	11	221	866	
0	7	146	727	
0	51	367	411	
0	7	67	351	
0	2	65	288	
0	3	55	236	
0	3	49	190	
0	16	43	163	
0	0	15	148	
ō	2413	2166	14782	
		$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$

STARTS

OFFS

ACCUM.

ONS



VEHICLES

AVG. LOAD

12.3

12.4

13.3

11.1

9.0

7.5

4.4

3.6

2.8

2.7

2.5

1.8

1.6

1.5

1.3

1.2

12.4

12.4

13.1

10.6

8.9

5.0

4.2

3.4

2.8

2.3

1.9

1.8

6.2

ROUTE: 69 WARDEN SOUTH ROUTING CODE(S): A0, B0, COUNT: 3256 ON 2019-OCT-14:**M-F** (FROM 05:55 TO 25:50) STOP CARD: 24 COUNT COVERAGE/METHOD: **FULL(2X)/APC** STOPS: 1 TO 299 COMMENTS:



SB CONTROL POINT: 1 WARDEN STATION

SOUTHBOUND ALL DAY

PERIOD RIDING INDEX = 6.2 (AVERAGE OCCUPANCY) AVERAGE TRIP LENGTH = 6.1 STOPS AVERAGE ONS/VEHICLE-STOP = 1.0 AVERAGE ONS/TRIP = 14.7

ROUTE: 135 GERRARD ROUTING CODE(S): _0, COUNT: 3249 ON 2019-OCT-15:**M-F** (FROM 05:31 TO 25:46) STOP CARD: 13 COUNT COVERAGE/METHOD: **FULL/APC** STOPS: 1 TO 299 COMMENTS:

EB CONTROL POINT: 1 MAIN STREET STATION

EASTBOUND ALL DAY

ROUTE							
<u>STOP</u>	LOCATION	<u>STARTS</u>	<u>ONS</u>	<u>OFFS</u>	ACCUM.	<u>VEHICLES</u>	<u>AVG. LOAD</u>
1	MAIN STREET STATION	0	472	0	472	56	8.4
3	MAIN ST AT DANFORTH AVE	0	36	1	507	56	9.1
4	MAIN ST AT GERRARD (1)	0	32	19	520	56	9.3
5	GERRARD ST E AT OSBORNE	0	26	31	515	56	9.2
6	GERRARD ST E AT MALVERN	0	43	132	426	56	7.6
7	GERRARD ST E AT PICKERING	0	3	41	388	56	6.9
8	GERRARD ST E AT SCARBOROUGH	0	2	51	339	56	6.1
9	GERRARD ST E AT VICTORIA PARK AVE	0	26	53	312	56	5.6
10	GERRARD ST E AT BLANTYRE	0	21	14	319	56	5.7
11	GERRARD ST E AT RATHMORE AVE	0	2	9	312	56	5.6
12	GERRARD ST E AT CLONMORE	0	4	19	297	56	5.3
13	CLONMORE DR AT QUEENSBURY	0	3	24	276	56	4.9
14	CLONMORE DR AT CORNELL	0	2	14	264	56	4.7
15	WARDEN AVE AT HOLLIS	0	9	23	250	56	4.5
16	WARDEN AVE AT DANFORTH AVE	0	41	36	255	56	4.6
17	WARDEN AVE AT DANFORTH RD	0	35	13	277	56	4.9
18	WARDEN AVE AT DANFORTH RD	0	20	3	294	56	5.3
19	WARDEN AVE AT MACK	0	155	61	388	56	6.9
20	WARDEN AVE AT CATARAQUI	0	73	15	446	56	8.0
21	WARDEN AVE AT FIRVALLEY	0	89	29	506	56	9.0
22	WARDEN AVE OPP 682	0	90	14	582	56	10.4
23	WARDEN AVE AT 689	0	6	1	587	56	10.5
24	WARDEN AVE AT ST CLAIR AVE E	0	4	63	528	56	9.4
26	WARDEN STATION	0	0	528	0	56	0.0
TOTALS F	OR EASTBOUND ALL DAY	0	1194	1194	9060	1344	6.7

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TORONTO TRANSIT COMMISSION

ROUTE: 135 GERRARD ROUTING CODE(S): _0, COUNT: 3249 ON 2019-OCT-15:**M-F** (FROM 05:31 TO 25:46) STOP CARD: 13 COUNT COVERAGE/METHOD: **FULL/APC** STOPS: 1 TO 299 COMMENTS:

EB CONTROL POINT: 1 MAIN STREET STATION

Report: TRIPS_DM - 002 Version: 002



EASTBOUND ALL DAY

PERIOD RIDING INDEX = 6.7 (AVERAGE OCCUPANCY) AVERAGE TRIP LENGTH = 7.6 STOPS AVERAGE ONS/VEHICLE-STOP = 0.9 AVERAGE ONS/TRIP = 21.3

ROUTE: 135 GERRARD ROUTING CODE(S): _0, COUNT: 3249 ON 2019-OCT-15:**M-F** (FROM 06:04 TO 25:43) STOP CARD: 13 COUNT COVERAGE/METHOD: **FULL/APC** STOPS: 1 TO 299 COMMENTS:

WB CONTROL POINT: 24 MAIN STREET STATION

WESTBOUND ALL DAY

ROUTE							
<u>STOP</u>	LOCATION	<u>STARTS</u>	<u>ONS</u>	<u>OFFS</u>	ACCUM.	<u>VEHICLES</u>	AVG. LOAD
1	WARDEN STATION	0	591	0	591	55	10.7
3	WARDEN AVE OPP 689	0	0	0	591	55	10.7
4	WARDEN AVE AT 682	0	18	103	506	55	9.2
5	WARDEN AVE AT FIRVALLEY	0	30	105	431	55	7.8
6	WARDEN AVE AT CATARAQUI	0	11	78	364	55	6.6
7	WARDEN AVE AT BURN HILL	0	65	168	261	55	4.7
8	WARDEN AVE AT DANFORTH RD	0	11	37	235	55	4.3
9	WARDEN AVE AT DANFORTH AVE	0	19	32	222	55	4.0
10	CLONMORE DR AT WARDEN	0	34	12	244	55	4.4
11	CLONMORE DR AT CORNELL	0	8	1	251	55	4.6
12	CLONMORE DR AT QUEENSBURY	0	19	0	270	55	4.9
13	GERRARD ST E AT CLONMORE	0	35	2	303	55	5.5
14	GERRARD ST E AT RATHMORE AVE	0	8	0	311	55	5.7
15	GERRARD ST E AT BLANTYRE	0	38	28	321	55	5.8
16	GERRARD ST E AT VICTORIA PARK AVE	0	65	10	376	55	6.8
17	GERRARD ST E AT DENGATE	0	42	0	418	55	7.6
18	GERRARD ST E AT PICKERING	0	44	2	460	55	8.4
19	GERRARD ST E AT MALVERN	0	101	50	511	55	9.3
20	GERRARD ST E AT TED REEVE	0	26	8	529	55	9.6
21	GERRARD ST E AT MAIN ST	0	27	56	500	55	9.1
22	MAIN ST AT DANFORTH AVE (1)	0	1	46	455	55	8.3
24	MAIN STREET STATION	0	0	455	0	55	0.0
TOTALS F	OR WESTBOUND ALL DAY	0	1193	1193	8150	1210	6.7



TORONTO TRANSIT COMMISSION

ROUTE: 135 GERRARD ROUTING CODE(S): _0, COUNT: 3249 ON 2019-OCT-15:**M-F** (FROM 06:04 TO 25:43) STOP CARD: 13 COUNT COVERAGE/METHOD: **FULL/APC** STOPS: 1 TO 299 COMMENTS:

WB CONTROL POINT: 24 MAIN STREET STATION

Report: TRIPS_DM - 002 Version: 002



WESTBOUND ALL DAY

PERIOD RIDING INDEX = 6.7 (AVERAGE OCCUPANCY) AVERAGE TRIP LENGTH = 6.8 STOPS AVERAGE ONS/VEHICLE-STOP = 1.0 AVERAGE ONS/TRIP = 21.7