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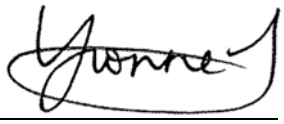
# Noise and Vibration Feasibility Study
# Proposed Mixed-Use Development
# 11 Yorkville
# City of Toronto, Ontario

Prepared for:

11 Yorkville Partners Inc.
2300 Yonge St, Suite 807
Toronto, Ontario
M4P 1E4

Prepared by:



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Reviewed by:


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March 9, 2018

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# 1 Introduction & Summary

HGC Engineering was retained by 11 Yorkville Partners Inc. to conduct a Noise and Vibration Feasibility Study for a proposed mixed-use development to be located at 11 Yorkville Avenue, in the City of Toronto, Ontario. This study is required by the City of Toronto as part of the planning and approvals process.

The development proposal includes the construction of a 62-storey residential tower that fronts onto Yorkville Avenue and a 2-storey separate retail building that fronts onto Cumberland Street. The area surrounding the proposed development includes similar residential and commercial developments. Figure 1 shows a key plan of the site.

The site is bounded to the north by Yorkville Avenue and to the south by Cumberland Street. Bay Street is located to the west and Yonge Street to the east. Sound level predictions indicate that standard noise control measures will need to be incorporated into the building envelope design such that indoor sound levels can comply with the Ministry of the Environment and Climate Change ("MOECC") noise criteria. The recommended noise control measures include appropriate wall and window glazing assemblies.

The impact of ground-borne vibration from the Toronto Transit Commission's ("TTC") Yonge-University subway line to the east and Bloor-Danforth subway line to the south of the site has been assessed. Site measurements indicate that vibration from the subway lines will be below the threshold of tactile perceptibility and within the design criteria for re-radiated sound. Vibration mitigation measures are not required for the development.

Thus, with suitable controls integrated into the building plans, the proposed development is anticipated to meet the applicable guidelines for traffic noise and vibration impacts. Details of the assessment leading to this conclusion are provided herein.

# 2 Site Description & Noise Sources

The development proposal, based on the preliminary architectural plans prepared by Sweeny & Co., dated March 2, 2018 ("Issued for Coordination"), includes the construction of a residential tower and a separate retail building. The proposed site plan is included as Figure 2.

The site is currently occupied by low-rise commercial buildings and a parking lot which will be removed. High-rise mixed-use developments are proposed to the east and west of the subject site. There are several low-rise commercial buildings south of the site, adjacent to the proposed retail building. Across Yorkville Avenue, there is the Yorkville Library, Town House Square and Toronto Fire Station 312.

The proposed development consists of a 62-storey tower that includes a 4-storey podium at the base, four levels of underground parking, an underground concourse level as well as a separate 2-storey retail building located south of the tower. The underground parking levels will extend beyond the building footprint to the property line on all sides, and will consist of car parking spaces. Retail spaces, bike parking spaces and a connection to "The Path" underground walkway will exist on the concourse floor. The ground floor and 2$^{nd}$ floor will consist of retail spaces. A mezzanine level will be open to the ground floor below and contain bike parking spaces. Indoor amenity spaces are proposed on the 3$^{rd}$ and 4$^{th}$ floors. A large outdoor amenity area will also surround the east, west and south sides of the 3$^{rd}$ floor. Rental replacement units are proposed on the 5$^{th}$ to 8$^{th}$ floors. Residential units will begin from the 9$^{th}$ floor and extend to the roof. The mechanical penthouse will be located on the roof of the tower. Building B is a 2-storey retail building with one underground concourse level to be located south of the proposed tower, across the existing lane and will front onto Cumberland Street.

A site visit was conducted by HGC Engineering personnel on July 13$^{th}$, 2017 to conduct vibration measurements on the site, to make observations of the acoustical environment and to identify the significant noise sources in the vicinity. No subway exhaust shafts were noted to be in close proximity to the site. This area is considered to be Class 1 (urban) in terms of its acoustical environment.

The surrounding lands include commercial/retail buildings, and residential buildings. In general, sounds from the commercial facilities or activities were not discernible over the traffic sounds during the site visit. Nevertheless, due to the proximity of the site to a variety of existing commercial/retail uses, it is recommended that a noise warning clause to identify that such commercial/retail uses may be audible at times be included in the property and tenancy agreements, as described in Section 7. The Toronto Fire Station 312 is located north of the proposed development at 34 Yorkville Avenue and audible sound from firetrucks is expected; though firetruck sirens are considered as emergency sounds according to MOECC guidelines and are therefore exempt from assessment.

Also considered herein is the potential ground-borne vibration from the TTC's Yonge-University and Bloor-Danforth subway lines located on the east side of Yonge Street and the south side of Cumberland Street, respectively. The Yonge-University Subway line is located approximately 170 m east of the proposed residential tower, and the Bloor-Danforth subway line is approximately 50 m south of the proposed residential tower. The approximate locations of the subway lines are shown in Figure 1.

# 3 Noise and Vibration Level Criteria

## 3.1 Road Traffic Noise

Guidelines for acceptable levels of road traffic noise impacting residential developments are given in the MOECC publication NPC-300, "Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning", release date October 21, 2013, and are listed in Table I below. The values in Table I are energy equivalent (average) sound levels [$L_{EQ}$] in units of A-weighted decibels [dBA].

**Table I: MOECC Road Traffic Noise Criteria (dBA)**

| Area | Daytime $L_{EQ}$ (16 hour) Road | Nighttime $L_{EQ}$(8 hour) Road |
|---|---|---|
| Outdoor Living Area | 55 dBA | -- |
| Inside Living/Dining Rooms | 45 dBA | 45 dBA |
| Inside Bedrooms | 45 dBA | 40 dBA |

Daytime refers to the period between 07:00 and 23:00. Nighttime refers to the period between 23:00 and 07:00. Living areas include dining rooms, dens, studies, etc. Corridors and washrooms are usually not considered to be noise-sensitive areas.

The term "Outdoor Living Area" (OLA) is used in reference to an outdoor patio, a backyard, a terrace, a playground, or common areas associated with high-rise multi-unit buildings where passive outdoor recreation is expected to occur. Balconies with a depth of less than 4 meters (measured perpendicular to the building façade) are not considered OLAs under MOECC guidelines, and accordingly the noise criteria are not applicable there. Balconies and terraces with a minimum depth of 4 meters are only considered OLAs under MOECC guidelines if they are the only OLA for the occupant.

In cases where a minor excess (up to 5 dB) over the sound level limit in an OLA is anticipated, MOECC guidelines allow the excess to be addressed by including a warning clause in the titles, deeds or tenancy agreements for the affected dwellings. Where OLA sound levels exceed 60 dBA, physical noise control measures, such as an acoustical barrier, are required.

With respect to the building envelope, no controls are required where levels are under 50 dBA. Where the road traffic noise level ($L_{EQ}$) at night is greater than 60 dBA, windows must be designed to achieve the indoor sound level criteria listed above. In addition, where the road traffic noise level ($L_{EQ}$) is greater than 65 dBA during the daytime, windows must be designed to achieve the indoor sound level criteria listed above. Otherwise, any glazing meeting the Ontario Building Code is considered adequate under MOECC guidelines. Where the predicted nighttime and/or daytime sound levels exceed these thresholds, central air conditioning is required so that windows can remain closed against the noise.

## 3.2 Ground-Borne Vibration

Vibration from the passage of the subway trains may be transmitted via the ground and then transferred up through the structure. Vibration intrusions that are potentially unacceptable in the residential suites could take the form of either vibration which is clearly perceptible to the touch and/or which produces radiated noise levels in excess of the ambient acoustic environment. From a vibration impact perspective, the critical receptors are the lower residential suites on the 5$^{th}$ floor.

Vibration levels are typically measured in terms of oscillatory velocity or acceleration. The levels discussed in this report are presented in dBG, which refers to decibels of acceleration relative to the acceleration of gravity, as a function of one-third octave band frequencies (Hz). The levels have been plotted against American National Standards Institute (ANSI) criteria and International Standards Organization (ISO) criteria – ANSI-S3.29/ISO-2631-2 – for human perception of tactile vibration while seated. Conformance with these criteria does not guarantee that vibration levels will be imperceptible to all individuals under all conditions, but is nonetheless a reasonable standard for acceptability. Note that these criteria are for the base structure only and do not account for amplification by lightweight structures, finishes, furniture, etc.

The ANSI/ISO criteria do not address noise; vibrations at frequencies over 20 Hz are also of concern for re-radiated noise, even at levels well below the tactile perceptibility threshold. Experience suggests that while the subway pass-bys may be audible in the building to some extent, if the levels are confined to about a Noise Criteria (NC) of NC-30 (35 dBA) or lower in the residential towers, the audibility of the pass-bys may be considered reasonable. This criterion level is similar to what is used by the TTC to assess the potential for intrusions from future undertakings (subway expansions), and similar to criteria used by the US Federal Transit Administration (FTA) to assess ground-borne noise intrusions from subways and trains. The retail space in the building is expected to be less sensitive to noise from subway pass-bys than the residential suites; a target of NC-40 or more (depending on the specific uses) would typically be considered reasonable for such spaces.

# 4 Traffic Noise Assessment

## 4.1 Road Traffic Data

Traffic data for the key roads in the vicinity of the site were recently obtained from the City of Toronto Traffic Safety Unit. These data were provided in the form of turning movement counts. Traffic volumes were conservatively assumed to grow at a typical rate of 2.5% per year on all roadways, and future average daytime (07:00 to 23:00) and night-time (23:00 to 07:00) hourly volumes that will exist in 10 years (2028) were calculated. Commercial truck percentages were calculated based on turning movement counts. A posted speed limit of 50 km/h and a 90%/10%

day/night volume split were applied to the roadways. Table II summarizes the traffic volume data used in this study.

**Table II: 2028 Projected Road Traffic Data**

| Road Name | | Cars | Medium Trucks | Heavy Trucks | Total |
|---|---|---|---|---|---|
| **Yonge Street** | Daytime | 14 358 | 224 | 314 | **14 896** |
| | Nighttime | 1 595 | 25 | 35 | **1 655** |
| **Bloor Street** | Daytime | 23 049 | 451 | 508 | **24 008** |
| | Nighttime | 2 560 | 50 | 57 | **2 667** |
| **Cumberland Street** | Daytime | 3 691 | 56 | 61 | **3 808** |
| | Nighttime | 411 | 6 | 7 | **424** |
| **Yorkville Avenue** | Daytime | 5 227 | 76 | 152 | **5 455** |
| | Nighttime | 581 | 9 | 17 | **607** |
| **Davenport Avenue** | Daytime | 21 764 | 366 | 461 | **22 591** |
| | Nighttime | 2 419 | 41 | 51 | **2 511** |
| **Bay Street** | Daytime | 23 644 | 359 | 777 | **24 780** |
| | Nighttime | 2 627 | 40 | 85 | **2 752** |

## 4.2 Road Traffic Noise Predictions

To assess the levels of traffic noise that will impact the site, predictions were made using a numerical computer modelling package (*Cadna-A version 2018 build 161.4801*). The road noise sources have been included in the model using the basic road element included in *Cadna*, which follows the German guideline RLS-90 for road traffic noise predictions. The model road traffic values have been qualified on similar projects to be within 1-2 dBA of those predicted in STAMSON 5.04, a computer algorithm developed by the MOECC. The model was used to predict traffic noise levels at each of the building façades, and is shown in Figure 4. The results of these predictions are summarized in Table III.

**Table III: Predicted Road Traffic Sound Levels [dBA]**

| Prediction Location | Daytime – $L_{EQ(16)}$ | Nighttime – $L_{EQ(8)}$ |
|---|---|---|
| Tower - North façade | 65 | 56 |
| Tower - East façade | 62 | 54 |
| Tower - South façade | 59 | 53 |
| Tower - West façade | 60 | 52 |
| Podium - North façade | 66 | 57 |
| Podium - East façade | 62 | 53 |
| Podium - South façade | <50 | <45 |
| Podium - West façade | 61 | 51 |

The preliminary plans indicate that there will be residential outdoor amenity areas greater than 4 m in depth on the east and west sides of the 3rd floor. A receiver has been placed on each of these amenity areas to predict future sound levels and results are summarized in Table IV below. Figure 5 shows the locations of the receivers.

**Table IV: Predicted Sound Levels from Traffic Noise in 2028 - Outdoor Living Areas**

| Location | Daytime Sound Level ($L_{Aeq,16hr}$) |
|---|---|
| R1: Level 3 East | 53 |
| R2: Level 3 West | <50 |

# 5 Traffic Noise Recommendations

The following discussion outlines preliminary recommendations for building façade constructions and ventilation requirements, to achieve the noise criteria stated in Table I. Warning clauses are further discussed under Section 7.

## 5.1 Outdoor Living Areas & Acoustic Barriers

The building has a common outdoor amenity area on the 3rd floor, which wraps around the east, west and south sides of the tower. The predicted daytime sound levels in the centre of the 3rd floor amenity spaces on the east and west sides of the tower are less than 60 dBA, assuming a 1.07 m high parapet or solid guard at the perimeter of the area. Further physical mitigation is not required for either of these spaces.

## 5.2 Ventilation Requirements

At the residential building façades, the predicted night-time sound levels do not exceed 60 dBA and the daytime levels do not exceed 65 dBA. Central air conditioning systems are not mandatory, although they will likely be provided in any event.

## 5.3 Minimum Building Facade Constructions

Floor plans and elevations have not yet been sufficiently developed for the detailed acoustical specification of the building envelope. For the purposes of this preliminary analysis, typical window to floor areas were assumed to be 80% (i.e. 60% fixed, 20% operable relative to floor area). Based upon these assumptions, it was determined that any standard double glazed window construction is anticipated to provide adequate sound insulation for the units, meeting MOECC target indoor sound levels. However, in an urban environment such as this, we do not typically recommend less than STC-33. STC-33 is typically achieved by using two 6-mm thick glass panes separated by a minimum of 13 mm air space. Awning windows, and swing or sliding doors to balconies should have tight seals sufficient to achieve similar acoustical performance ratings. Acoustical requirements can be confirmed once detailed floor plans and elevations have been developed, if required.

# 6 Subway Noise & Vibration Assessment

## 6.1 Site Measurements

To assess the potential ground-borne vibration impact on the development from the Yonge-University and Bloor-Danforth subway lines, HGC Engineering measured vibration levels impacting the site. Measurement locations can be found on Figure 3. Measurements were conducted at the following locations:

1. In a vacant unit on the third floor of 17 Yorkville Avenue.
2. In the ground floor staircase of 17 Yorkville Avenue.
3. On the ledge of the existing ramp at 11 Yorkville Avenue.

Subjectively, vibration was not perceptible to the touch in all locations but was audible in the staircase of 17 Yorkville Avenue.

The vibration data was analyzed and compared to criteria as outlined in Section 3.2. Some additional predictions were also undertaken, adjusting the measured levels to account for the different factors likely to affect the vibration path in the new development. These adjustments include a heavier foundation loss, floor-to-floor attenuation up to the first residential level ($5^{th}$ floor), and amplification due to suspended structures.

Measured maximum vibration levels are shown in Figure 6. A curve is plotted on the figure representing the ANSI criteria for human perception of vibration in structures, up to a frequency of 63 Hz, and NC curves for audible sound at frequencies above that. When vibrations were at a maximum, they were dominated by energy content in the 1/3 octave bands between 63 Hz and 125 Hz, which is related to the audible rumble. At the outdoor measurement location, a peak was also present at a higher frequency, but this was significantly reduced inside the existing building. Sound levels were simultaneously measured with vibration in the indoor locations and did not correspond well with the measured vibration levels; although this can be attributed to the reverberant properties of the vacant unit and the music and conversation captured from the adjacent restaurant in the ground floor staircase.

In Figure 7, the measured vibration levels have been extrapolated to project impacts on the lowest residential floor ($5^{th}$ floor) and retail floor (ground floor of future tower). Predicted vibration levels are expected to be below the ANSI/ISO tactile vibration threshold, and re-radiated sound levels are expected to be below the NC-30 and NC-40 target for the lowest residential and retail level, respectively. Therefore, it is concluded that ground-borne vibration from subway pass-by events is not a concern for this development.

# 7 Warning Clauses

MOECC guidelines recommend that appropriate warning clauses be used in the Development Agreements and in purchase, sale and lease agreements (typically by reference to the Development Agreements), to inform future owners and occupants about noise concerns from transportation sources in the area. The following clauses are recommended:

(a) Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road traffic may on occasion interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Ministry of the Environment and Climate Change.

(b) 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 Ministry of Environment and Climate Change.

(c) This development is located near the Toronto Transit Commission's Yonge-University subway line and the Bloor-Danforth subway line. Noise and vibration from subway operations may occasionally be perceptible and/or audible in the dwelling units.

(d) Purchasers/tenants are advised that due to the proximity of the nearby commercial/retail facilities, sound from those facilities may at times be audible.

(e) Purchasers and tenants are advised that due to the proximity of a nearby fire station, sound from emergency vehicles may at times be audible.

These sample clauses are provided by the MOECC as examples and can be modified by the owner's legal representative, in consultation with the City, as required.

# 8 Summary of Recommendations

The following list summarizes the recommendations made in this report. The reader is referred to the previous sections of the report where these recommendations are discussed in more detail.

1. Central air conditioning systems are not required for this development but are expected to be provided in any case.

2. Certain minimum glazing constructions will be required to reduce traffic noise to acceptable levels indoors, as indicated in Section 5.3. When detailed floor plans and building elevations are available, a review should be conducted to verify required glazing and building façade constructions based on actual window to floor area ratios.

3. Vibration levels from subway pass-bys are expected to be within the suggested criteria for re-radiated noise and below the tactile vibration threshold on the nearest residential floors. Isolation measures are not anticipated to be required.

4. Noise warning clauses should be included in the property and tenancy agreements and offers of purchase and sale for the residential suites to inform future residents of potential noise intrusions from the roads and subways, and of the presence of the nearby commercial/retail uses in the area. Recommended wording for these clauses is provided in Section 7. Such clauses are often included by reference to the Development Agreements in which they are contained.

5. Tarion Builder's Bulletin B19R requires that the internal design of condominium projects integrates suitable acoustic features to insulate the suites from noise from each other and amenities in accordance with the OBC, and limit the potential intrusions of mechanical and electrical services of the buildings on its residents. If B19R certification is needed, an acoustical consultant is required to review the mechanical and electrical drawings and details of demising constructions and mechanical/electrical equipment, when available, to help ensure that the noise impact of the development on itself are maintained within acceptable levels. Outdoor sound emissions should also be checked to ensure compliance with the City of Toronto noise by-law (Toronto Municipal Code, Chapter 591).


**Figure 1: Key Plan showing subject site and nearby transportation sources.**

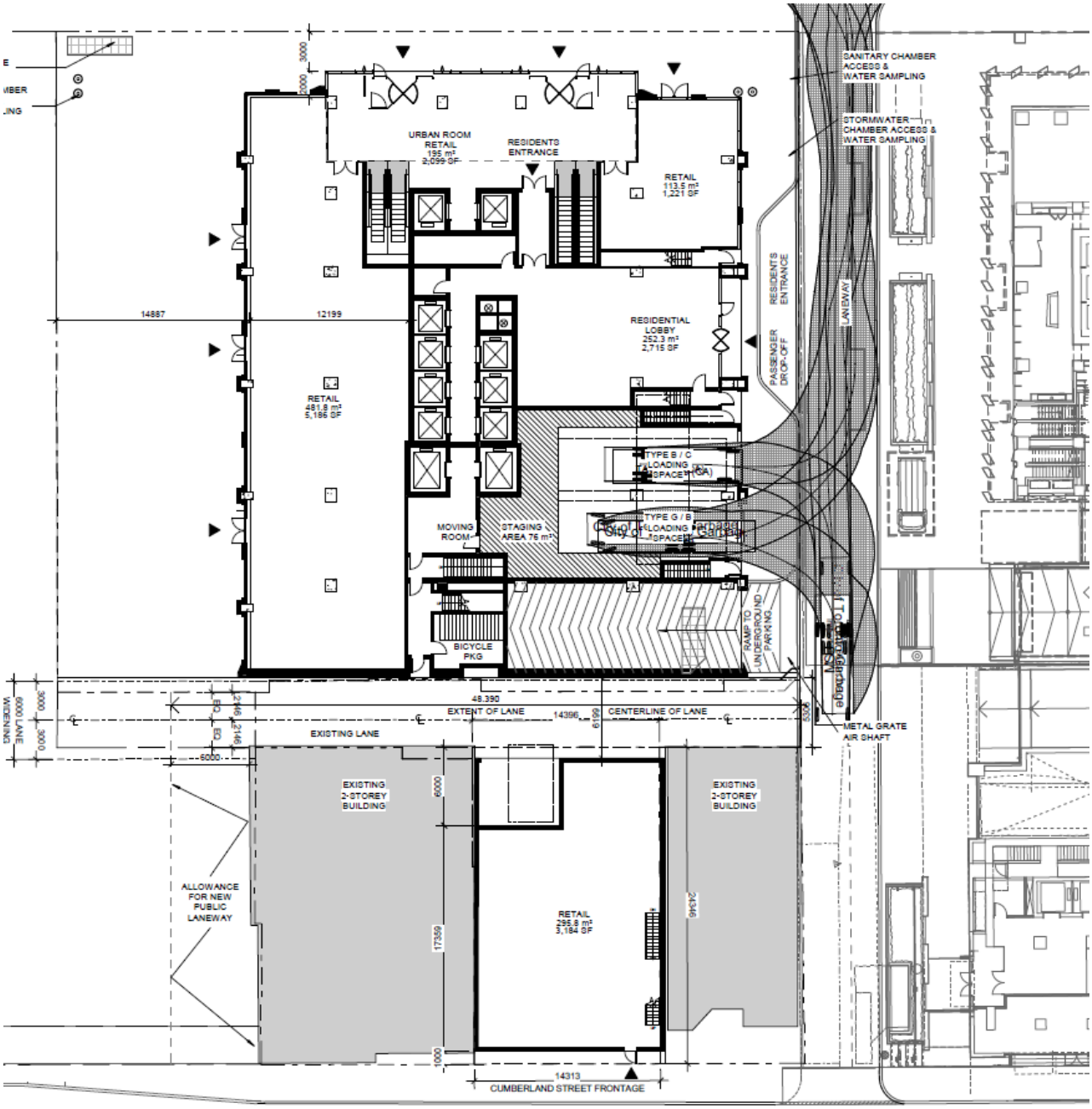


**Figure 2: Site Plan**

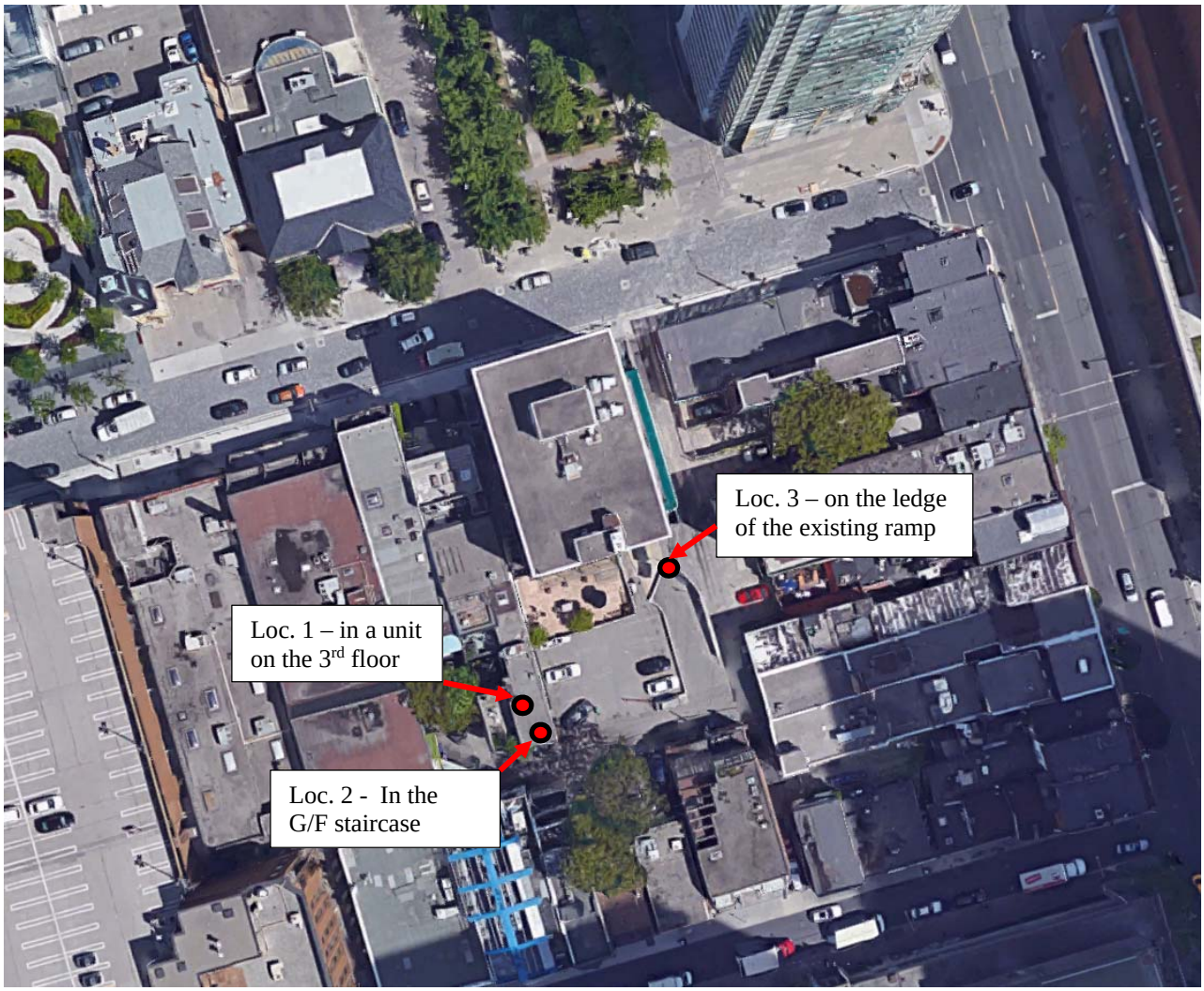


**Figure 3: Vibration Measurement Locations**

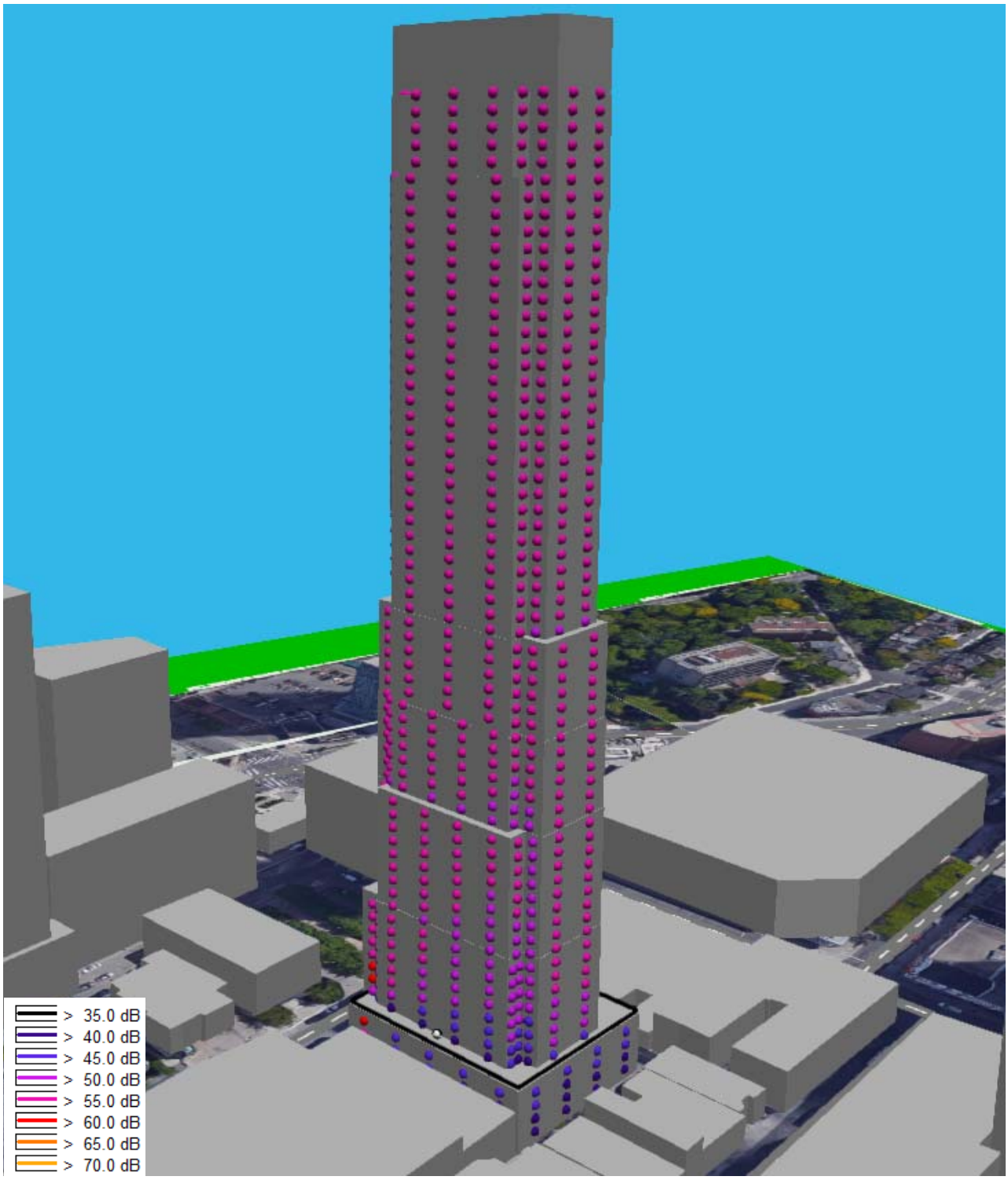


**Figure 4 : 3D Acoustical Model of Daytime Sound Levels, view from the southwest corner of the development**

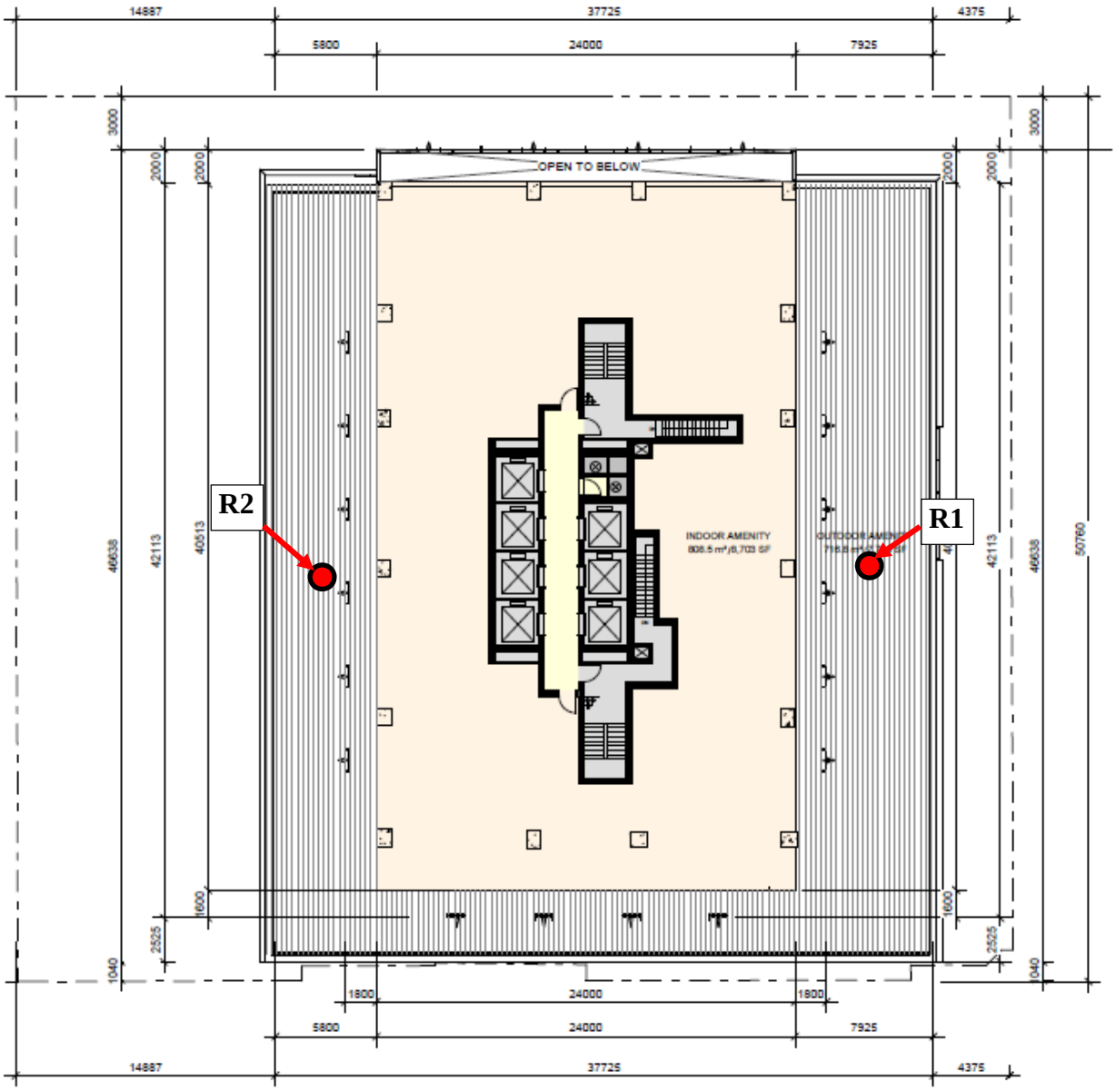


**Figure 5: 3rd Floor Plan showing Outdoor Sound Level Prediction Locations**

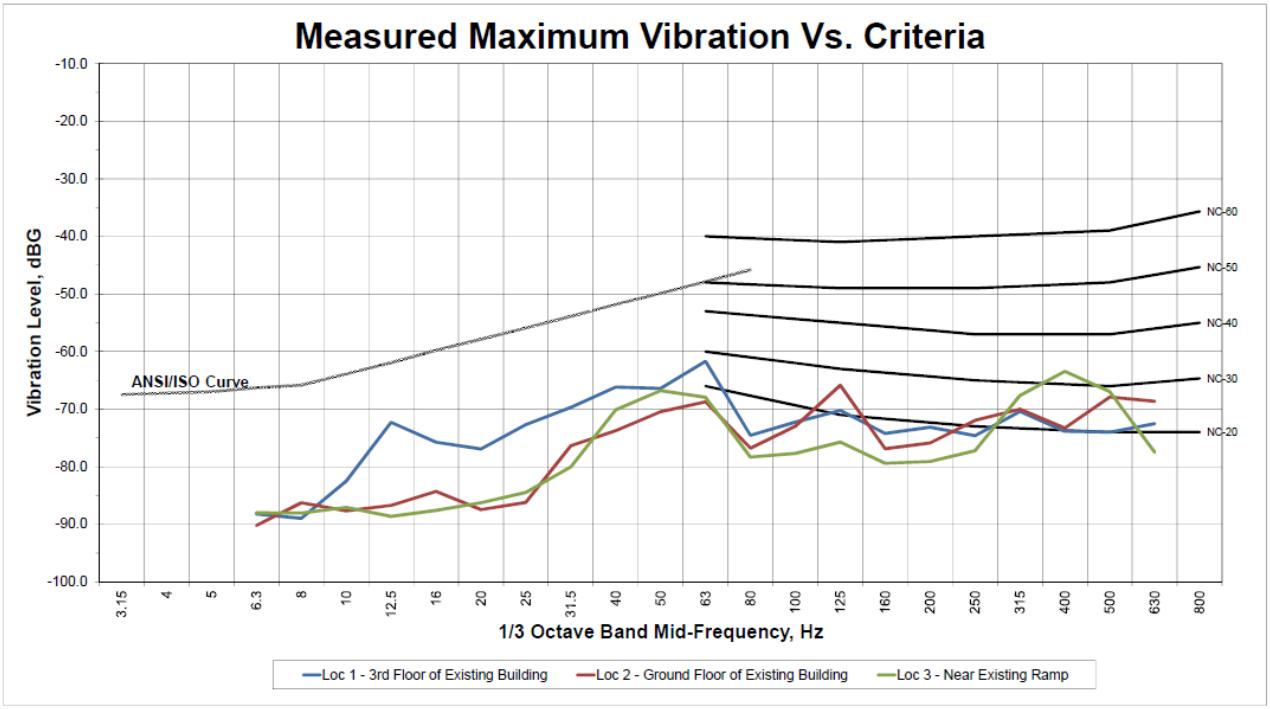


**Figure 6: Measured Maximum Vibration Levels vs. Criteria**

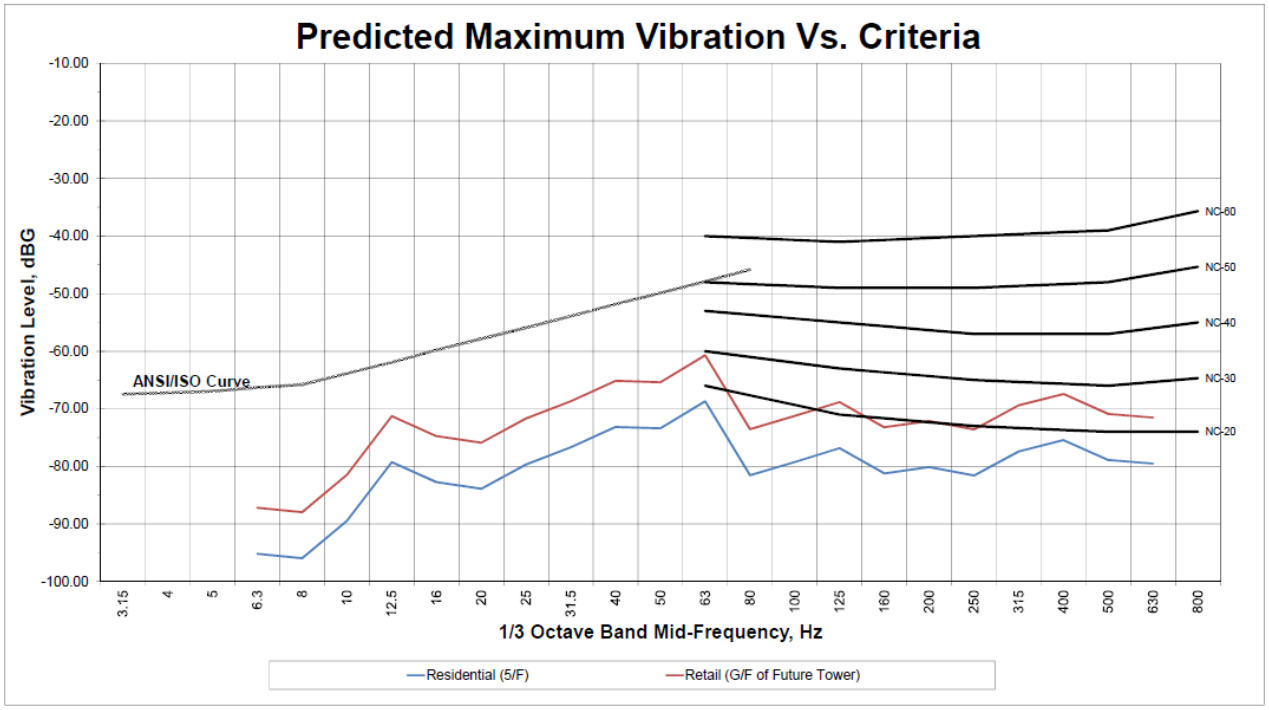


**Figure 7: Predicted Maximum Vibration Levels vs. Criteria**

# APPENDIX A

## Road Traffic Information

# City of Toronto - Traffic Safety Unit

## Turning Movement Count Summary Report

**YONGE ST AT YORKVILLE AVE (PX 2377)**

**Survey Date:** 2017-Jan-18 (Wednesday)

**Survey Type:** Routine Hours

| Time Period | Vehicle Type | NORTHBOUND Exits | Left | Thru | Right | Total | EASTBOUND Exits | Left | Thru | Right | Total | SOUTHBOUND Exits | Left | Thru | Right | Total | WESTBOUND Exits | Left | Thru | Right | Total | | Peds | Bike | Other |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 07:45-08:45 | CAR | 258 | 33 | 202 | 0 | 235 | 0 | 56 | 0 | 24 | 80 | 525 | 0 | 501 | 101 | 602 | 134 | 0 | 0 | 0 | 0 | N | 160 | 4 | 0 |
| | TRK | 10 | 2 | 7 | 0 | 9 | 0 | 3 | 0 | 1 | 4 | 8 | 0 | 7 | 1 | 8 | 3 | 0 | 0 | 0 | 0 | S | 149 | 8 | 0 |
| AM PEAK | BUS | 2 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 6 | 8 | 6 | 0 | 0 | 0 | 0 | E | 0 | 0 | 0 |
| | | | | | | | | | | | | | | | | | | | | | | W | 330 | 0 | 0 |
| | **TOTAL:** | **270** | **35** | **211** | **0** | **246** | **0** | **59** | **0** | **25** | **84** | **535** | **0** | **510** | **108** | **618** | **143** | **0** | **0** | **0** | **0** | | | | |
| 17:00-18:00 | CAR | 693 | 70 | 566 | 0 | 636 | 0 | 127 | 0 | 54 | 181 | 356 | 0 | 302 | 112 | 414 | 182 | 0 | 0 | 0 | 0 | N | 128 | 11 | 0 |
| | TRK | 6 | 2 | 4 | 0 | 6 | 0 | 2 | 0 | 0 | 2 | 3 | 0 | 3 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | S | 184 | 4 | 0 |
| PM PEAK | BUS | 3 | 2 | 2 | 0 | 4 | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 2 | 5 | 7 | 7 | 0 | 0 | 0 | 0 | E | 0 | 0 | 0 |
| | | | | | | | | | | | | | | | | | | | | | | W | 434 | 2 | 0 |
| | **TOTAL:** | **702** | **74** | **572** | **0** | **646** | **0** | **130** | **0** | **54** | **184** | **361** | **0** | **307** | **117** | **424** | **191** | **0** | **0** | **0** | **0** | | | | |
| OFF HR AVG | CAR | 358 | 58 | 285 | 0 | 343 | 0 | 73 | 0 | 34 | 107 | 344 | 0 | 310 | 106 | 416 | 164 | 0 | 0 | 0 | 0 | N | 144 | 11 | 0 |
| | TRK | 17 | 3 | 13 | 0 | 16 | 0 | 4 | 0 | 1 | 5 | 16 | 0 | 15 | 2 | 17 | 5 | 0 | 0 | 0 | 0 | S | 116 | 8 | 0 |
| | BUS | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | E | 0 | 0 | 0 |
| | | | | | | | | | | | | | | | | | | | | | | W | 374 | 3 | 0 |
| | **TOTAL:** | **375** | **62** | **298** | **0** | **360** | **0** | **77** | **0** | **35** | **112** | **363** | **0** | **328** | **108** | **436** | **170** | **0** | **0** | **0** | **0** | | | | |
| 07:30-09:30 | CAR | 503 | 72 | 390 | 0 | 462 | 0 | 113 | 0 | 41 | 154 | 966 | 0 | 925 | 227 | 1,152 | 299 | 0 | 0 | 0 | 0 | N | 282 | 22 | 0 |
| | TRK | 22 | 3 | 16 | 0 | 19 | 0 | 6 | 0 | 3 | 9 | 16 | 0 | 13 | 3 | 16 | 6 | 0 | 0 | 0 | 0 | S | 275 | 12 | 0 |
| 2 HR AM | BUS | 5 | 0 | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 | 9 | 12 | 9 | 0 | 0 | 0 | 0 | E | 0 | 0 | 0 |
| | | | | | | | | | | | | | | | | | | | | | | W | 552 | 1 | 0 |
| | **TOTAL:** | **530** | **75** | **411** | **0** | **486** | **0** | **119** | **0** | **44** | **163** | **985** | **0** | **941** | **239** | **1,180** | **314** | **0** | **0** | **0** | **0** | | | | |
| 16:00-18:00 | CAR | 1,247 | 144 | 1,017 | 0 | 1,161 | 0 | 230 | 0 | 94 | 324 | 703 | 0 | 609 | 191 | 800 | 335 | 0 | 0 | 0 | 0 | N | 297 | 24 | 0 |
| | TRK | 17 | 7 | 13 | 0 | 20 | 0 | 4 | 0 | 1 | 5 | 8 | 0 | 7 | 2 | 9 | 9 | 0 | 0 | 0 | 0 | S | 354 | 16 | 0 |
| 2 HR PM | BUS | 7 | 5 | 6 | 0 | 11 | 0 | 1 | 0 | 0 | 1 | 4 | 0 | 4 | 13 | 17 | 18 | 0 | 0 | 0 | 0 | E | 0 | 0 | 0 |
| | | | | | | | | | | | | | | | | | | | | | | W | 719 | 6 | 0 |
| | **TOTAL:** | **1,271** | **156** | **1,036** | **0** | **1,192** | **0** | **235** | **0** | **95** | **330** | **715** | **0** | **620** | **206** | **826** | **362** | **0** | **0** | **0** | **0** | | | | |
| 07:30-18:00 | CAR | 3,180 | 449 | 2,545 | 0 | 2,994 | 0 | 635 | 0 | 271 | 906 | 3,046 | 0 | 2,775 | 843 | 3,618 | 1,292 | 0 | 0 | 0 | 0 | N | 1,154 | 88 | 0 |
| | TRK | 103 | 20 | 79 | 0 | 99 | 0 | 24 | 0 | 9 | 33 | 89 | 0 | 80 | 11 | 91 | 31 | 0 | 0 | 0 | 0 | S | 1,092 | 58 | 0 |
| 8 HR SUM | BUS | 14 | 8 | 12 | 0 | 20 | 0 | 2 | 0 | 0 | 2 | 18 | 0 | 18 | 22 | 40 | 30 | 0 | 0 | 0 | 0 | E | 0 | 0 | 0 |
| | | | | | | | | | | | | | | | | | | | | | | W | 2,768 | 18 | 0 |
| | **TOTAL:** | **3,297** | **477** | **2,636** | **0** | **3,113** | **0** | **661** | **0** | **280** | **941** | **3,153** | **0** | **2,873** | **876** | **3,749** | **1,353** | **0** | **0** | **0** | **0** | | | | |

**Total 8 Hour Vehicle Volume: 7,803**

**Total 8 Hour Bicycle Volume: 164**

**Total 8 Hour Intersection Volume: 7,967**

**Comment:**



Printed On: 02 Aug, 2017 8:09:07AM

# City of Toronto - Traffic Safety Unit

## Turning Movement Count Summary Report

**BAY ST AT CUMBERLAND ST (PX 2374)**

**Survey Date:** 2016-Oct-18 (Tuesday)

**Survey Type:** Routine Hours

| Time Period | Vehicle Type | NORTHBOUND Exits | Left | Thru | Right | Total | EASTBOUND Exits | Left | Thru | Right | Total | SOUTHBOUND Exits | Left | Thru | Right | Total | WESTBOUND Exits | Left | Thru | Right | Total | | Peds | Bike | Other |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 08:30-09:30 | CAR | 455 | 0 | 405 | 78 | 483 | 153 | 39 | 58 | 81 | 178 | 556 | 17 | 466 | 0 | 483 | 0 | 9 | 0 | 11 | 20 | N | 190 | 106 | 0 |
| | TRK | 14 | 0 | 13 | 1 | 14 | 6 | 1 | 0 | 5 | 6 | 19 | 5 | 14 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | S | 241 | 47 | 0 |
| AM PEAK | BUS | 14 | 0 | 14 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 13 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | E | 452 | 1 | 0 |
| | | | | | | | | | | | | | | | | | | | | | | W | 658 | 14 | 0 |
| | **TOTAL:** | **483** | **0** | **432** | **79** | **511** | **159** | **40** | **58** | **86** | **184** | **588** | **22** | **493** | **0** | **515** | **0** | **9** | **0** | **11** | **20** | | | | |
| 17:00-18:00 | CAR | 876 | 0 | 763 | 84 | 847 | 143 | 52 | 39 | 85 | 176 | 544 | 20 | 428 | 0 | 448 | 0 | 31 | 0 | 61 | 92 | N | 239 | 42 | 0 |
| | TRK | 10 | 0 | 9 | 2 | 11 | 3 | 0 | 1 | 0 | 1 | 7 | 0 | 7 | 0 | 7 | 0 | 0 | 0 | 1 | 1 | S | 330 | 105 | 0 |
| PM PEAK | BUS | 11 | 0 | 11 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 13 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | E | 544 | 11 | 0 |
| | | | | | | | | | | | | | | | | | | | | | | W | 676 | 11 | 0 |
| | **TOTAL:** | **897** | **0** | **783** | **86** | **869** | **146** | **52** | **40** | **85** | **177** | **564** | **20** | **448** | **0** | **468** | **0** | **31** | **0** | **62** | **93** | | | | |
| OFF HR AVG | CAR | 671 | 0 | 584 | 78 | 662 | 136 | 46 | 32 | 67 | 145 | 589 | 26 | 501 | 0 | 527 | 0 | 21 | 0 | 41 | 62 | N | 258 | 33 | 0 |
| | TRK | 25 | 0 | 23 | 2 | 25 | 7 | 2 | 3 | 9 | 14 | 25 | 2 | 16 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | S | 439 | 29 | 0 |
| | BUS | 8 | 0 | 8 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 8 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | E | 491 | 3 | 0 |
| | | | | | | | | | | | | | | | | | | | | | | W | 652 | 5 | 0 |
| | **TOTAL:** | **704** | **0** | **615** | **80** | **695** | **143** | **48** | **35** | **76** | **159** | **622** | **28** | **525** | **0** | **553** | **0** | **21** | **0** | **41** | **62** | | | | |
| 07:30-09:30 | CAR | 853 | 0 | 768 | 144 | 912 | 251 | 70 | 86 | 116 | 272 | 1,059 | 21 | 926 | 0 | 947 | 0 | 17 | 0 | 15 | 32 | N | 277 | 185 | 0 |
| | TRK | 31 | 0 | 29 | 3 | 32 | 12 | 2 | 4 | 9 | 15 | 33 | 5 | 24 | 0 | 29 | 0 | 0 | 0 | 0 | 0 | S | 418 | 64 | 0 |
| 2 HR AM | BUS | 29 | 0 | 29 | 0 | 29 | 0 | 0 | 0 | 0 | 0 | 30 | 0 | 30 | 0 | 30 | 0 | 0 | 0 | 0 | 0 | E | 684 | 1 | 0 |
| | | | | | | | | | | | | | | | | | | | | | | W | 1,115 | 24 | 0 |
| | **TOTAL:** | **913** | **0** | **826** | **147** | **973** | **263** | **72** | **90** | **125** | **287** | **1,122** | **26** | **980** | **0** | **1,006** | **0** | **17** | **0** | **15** | **32** | | | | |
| 16:00-18:00 | CAR | 1,695 | 0 | 1,497 | 160 | 1,657 | 269 | 96 | 71 | 183 | 350 | 1,072 | 38 | 819 | 0 | 857 | 0 | 70 | 0 | 102 | 172 | N | 434 | 71 | 0 |
| | TRK | 17 | 0 | 15 | 3 | 18 | 4 | 1 | 1 | 0 | 2 | 11 | 0 | 11 | 0 | 11 | 0 | 0 | 0 | 1 | 1 | S | 628 | 184 | 0 |
| 2 HR PM | BUS | 24 | 0 | 23 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 24 | 0 | 24 | 0 | 0 | 0 | 1 | 1 | E | 945 | 18 | 0 |
| | | | | | | | | | | | | | | | | | | | | | | W | 1,271 | 17 | 0 |
| | **TOTAL:** | **1,736** | **0** | **1,535** | **163** | **1,698** | **273** | **97** | **72** | **183** | **352** | **1,107** | **38** | **854** | **0** | **892** | **0** | **70** | **0** | **104** | **174** | | | | |
| 07:30-18:00 | CAR | 5,228 | 0 | 4,600 | 616 | 5,216 | 1,064 | 349 | 285 | 567 | 1,201 | 4,488 | 163 | 3,749 | 0 | 3,912 | 0 | 172 | 0 | 279 | 451 | N | 1,742 | 389 | 0 |
| | TRK | 150 | 0 | 137 | 14 | 151 | 45 | 12 | 18 | 45 | 75 | 144 | 13 | 99 | 0 | 112 | 0 | 0 | 0 | 1 | 1 | S | 2,801 | 363 | 0 |
| 8 HR SUM | BUS | 86 | 0 | 85 | 1 | 86 | 1 | 0 | 0 | 0 | 0 | 85 | 0 | 85 | 0 | 85 | 0 | 0 | 0 | 1 | 1 | E | 3,594 | 30 | 0 |
| | | | | | | | | | | | | | | | | | | | | | | W | 4,995 | 60 | 0 |
| | **TOTAL:** | **5,464** | **0** | **4,822** | **631** | **5,453** | **1,110** | **361** | **303** | **612** | **1,276** | **4,717** | **176** | **3,933** | **0** | **4,109** | **0** | **172** | **0** | **281** | **453** | | | | |

**Total 8 Hour Vehicle Volume: 11,291**

**Total 8 Hour Bicycle Volume: 842**

**Total 8 Hour Intersection Volume: 12,133**

**Comment:**



Printed On: 02 Aug, 2017 8:11:43AM

# City of Toronto - Traffic Safety Unit

## Turning Movement Count Summary Report

**BAY ST AT DAVENPORT RD (PX 896)**

**Survey Date:** 2014-Oct-06 (Monday)

**Survey Type:** Routine Hours

| Time Period | Vehicle Type | NORTHBOUND Exits | Left | Thru | Right | Total | EASTBOUND Exits | Left | Thru | Right | Total | SOUTHBOUND Exits | Left | Thru | Right | Total | WESTBOUND Exits | Left | Thru | Right | Total | | Peds | Bike | Other |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 08:30-09:30 | CAR | 0 | 230 | 0 | 118 | 348 | 982 | 0 | 864 | 397 | 1,261 | 462 | 0 | 0 | 0 | 0 | 612 | 65 | 382 | 0 | 447 | N | 0 | 0 | 0 |
| | TRK | 0 | 9 | 0 | 4 | 13 | 20 | 0 | 16 | 15 | 31 | 19 | 0 | 0 | 0 | 0 | 29 | 4 | 20 | 0 | 24 | S | 207 | 9 | 0 |
| AM PEAK | BUS | 0 | 12 | 0 | 6 | 18 | 7 | 0 | 1 | 9 | 10 | 9 | 0 | 0 | 0 | 0 | 15 | 0 | 3 | 0 | 3 | E | 180 | 12 | 0 |
| | | | | | | | | | | | | | | | | | | | | | | W | 72 | 113 | 0 |
| | **TOTAL:** | **0** | **251** | **0** | **128** | **379** | **1,009** | **0** | **881** | **421** | **1,302** | **490** | **0** | **0** | **0** | **0** | **656** | **69** | **405** | **0** | **474** | | | | |
| 17:00-18:00 | CAR | 0 | 545 | 0 | 244 | 789 | 807 | 0 | 563 | 236 | 799 | 295 | 0 | 0 | 0 | 0 | 1,180 | 59 | 635 | 0 | 694 | N | 0 | 0 | 0 |
| | TRK | 0 | 2 | 0 | 1 | 3 | 7 | 0 | 6 | 2 | 8 | 4 | 0 | 0 | 0 | 0 | 6 | 2 | 4 | 0 | 6 | S | 150 | 79 | 0 |
| PM PEAK | BUS | 0 | 6 | 0 | 3 | 9 | 5 | 0 | 2 | 6 | 8 | 6 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | E | 161 | 53 | 0 |
| | | | | | | | | | | | | | | | | | | | | | | W | 75 | 46 | 0 |
| | **TOTAL:** | **0** | **553** | **0** | **248** | **801** | **819** | **0** | **571** | **244** | **815** | **305** | **0** | **0** | **0** | **0** | **1,192** | **61** | **639** | **0** | **700** | | | | |
| OFF HR AVG | CAR | 0 | 256 | 0 | 143 | 399 | 486 | 0 | 343 | 291 | 634 | 347 | 0 | 0 | 0 | 0 | 585 | 56 | 329 | 0 | 385 | N | 0 | 0 | 0 |
| | TRK | 0 | 12 | 0 | 4 | 16 | 20 | 0 | 16 | 11 | 27 | 14 | 0 | 0 | 0 | 0 | 29 | 3 | 17 | 0 | 20 | S | 86 | 10 | 0 |
| | BUS | 0 | 7 | 0 | 0 | 7 | 1 | 0 | 1 | 6 | 7 | 6 | 0 | 0 | 0 | 0 | 8 | 0 | 1 | 0 | 1 | E | 90 | 5 | 0 |
| | | | | | | | | | | | | | | | | | | | | | | W | 57 | 29 | 0 |
| | **TOTAL:** | **0** | **275** | **0** | **147** | **422** | **507** | **0** | **360** | **308** | **668** | **367** | **0** | **0** | **0** | **0** | **622** | **59** | **347** | **0** | **406** | | | | |
| 07:30-09:30 | CAR | 0 | 464 | 0 | 239 | 703 | 1,653 | 0 | 1,414 | 764 | 2,178 | 884 | 0 | 0 | 0 | 0 | 1,214 | 120 | 750 | 0 | 870 | N | 0 | 0 | 0 |
| | TRK | 0 | 16 | 0 | 8 | 24 | 47 | 0 | 39 | 22 | 61 | 30 | 0 | 0 | 0 | 0 | 50 | 8 | 34 | 0 | 42 | S | 281 | 14 | 0 |
| 2 HR AM | BUS | 0 | 23 | 0 | 11 | 34 | 17 | 0 | 6 | 20 | 26 | 21 | 0 | 0 | 0 | 0 | 26 | 1 | 3 | 0 | 4 | E | 235 | 21 | 0 |
| | | | | | | | | | | | | | | | | | | | | | | W | 132 | 175 | 0 |
| | **TOTAL:** | **0** | **503** | **0** | **258** | **761** | **1,717** | **0** | **1,459** | **806** | **2,265** | **935** | **0** | **0** | **0** | **0** | **1,290** | **129** | **787** | **0** | **916** | | | | |
| 16:00-18:00 | CAR | 0 | 941 | 0 | 417 | 1,358 | 1,307 | 0 | 890 | 462 | 1,352 | 564 | 0 | 0 | 0 | 0 | 2,027 | 102 | 1,086 | 0 | 1,188 | N | 0 | 0 | 0 |
| | TRK | 0 | 12 | 0 | 7 | 19 | 23 | 0 | 16 | 4 | 20 | 9 | 0 | 0 | 0 | 0 | 25 | 5 | 13 | 0 | 18 | S | 296 | 94 | 0 |
| 2 HR PM | BUS | 0 | 10 | 0 | 8 | 18 | 10 | 0 | 2 | 12 | 14 | 12 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | E | 290 | 62 | 0 |
| | | | | | | | | | | | | | | | | | | | | | | W | 143 | 75 | 0 |
| | **TOTAL:** | **0** | **963** | **0** | **432** | **1,395** | **1,340** | **0** | **908** | **478** | **1,386** | **585** | **0** | **0** | **0** | **0** | **2,062** | **107** | **1,099** | **0** | **1,206** | | | | |
| 07:30-18:00 | CAR | 0 | 2,429 | 0 | 1,229 | 3,658 | 4,903 | 0 | 3,674 | 2,391 | 6,065 | 2,837 | 0 | 0 | 0 | 0 | 5,582 | 446 | 3,153 | 0 | 3,599 | N | 0 | 0 | 0 |
| | TRK | 0 | 75 | 0 | 31 | 106 | 149 | 0 | 118 | 69 | 187 | 92 | 0 | 0 | 0 | 0 | 189 | 23 | 114 | 0 | 137 | S | 921 | 148 | 0 |
| 8 HR SUM | BUS | 0 | 59 | 0 | 20 | 79 | 30 | 0 | 10 | 57 | 67 | 58 | 0 | 0 | 0 | 0 | 65 | 1 | 6 | 0 | 7 | E | 885 | 104 | 0 |
| | | | | | | | | | | | | | | | | | | | | | | W | 503 | 364 | 0 |
| | **TOTAL:** | **0** | **2,563** | **0** | **1,280** | **3,843** | **5,082** | **0** | **3,802** | **2,517** | **6,319** | **2,987** | **0** | **0** | **0** | **0** | **5,836** | **470** | **3,273** | **0** | **3,743** | | | | |

**Total 8 Hour Vehicle Volume: 13,905**

**Total 8 Hour Bicycle Volume: 616**

**Total 8 Hour Intersection Volume: 14,521**

**Comment:**



Printed On: 22 Jan, 2015 10:07:06AM

# City of Toronto - Traffic Data Centre & Safety Bureau

## Turning Movement Count Summary Report

**BLOOR ST AT YONGE ST (PX 40)**

**Survey Date:** 2009-Aug-12 (Wednesday)

**Survey Type:** Routine Hours

| Time Period | Vehicle Type | NORTHBOUND Exits | Left | Thru | Right | Total | EASTBOUND Exits | Left | Thru | Right | Total | SOUTHBOUND Exits | Left | Thru | Right | Total | WESTBOUND Exits | Left | Thru | Right | Total | | Peds | Bike | Other |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 08:00-09:00 | CAR | 324 | 0 | 317 | 3 | 320 | 426 | 0 | 423 | 1 | 424 | 690 | 0 | 689 | 6 | 695 | 583 | 0 | 577 | 7 | 584 | N | 721 | 0 | 0 |
| | TRK | 24 | 0 | 24 | 0 | 24 | 20 | 0 | 20 | 0 | 20 | 22 | 0 | 22 | 0 | 22 | 20 | 0 | 20 | 0 | 20 | S | 514 | 0 | 0 |
| AM PEAK | BUS | 3 | 0 | 3 | 0 | 3 | 1 | 0 | 1 | 0 | 1 | 4 | 0 | 4 | 0 | 4 | 1 | 0 | 1 | 0 | 1 | E | 469 | 0 | 0 |
| | | | | | | | | | | | | | | | | | | | | | | W | 248 | 0 | 0 |
| | **TOTAL:** | **351** | **0** | **344** | **3** | **347** | **447** | **0** | **444** | **1** | **445** | **716** | **0** | **715** | **6** | **721** | **604** | **0** | **598** | **7** | **605** | | | | |
| 17:00-18:00 | CAR | 522 | 0 | 519 | 6 | 525 | 638 | 0 | 632 | 3 | 635 | 584 | 0 | 581 | 10 | 591 | 541 | 0 | 531 | 3 | 534 | N | 1,236 | 0 | 0 |
| | TRK | 6 | 0 | 6 | 0 | 6 | 11 | 0 | 11 | 0 | 11 | 8 | 0 | 8 | 0 | 8 | 10 | 0 | 10 | 0 | 10 | S | 982 | 0 | 0 |
| PM PEAK | BUS | 6 | 0 | 6 | 0 | 6 | 1 | 0 | 1 | 0 | 1 | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 2 | 0 | 2 | E | 1,342 | 0 | 0 |
| | | | | | | | | | | | | | | | | | | | | | | W | 1,245 | 0 | 0 |
| | **TOTAL:** | **534** | **0** | **531** | **6** | **537** | **650** | **0** | **644** | **3** | **647** | **594** | **0** | **591** | **10** | **601** | **553** | **0** | **543** | **3** | **546** | | | | |
| OFF HR AVG | CAR | 362 | 0 | 334 | 39 | 373 | 433 | 0 | 394 | 25 | 419 | 439 | 0 | 414 | 27 | 441 | 481 | 0 | 454 | 28 | 482 | N | 948 | 0 | 0 |
| | TRK | 19 | 0 | 18 | 1 | 19 | 25 | 0 | 24 | 2 | 26 | 26 | 0 | 24 | 1 | 25 | 17 | 0 | 16 | 1 | 17 | S | 635 | 0 | 0 |
| | BUS | 3 | 0 | 3 | 0 | 3 | 2 | 0 | 2 | 0 | 2 | 3 | 0 | 3 | 0 | 3 | 1 | 0 | 1 | 0 | 1 | E | 984 | 0 | 0 |
| | | | | | | | | | | | | | | | | | | | | | | W | 642 | 0 | 0 |
| | **TOTAL:** | **384** | **0** | **355** | **40** | **395** | **460** | **0** | **420** | **27** | **447** | **468** | **0** | **441** | **28** | **469** | **499** | **0** | **471** | **29** | **500** | | | | |
| 07:30-09:30 | CAR | 586 | 0 | 575 | 16 | 591 | 852 | 0 | 836 | 3 | 839 | 1,317 | 0 | 1,314 | 21 | 1,335 | 1,102 | 0 | 1,081 | 11 | 1,092 | N | 1,237 | 0 | 0 |
| | TRK | 41 | 0 | 40 | 1 | 41 | 54 | 0 | 53 | 1 | 54 | 46 | 0 | 45 | 0 | 45 | 42 | 0 | 42 | 1 | 43 | S | 846 | 0 | 0 |
| 2 HR AM | BUS | 7 | 0 | 7 | 0 | 7 | 3 | 0 | 3 | 0 | 3 | 9 | 0 | 9 | 0 | 9 | 1 | 0 | 1 | 0 | 1 | E | 827 | 0 | 0 |
| | | | | | | | | | | | | | | | | | | | | | | W | 396 | 0 | 0 |
| | **TOTAL:** | **634** | **0** | **622** | **17** | **639** | **909** | **0** | **892** | **4** | **896** | **1,372** | **0** | **1,368** | **21** | **1,389** | **1,145** | **0** | **1,124** | **12** | **1,136** | | | | |
| 16:00-18:00 | CAR | 964 | 0 | 957 | 8 | 965 | 1,255 | 0 | 1,247 | 7 | 1,254 | 1,063 | 0 | 1,056 | 20 | 1,076 | 1,113 | 0 | 1,093 | 7 | 1,100 | N | 2,571 | 0 | 0 |
| | TRK | 16 | 0 | 16 | 0 | 16 | 26 | 0 | 26 | 1 | 27 | 20 | 0 | 19 | 0 | 19 | 20 | 0 | 20 | 0 | 20 | S | 1,912 | 0 | 0 |
| 2 HR PM | BUS | 12 | 0 | 12 | 0 | 12 | 2 | 0 | 2 | 0 | 2 | 6 | 0 | 6 | 0 | 6 | 3 | 0 | 3 | 0 | 3 | E | 2,593 | 0 | 0 |
| | | | | | | | | | | | | | | | | | | | | | | W | 2,481 | 0 | 0 |
| | **TOTAL:** | **992** | **0** | **985** | **8** | **993** | **1,283** | **0** | **1,275** | **8** | **1,283** | **1,089** | **0** | **1,081** | **20** | **1,101** | **1,136** | **0** | **1,116** | **7** | **1,123** | | | | |
| 07:30-18:00 | CAR | 2,999 | 0 | 2,868 | 179 | 3,047 | 3,839 | 0 | 3,660 | 111 | 3,771 | 4,136 | 0 | 4,025 | 148 | 4,173 | 4,136 | 0 | 3,988 | 131 | 4,119 | N | 7,598 | 0 | 0 |
| | TRK | 134 | 0 | 129 | 6 | 135 | 182 | 0 | 176 | 9 | 185 | 169 | 0 | 160 | 4 | 164 | 128 | 0 | 124 | 5 | 129 | S | 5,297 | 0 | 0 |
| 8 HR SUM | BUS | 29 | 0 | 29 | 0 | 29 | 11 | 0 | 11 | 0 | 11 | 28 | 0 | 28 | 0 | 28 | 9 | 0 | 9 | 0 | 9 | E | 7,355 | 0 | 0 |
| | | | | | | | | | | | | | | | | | | | | | | W | 5,446 | 0 | 0 |
| | **TOTAL:** | **3,162** | **0** | **3,026** | **185** | **3,211** | **4,032** | **0** | **3,847** | **120** | **3,967** | **4,333** | **0** | **4,213** | **152** | **4,365** | **4,273** | **0** | **4,121** | **136** | **4,257** | | | | |

**Total 8 Hour Vehicle Volume: 15,800**

**Total 8 Hour Bicycle Volume: 0**

**Total 8 Hour Intersection Volume: 15,800**

**Comment:**



Printed On: 15 Jul, 2011 1:26:13PM