# Road Traffic and Stationary Noise Impact Study

## 7737 Lundy's Lane, Niagara Falls, Ontario

JJ-00676-NIS1

September 06, 2024, Reference No. JJ-00676-NIS1

Ryan Perera
Bluevale Capital Group Inc.

Dear Mr. Perera:

**Re: Road Traffic and Stationary Noise Impact Study**
7737 Lundy's Lane**,** Niagara Falls**, Ontario**

# 1. Introduction

JJ Acoustic Engineering Ltd. (JJAE) was retained to complete a Road Traffic and Stationary Noise Impact Study (Study) for the residential/commercial development located at 7737 Lundy's Lane in Niagara Falls, Ontario (Site). The Site will be developed into a 3-storey residential/commercial building. JJAE has provided a copy of the most up-to-date Site Plan in Attachment A.

The Study was prepared consistent with Ontario Ministry of the Environment, Conservation and Park (MOECP) NPC 300, "Environmental Noise Guideline, Stationary and Transportation Sources– Approval and Planning" dated August 2013.

This Study has determined that the potential environmental noise impact from road traffic noise is significant. The proposed development will need the following: a requirement for central air-conditioning, noise warning clauses and special building components. Road traffic noise control requirements for the Site were determined based on road traffic volumes provided by the Region of Niagara (Region) and forecasted to 20 years from the date of this study. Road traffic data has been supplied in Attachment B.

JJ Acoustic Engineering Ltd.
joey@jjae.ca
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The following attachments were included with this Study:

- Attachment A – Site Plan
- Attachment B – Traffic Data Summary Table & Sample Stamson Traffic Model Outputs
- Attachment C – Stationary Noise Impact Figures
- Attachment D – Stationary Noise Impact Source Table

# 2. Road Traffic Analysis

## 2.1 Road Traffic Noise Modeling Methodology

The road traffic noise impact was conducted using STAMSON, the MOECP's computerized model of ORNAMENT. The Application of the model for the site was consistent with the ORNAMENT technical documents. The computer model input parameters include, among other data, the number of road segments, number of house rows, the positional relationship of the receptor to a noise source or barrier in terms of distance, elevation and angle of exposure to the source, the basic site topography, the ground surface type, traffic volumes, traffic composition and speed limit.

The predicted sound level is based on the 1-hour equivalent sound level, designated as Leq, and is adjusted by the STAMSON program to the 16-hour daytime and the 8-hour nighttime equivalent sound level. The applicable noise criteria for noise sensitive spaces are specified in terms of the 16-hour daytime period (7:00 a.m. to 11:00 p.m.) and 8-hour nighttime period (11:00 p.m. to 7:00 a.m.) enabling a direct comparison between the STAMSON model output and the noise limits.

Where there are multiple sources of noise, such as road and rail, JJAE evaluated noise control measures by combining both road and rail sources and applying measures as described in Section C7.3 of NPC 300.

## 2.2 Road Traffic Model Input Parameters

This section describes the STAMSON model input parameters used to predict road traffic noise impact for the Site.

The Site has two significant roadways in the vicinity of the development: Lundy's Lane approximately 15 meters to the South and Queen Elizabeth Highway approximately 500 meters to the East. Where there are intervening and off-site structures that provide line-of-sight obstruction to the roads, JJAE did not include line-of-sight obstruction in our analysis as to calculate worst-case noise impact.

Montrose Road was not assessed as the noise impacts from Lundy's Lane and Queen Elizabeth Highway were far more significant. JJAE reviewed other surrounding roadways in the vicinity of the Site and only the significant roadways were used in our modeling, other roadways were considered to be insignificant or beyond our red flag zone.

### 2.2.1 Road Traffic Parameters

The traffic data provided by the Region has been summarized below:

***Lundy's Lane:***

- Current AADT (2021): 16,890
- Forecast AADT (2044): 29.804
- Commercial Vehicle Rates: 2.37% medium trucks and 1.58% heavy trucks.
- Posted Speed Limit: 50 km/h
- Day Night Splits: 90% day and 10% night

***Queen Elizabeth Highway:***

- Current AADT (2019): 47,500
- Forecast AADT (2044): 88,062
- Commercial Vehicle Rates: 5% medium trucks and 8% heavy trucks.
- Posted Speed Limit: 100 km/h
- Day Night Splits: 85% day and 15% night

The traffic data is the foundation of this analysis and the Study will be updated if the values change. Traffic data was supplied by the Region. Queen Elizabeth Highway traffic data is provided by Ministry of Transportation "Provincial Highways Traffic Volumes 2019 AADT". The Region's AADT report for this Noise Studies report has been supplied in Attachment B.

Future values were determined using an assumed Percentage Annual Growth of 2.5% over 20 years.

## 2.3 Road Traffic Noise Modeling Results

JJAE calculated the Plane of Window (POW) noise exposure for each floor at the Site for the separate daytime and nighttime periods.

The STAMSON road traffic model outputs are provided in Attachment B.

## 2.4 Road Traffic Modeling Discussion

Noise control requirements will be defined based on NPC 300.

***Daytime Outdoor Living Area Assessment (NPC 300, Section C7.1.1)***

NPC 300 section A5 (pages 13-14) defines an Outdoor Living Area (OLA). As part of this definition, a balcony or terrace is considered an OLA if it has a minimum depth of 4 meters. All balconies are less than 4 m in depth and therefore will not be considered as OLAs.

The OLA is located at ground level at the center of the of Site. The OLA noise impact was calculated to be dBA. As the neighboring building (7701 Lundy's Lane) completely blocks line of sight from the Queen Elizabeth Highway, JJEA has used a conservative 5 rows of houses in the assessment of road traffic noise impact from the Queen Elizabeth Highway. OLA location is indicated in Attachment A – Site Plan

***Plane of a Window – Ventilation Requirements (NPC 300, Section C7.1.2)***

The predicted daytime and nighttime Plane of Window (POW) noise impact assumes a worst-case and direct line of sight noise exposure to both roads, unless the building itself blocks line-of-sight (full or partial).

JJAE has used the following criteria, which is a summary of NPC 300 requirements, to evaluate the Site noise impacts from road traffic noise:

| **Daytime Level (dBA)** | **Nighttime Level (dBA)** | **Ventilation Requirements and Warning Clauses** | **Special Building Components** |
|---|---|---|---|
| 55 | 50 | Not Required | Not Required |
| 55 – 65 | 50 – 60 | Yes, with Type C Warning Clause | Not Required |
| 66 or more | 61 or more | Yes, with Type D Warning Clause | Yes |

Table B.1 summarizes the predicted worst-case sound levels and the requirements for the units. The following warning clause is required:

**Warning Clause A:** "Purchasers/tenants are advised that sound levels due to increasing (rail) traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment, Conservation and Parks."

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

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

***Indoor Living Areas – Building Components (NPC 300, Section C7.1.3)***

At minimum, the building must be constructed to standard Ontario Building Code requirements. Improved building components are required and summarized in Table B.1. JJAE has assumed 35% window to floor area coverage and that windows are thick and operable. In addition, exterior wall compositions must be a minimum of STC 44.

# 3. Stationary Noise Impact Analysis

## 3.1 Stationary Noise Impact Sound Level Criteria

The general criteria for stationary noise sources are defined by NPC 300. The criteria defined in Table C-5 and C-6, "Exclusion Limit Values of One-Hour Equivalent Sound Level (Leq, dBA) Outdoor Points of Reception" and "Exclusion Limit Values of One-Hour Equivalent Sound Level (Leq, dBA) Plane of Window of Noise Sensitive Spaces" are used to evaluate the noise impact at the proposed development.

The criteria for a Class 1 area have been summarized below:

| **Receiver Category** | **Time Period** | **Stationary Noise Criteria** |
|---|---|---|
| Outdoor Living Area (OLA) | Day = 7:00 to 23:00 | Leq = 50 dBA |
| Plane of Window (POW) | Day = 7:00 to 23:00 | Leq = 50 dBA |
| | Night = 23:00 to 7:00 | Leq = 45 dBA |

## 3.2 Modelling Methodology

The stationary noise impact was evaluated using the CADNA A acoustic modelling software that is based on the ISO 9613-2 standard. The data for all potential stationary noise sources was summarized in Attachment D.

JJAE used the following assumptions in our Cadna A model:

- **Ground Absorption**: Default ground absorption coefficient of 0.7 was used.
- **Temperature**: 10°C
- **Humidity**: 70%
- **Building Reflection Coefficient**: Absorption Coefficient Alpha of 0.37 (Reflection Loss of 2dB, Structured Façade) was used.
- **Time-Weighted Adjustment:** where sources operate non-continuously JJAE has provided operating times and as shown in Sections 4 and 5.
- **Tonality**: A 5 dbA tonal penalty was applied to all tonal sources, where applicable. JJAE has provided a (T) for sources identified as tonal in Sections 4 and 5.
- **Reflection Order**: A maximum reflection order of 1 was used to evaluate indirect noise impact.

## 4. Noise Impact Summary – From Site to Environment

The noise from the Site to the neighboring buildings could not be accounted for because the site has not undergone mechanical design yet. An addendum to this report should be completed once a mechanical design is done to account for noise from the Site to the neighboring building.

## 5. Noise Impact Summary – From Environment to Site

There are several buildings near the site. JJAE has identified several potential stationary noise sources including:

- Medium HVAC Units (60 minutes daytime, 30 minutes nighttime)
- Small HVAC Units (60 minutes daytime, 30 minutes nighttime)

A summary of the noise sources used in our modelling is provided in Attachment D.

JJAE modelled the noise impact from all significant noise sources to the Site. The results are summarized in the table below and illustrated on Figure 1.

| Facade | Worst Case Daytime Sound Level (dBA) | Daytime Noise Limit (dBA) | Worst Case Nighttime Sound Level (dBA) | Nighttime Noise Limit (dBA) | Limits met |
|---|---|---|---|---|---|
| North | <30 | 50 | <30 | 45 | Yes |
| East | 47 | 50 | 44 | 45 | Yes |
| South | 33 | 50 | 33 | 45 | Yes |
| West | 33 | 50 | 33 | 45 | Yes |
| OLA | <30 | 50 | N/A | N/A | Yes |

From the table above it can be seen that all facades and OLA are below noise limits.

# 6. Recommendations

The road traffic noise impacts were above the NPC 300 requirements. Noise mitigation measures include:

- Warning Clause Type A for all units.
- Warning Clause Type C for the North and West façades.
- Warning Clause Type D for East and South façades.
- Mandatory Requirement for Air Conditioning for the entire building.
- A minimum of STC 27 is required for all exterior glazing for the East façade using 35% window area to floor area and thick operable windows.
- A minimum of STC 28 is required for all exterior glazing for the South façade using 35% window area to floor area and thick operable windows.

These have been summarized in Attachment B under Table B1.

The stationary noise impacts from the neighboring building to the site were evaluated and the sound level predictions were determined to be below the noise limits for all façades.

The noise from the Site to the neighboring buildings could not be accounted for because the site has not undergone mechanical design yet. An addendum to this report should be completed once a mechanical design is done to account for noise from the Site to the neighboring building.

## 7. Conclusions

The results of this Study indicate that the potential environmental impact from road traffic noise sources is significant. Mitigation measures will be required including ventilation requirements, special building components and noise warning clauses for each unit. With the mitigation measures provided in Section 6, there will be minimal noise impact from the neighboring buildings to the Site.

Should you have any questions on the above, please do not hesitate to contact us.

Yours truly,

Written by: Reviewed by:

Sept. 6, 2024


Emmanuel Ghiorghis,
Acoustic Technician

Joey Jraige, P.Eng., B.A.Sc.
President

JJ Acoustic Engineering Ltd.
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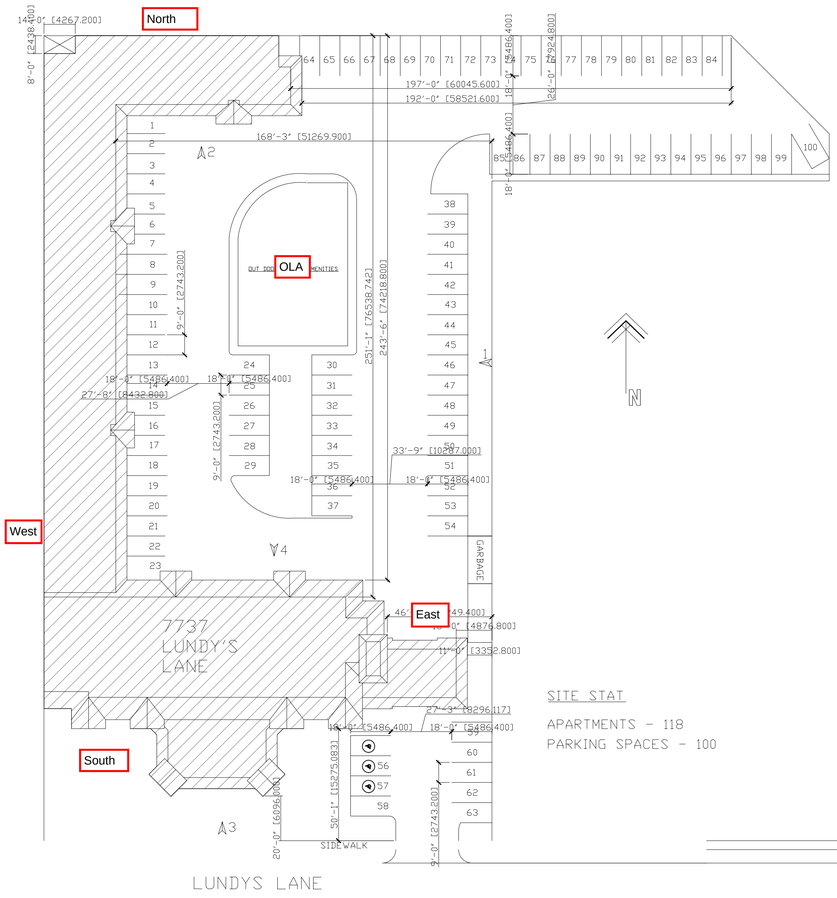
# ATTACHMENT A

STATISTICS:
-TOTAL AREA OF THE SITE=80980 SQ.FT.=1.859 ACRES
-TOTAL FLOOR AREA OF GROUND FLOOR=2050M2
-TOTAL FLOOR AREA OF SECOND FLOOR=1891 M2
-TOTAL FLOOR AREA OF SECOND FLOOR=1891 M2
-TOTAL GROSS FLOOR AREA OF THE BUILDING=5832 M2
-TOTAL AREA OF RESIDENTIAL UNITS IN GROUND FLOOR=1483M2
-TOTAL GROSS FLOOR AREA OF ALL RESIDENTIAL UNITS W/ CORRIDORS LEADING TO THEM=5265M2
-PERCENTAGE OF GROSS RESIDENTIAL UNITS TO GROSS FLOOR AREA=90.2%
-TOTAL GROSS FLOOR AREA OF ALL COMMERCIAL SPACES(MAIN ENTRANCE, LOBBY, RECEPTION, DINING, KITCHEN, SWIMMING POOL & RECREATION)=567M2
-PERCENTAGE OF GROSS COMMERCIAL SPACES TO GROSS FLOOR AREA=9.8%
-TOTAL FLOOR AREA OF INDOOR AMENITIES IN THE BASEMENT INCLUDING, MEETING ROOM, MECHANICAL ROOMS, TOILETS, ELECTRICAL ROOM AND HOT WATER ROOM=1005.3M2
-TOTAL AREA OF  OUT DOOR FUTURE AMENITIES=306.5M2




| | | |
|---|---|---|
| 2- | ISSUED FOR BUILDING PERMIT | SEPTEMBER-2024 |
| 1- | ISSUED FOR CLIENT REVIEW | JULY-2024 |
| | REVISION | DATE |

ONTARIO ASSOCIATION OF ARCHITECTS
09-04-2024
BENAN HANOUDI
LICENCE
8741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PROJECT:
**7737 LUNDYS LANE**
**AS-IS DRAWINGS**

PROJECT NO.: **2024-36**

For: **BLUEVALE CAPITAL GROUP INC**

Drawing Title:
**SITE PLAN**

Location:
**NIAGARA FALLS, ONTARIO.**

| | |
|---|---|
| Scale: **1/32"=1'-0"** | Date: **SEPTEMBER-2024** |
| Drawn by: **B.H.** | Drawing No. **A-0** |
| Designed by: **B.H.** | |
| Approved by: | |

ATTACHMENT B

**Table B1**
**Road Traffic Noise Levels and Mitigation Measures Summary**
**7737 Lundy's Lane, Niagara Falls, Ontario**

| Point of Reception | Road Sound Level Daytime (dBA) | Road Sound Level Nighttime (dBA) | Ventilation Requirements NPC 300 | Warning Clauses From NPC 300 | Special Building Components |
|---|---|---|---|---|---|
| **North (1)** | | | | | |
| Plane of Window Level 1 | 60 (dBA) | 54 (dBA) | Requirement for Air Conditioning | Type C | Compliance with Ontario Building Code |
| Plane of Window Level 2 | 60 (dBA) | 54 (dBA) | Requirement for Air Conditioning | Type C | Compliance with Ontario Building Code |
| Plane of Window Level 3 | 60 (dBA) | 54 (dBA) | Requirement for Air Conditioning | Type C | Compliance with Ontario Building Code |
| East | | | | | |
| Plane of Window Level 1 | 69 (dBA) | 64 (dBA) | Requirement for Air Conditioning | Type D | Minimum Window STC Rating of 27 |
| Plane of Window Level 2 | 69 (dBA) | 64 (dBA) | Requirement for Air Conditioning | Type D | Minimum Window STC Rating of 27 |
| Plane of Window Level 3 | 69 (dBA) | 64 (dBA) | Requirement for Air Conditioning | Type D | Minimum Window STC Rating of 27 |
| South | | | | | |
| Plane of Window Level 1 | 70 (dBA) | 64 (dBA) | Requirement for Air Conditioning | Type D | Minimum Window STC Rating of 28 |
| Plane of Window Level 2 | 70 (dBA) | 64 (dBA) | Requirement for Air Conditioning | Type D | Minimum Window STC Rating of 28 |
| Plane of Window Level 3 | 70 (dBA) | 64 (dBA) | Requirement for Air Conditioning | Type D | Minimum Window STC Rating of 28 |
| West | | | | | |
| Plane of Window Level 1 | 61 (dBA) | 54 (dBA) | Requirement for Air Conditioning | Type C | Compliance with Ontario Building Code |
| Plane of Window Level 2 | 61 (dBA) | 54 (dBA) | Requirement for Air Conditioning | Type C | Compliance with Ontario Building Code |
| Plane of Window Level 3 | 61 (dBA) | 54 (dBA) | Requirement for Air Conditioning | Type C | Compliance with Ontario Building Code |
| Outdoor Living Area | | | | | |
| OLA | 60 (dBA) | N/A | N/A | Type A | N/A |

Note
`(1) The North Facade is shielded by the building from the road. JJAE has assumed a conservative 10 dBA reduction in sound level from the South Façade for the North Façade.

| | | | |
|---|---|---|---|
| Outdoor Sound Level | 70 | Day/Night | Day |
| Indoor Sound Level | 45 | Road/Rail | Road |
| Noise Reduction | 28 | | |
| Angle of Sound | 0 to 90 Degrees | Angle Correction | 0 |
| | | Sum | 28 |

| | | | |
|---|---|---|---|
| Component | Window | Sum | 28 |
| Sound Energy Transmitted | 100 % | Table 3 | 0 |
| Component Area | 35 % Floor Area | | |
| Room Floor Area | 100 31 | | |
| Room Absorption Category | Intermediate | Table 4 | -4 |
| Noise Spectrum Type | Mixed Road Traffic, Distance Aircraft | | |
| Component Category | Openable Thick Window | Table 5 | 4 |
| | REQUIRED STC FOR COMPONENT | | 28 |

| | | | |
|---|---|---|---|
| Component | Exterior Wall | Sum | 28 |
| Sound Energy Transmitted | 10 % | Table 3 | 10 |
| Component Area | 65 % Floor Area | | |
| Room Floor Area | 100 63 | | |
| Room Absorption Category | Intermediate | Table 4 | -1 |
| Noise Spectrum Type | Mixed Road Traffic, Distance Aircraft | | |
| Component Category | Exterior Wall | Table 5 | 7 |
| | REQUIRED STC FOR COMPONENT | | 44 |

**MH Corbin Traffic Analyzer Study**
**Computer Generated Summary Report**
**City: Niagara Region**
**Street: 610306 - EB**
**Location: 610306**

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A study of vehicle traffic was conducted with the device having serial number 405294. The study was done in the EB lane at 610306 - EB in Niagara Region, ON in  county. The study began on 2021-08-31 at 12:00 AM and concluded on 2021-09-01 at 12:00 AM, lasting a total of 24.00 hours. Traffic statistics were recorded in 15 minute time periods. The total recorded volume showed 12,060 vehicles passed through the location with a peak volume of 258 on 2021-08-31 at [05:30 PM-05:45 PM] and a minimum volume of 9 on 2021-08-31 at [03:45 AM-04:00 AM]. The AADT count for this study was 12,060.

## SPEED

Chart 1 lists the values of the speed bins and the total traffic volume for each bin. At least half the vehicles were traveling in the 39 KM/H range or lower.  The average speed for all classifed vehicles was 39 KM/H with 24.54% vehicles exceeding the posted speed of 50 KM/H. 0.00% percent of the total vehicles were traveling in excess of 89 KM/H.  The mode speed for this traffic study was 39KM/H and the 85th percentile was 53.76 KM/H.

| < to 39 | 40 to 44 | 45 to 49 | 50 to 54 | 55 to 59 | 60 to 64 | 65 to 69 | 70 to 74 | 75 to 79 | 80 to 84 | 85 to 89 | 90 to 94 | 95 to 99 | 100 to 104 | 105 to > |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4342 | 1945 | 2783 | 1524 | 830 | 335 | 147 | 71 | 22 | 21 | 0 | 0 | 0 | 0 | 0 |

**CHART 1**

## CLASSIFICATION

Chart 2 lists the values of the classification bins and the total traffic volume accumulated for each bin.
Most of the vehicles classified during the study were Passenger Vehicles. The number of Passenger Vehicles in the study was 11679 which represents 97 percent of the total classified vehicles. The number of Small Trucks in the study was 110 which represents 1 percent of the total classified vehicles. The number of Trucks/Buses in the study was 121 which represents 1 percent of the total classified vehicles. The number of Tractor Trailers in the study was 110 which represents 1 percent of the total classified vehicles.

| < to 4.9 | 5.0 to 7.9 | 8.0 to 9.9 | 10.0 to 12.9 | 13.0 to 15.9 | 16.0 to 18.9 | 19.0 to 21.9 | 22.0 to > | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6183 | 5496 | 110 | 121 | 50 | 15 | 38 | 7 | | | | | | | |

**CHART 2**

## HEADWAY

During the peak traffic period, on 2021-08-31 at [05:30 PM-05:45 PM] the average headway between vehicles was 3.475 seconds. During the slowest traffic period, on 2021-08-31 at [03:45 AM-04:00 AM] the average headway between vehicles was 90 seconds.

## WEATHER

The roadway surface temperature over the period of the study varied between 25.00 and 44.00 degrees C.

**MH Corbin Traffic Analyzer Study**
**Computer Generated Summary Report**
**City: Niagara Region**
**Street: 610306 - WB**
**Location: 610306**

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A study of vehicle traffic was conducted with the device having serial number 405077. The study was done in the WB lane at 610306 - WB in Niagara Region, ON in  county. The study began on 2021-08-31 at 12:00 AM and concluded on 2021-09-01 at 12:00 AM, lasting a total of 24.00 hours. Traffic statistics were recorded in 15 minute time periods. The total recorded volume showed 11,871 vehicles passed through the location with a peak volume of 247 on 2021-08-31 at [05:15 PM-05:30 PM] and a minimum volume of 11 on 2021-08-31 at [04:30 AM-04:45 AM]. The AADT count for this study was 11,871.

## SPEED

Chart 1 lists the values of the speed bins and the total traffic volume for each bin. At least half the vehicles were traveling in the 45 - 50 KM/H range or lower.  The average speed for all classifed vehicles was 49 KM/H with 41.14% vehicles exceeding the posted speed of 50 KM/H. 0.00% percent of the total vehicles were traveling in excess of 89 KM/H.  The mode speed for this traffic study was 45KM/H and the 85th percentile was 57.26 KM/H.

| < to 39 | 40 to 44 | 45 to 49 | 50 to 54 | 55 to 59 | 60 to 64 | 65 to 69 | 70 to 74 | 75 to 79 | 80 to 84 | 85 to 89 | 90 to 94 | 95 to 99 | 100 to 104 | 105 to > |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 841 | 1763 | 4360 | 2509 | 1288 | 633 | 256 | 109 | 48 | 24 | 0 | 0 | 0 | 0 | 0 |

**CHART 1**

## CLASSIFICATION

Chart 2 lists the values of the classification bins and the total traffic volume accumulated for each bin.
Most of the vehicles classified during the study were Passenger Vehicles. The number of Passenger Vehicles in the study was 11624 which represents 98 percent of the total classified vehicles. The number of Small Trucks in the study was 55 which represents 0 percent of the total classified vehicles. The number of Trucks/Buses in the study was 83 which represents 1 percent of the total classified vehicles. The number of Tractor Trailers in the study was 69 which represents 1 percent of the total classified vehicles.

| < to 4.9 | 5.0 to 7.9 | 8.0 to 9.9 | 10.0 to 12.9 | 13.0 to 15.9 | 16.0 to 18.9 | 19.0 to 21.9 | 22.0 to > | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5681 | 5943 | 55 | 83 | 25 | 6 | 37 | 1 | | | | | | | |

**CHART 2**

## HEADWAY

During the peak traffic period, on 2021-08-31 at [05:15 PM-05:30 PM] the average headway between vehicles was 3.629 seconds. During the slowest traffic period, on 2021-08-31 at [04:30 AM-04:45 AM] the average headway between vehicles was 75 seconds.

## WEATHER

The roadway surface temperature over the period of the study varied between 24.00 and 45.00 degrees C.

# Time/Class Report

| | | | | | |
|---|---|---|---|---|---|
| **Device ID:** 405294 | **Location:** 7908 | | | **Raw Count:** 12,060 | |
| **Operator:** MD | **Lane:** EB | | | **AADT Count:** 12,060 | |
| **Begin:** 08-31-2021 12:00 AM | **Street:** 610306 - EB | | | **AADT Factor:** 1 | |
| **End:** 09-01-2021 12:00 AM | **City:** Niagara Region | | | **Speed Limit:** 50 | |
| **Hours:** 24.00 | **County:** | | | | |
| **Period (min):** 15 | **State:** ON | | | | |

| Date And Time Range | < to 15 | 16 to 25 | 26 to 32 | 33 to 42 | 43 to 51 | 52 to 61 | 62 to 71 | 72 to > | Total |
|---|---|---|---|---|---|---|---|---|---|
| Tue,08-31-2021 | | | | | | | | | |
| [00:00-00:15] | 22 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 34 |
| [00:15-00:30] | 20 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 38 |
| [00:30-00:45] | 13 | 12 | 1 | 1 | 0 | 0 | 0 | 0 | 27 |
| [00:45-01:00] | 19 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 33 |
| | 74 | 56 | 1 | 1 | 0 | 0 | 0 | 0 | 132 |
| [01:00-01:15] | 9 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| [01:15-01:30] | 7 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| [01:30-01:45] | 10 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| [01:45-02:00] | 7 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| | 33 | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 72 |
| [02:00-02:15] | 7 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| [02:15-02:30] | 3 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| [02:30-02:45] | 7 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| [02:45-03:00] | 6 | 7 | 0 | 0 | 1 | 0 | 0 | 0 | 14 |
| | 23 | 31 | 0 | 0 | 1 | 0 | 0 | 0 | 55 |
| [03:00-03:15] | 7 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| [03:15-03:30] | 5 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 13 |
| [03:30-03:45] | 4 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 9 |
| [03:45-04:00] | 7 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| | 23 | 17 | 1 | 1 | 0 | 0 | 0 | 0 | 42 |
| [04:00-04:15] | 4 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| [04:15-04:30] | 7 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| [04:30-04:45] | 9 | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 15 |
| [04:45-05:00] | 4 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 9 |
| | 24 | 24 | 0 | 2 | 0 | 0 | 0 | 0 | 50 |
| [05:00-05:15] | 7 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| [05:15-05:30] | 7 | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 14 |
| [05:30-05:45] | 16 | 14 | 0 | 1 | 0 | 0 | 0 | 0 | 31 |
| [05:45-06:00] | 21 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 33 |
| | 51 | 35 | 0 | 2 | 0 | 0 | 0 | 0 | 88 |
| [06:00-06:15] | 17 | 24 | 0 | 1 | 0 | 0 | 1 | 0 | 43 |
| [06:15-06:30] | 16 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 37 |
| [06:30-06:45] | 39 | 31 | 0 | 0 | 1 | 0 | 1 | 0 | 72 |
| [06:45-07:00] | 24 | 32 | 0 | 1 | 1 | 0 | 0 | 0 | 58 |
| | 96 | 108 | 0 | 2 | 2 | 0 | 2 | 0 | 210 |
| [07:00-07:15] | 23 | 35 | 1 | 1 | 1 | 0 | 1 | 0 | 62 |
| [07:15-07:30] | 33 | 39 | 0 | 1 | 2 | 0 | 0 | 0 | 75 |
| [07:30-07:45] | 29 | 53 | 0 | 1 | 2 | 0 | 1 | 0 | 86 |

# Time/Class Report

| | | | | | |
|---|---|---|---|---|---|
| **Device ID:** 405294 | **Location:** 7908 | | | **Raw Count:** 12,060 | |
| **Operator:** MD | **Lane:** EB | | | **AADT Count:** 12,060 | |
| **Begin:** 08-31-2021 12:00 AM | **Street:** 610306 - EB | | | **AADT Factor:** 1 | |
| **End:** 09-01-2021 12:00 AM | **City:** Niagara Region | | | **Speed Limit:** 50 | |
| **Hours:** 24.00 | **County:** | | | | |
| **Period (min):** 15 | **State:** ON | | | | |

| Date And Time Range | < to 15 | 16 to 25 | 26 to 32 | 33 to 42 | 43 to 51 | 52 to 61 | 62 to 71 | 72 to > | Total |
|---|---|---|---|---|---|---|---|---|---|
| Tue,08-31-2021 | | | | | | | | | |
| [07:45-08:00] | 63 | 54 | 1 | 1 | 1 | 0 | 0 | 0 | 120 |
| | 148 | 181 | 2 | 4 | 6 | 0 | 2 | 0 | 343 |
| [08:00-08:15] | 47 | 63 | 3 | 0 | 0 | 0 | 1 | 0 | 114 |
| [08:15-08:30] | 57 | 66 | 1 | 3 | 1 | 0 | 0 | 0 | 128 |
| [08:30-08:45] | 66 | 69 | 2 | 1 | 0 | 0 | 1 | 0 | 139 |
| [08:45-09:00] | 92 | 78 | 0 | 1 | 1 | 1 | 0 | 0 | 173 |
| | 262 | 276 | 6 | 5 | 2 | 1 | 2 | 0 | 554 |
| [09:00-09:15] | 70 | 78 | 2 | 0 | 0 | 0 | 1 | 0 | 151 |
| [09:15-09:30] | 82 | 81 | 4 | 0 | 0 | 0 | 0 | 0 | 167 |
| [09:30-09:45] | 76 | 79 | 2 | 2 | 0 | 1 | 1 | 0 | 161 |
| [09:45-10:00] | 75 | 82 | 4 | 1 | 0 | 0 | 0 | 0 | 162 |
| | 303 | 320 | 12 | 3 | 0 | 1 | 2 | 0 | 641 |
| [10:00-10:15] | 81 | 83 | 2 | 0 | 2 | 0 | 1 | 0 | 169 |
| [10:15-10:30] | 79 | 77 | 2 | 0 | 0 | 0 | 0 | 0 | 158 |
| [10:30-10:45] | 63 | 75 | 0 | 1 | 1 | 0 | 1 | 0 | 141 |
| [10:45-11:00] | 100 | 92 | 2 | 2 | 4 | 0 | 2 | 0 | 202 |
| | 323 | 327 | 6 | 3 | 7 | 0 | 4 | 0 | 670 |
| [11:00-11:15] | 96 | 83 | 4 | 5 | 3 | 0 | 1 | 0 | 192 |
| [11:15-11:30] | 114 | 99 | 6 | 5 | 1 | 0 | 0 | 1 | 226 |
| [11:30-11:45] | 95 | 109 | 2 | 3 | 2 | 0 | 1 | 1 | 213 |
| [11:45-12:00] | 118 | 102 | 3 | 4 | 1 | 0 | 0 | 0 | 228 |
| | 423 | 393 | 15 | 17 | 7 | 0 | 2 | 2 | 859 |
| [12:00-12:15] | 110 | 105 | 3 | 2 | 3 | 2 | 2 | 1 | 228 |
| [12:15-12:30] | 130 | 105 | 7 | 6 | 1 | 1 | 1 | 0 | 251 |
| [12:30-12:45] | 110 | 81 | 2 | 2 | 0 | 1 | 1 | 0 | 197 |
| [12:45-13:00] | 115 | 92 | 1 | 6 | 0 | 0 | 0 | 0 | 214 |
| | 465 | 383 | 13 | 16 | 4 | 4 | 4 | 1 | 890 |
| [13:00-13:15] | 116 | 99 | 5 | 3 | 1 | 0 | 1 | 1 | 226 |
| [13:15-13:30] | 139 | 104 | 3 | 6 | 2 | 0 | 0 | 1 | 255 |
| [13:30-13:45] | 134 | 104 | 1 | 5 | 2 | 0 | 1 | 0 | 247 |
| [13:45-14:00] | 112 | 90 | 2 | 4 | 1 | 0 | 0 | 0 | 209 |
| | 501 | 397 | 11 | 18 | 6 | 0 | 2 | 2 | 937 |
| [14:00-14:15] | 130 | 96 | 0 | 2 | 0 | 2 | 1 | 0 | 231 |
| [14:15-14:30] | 101 | 83 | 1 | 5 | 0 | 1 | 1 | 0 | 192 |
| [14:30-14:45] | 120 | 112 | 1 | 2 | 0 | 1 | 1 | 0 | 237 |
| [14:45-15:00] | 98 | 85 | 1 | 2 | 1 | 0 | 0 | 0 | 187 |
| | 449 | 376 | 3 | 11 | 1 | 4 | 3 | 0 | 847 |

# Time/Class Report

| | | | | | |
|---|---|---|---|---|---|
| **Device ID:** 405294 | **Location:** 7908 | | | **Raw Count:** 12,060 | |
| **Operator:** MD | **Lane:** EB | | | **AADT Count:** 12,060 | |
| **Begin:** 08-31-2021 12:00 AM | **Street:** 610306 - EB | | | **AADT Factor:** 1 | |
| **End:** 09-01-2021 12:00 AM | **City:** Niagara Region | | | **Speed Limit:** 50 | |
| **Hours:** 24.00 | **County:** | | | | |
| **Period (min):** 15 | **State:** ON | | | | |

| Date And Time Range | < to 15 | 16 to 25 | 26 to 32 | 33 to 42 | 43 to 51 | 52 to 61 | 62 to 71 | 72 to > | Total |
|---|---|---|---|---|---|---|---|---|---|
| Tue,08-31-2021 | | | | | | | | | |
| [15:00-15:15] | 118 | 85 | 1 | 1 | 2 | 1 | 0 | 1 | 209 |
| [15:15-15:30] | 109 | 108 | 0 | 2 | 1 | 0 | 1 | 0 | 221 |
| [15:30-15:45] | 127 | 91 | 1 | 3 | 1 | 0 | 1 | 0 | 224 |
| [15:45-16:00] | 128 | 91 | 4 | 3 | 1 | 0 | 0 | 0 | 227 |
| | 482 | 375 | 6 | 9 | 5 | 1 | 2 | 1 | 881 |
| [16:00-16:15] | 101 | 93 | 3 | 0 | 0 | 0 | 1 | 0 | 198 |
| [16:15-16:30] | 112 | 95 | 2 | 0 | 1 | 0 | 0 | 0 | 210 |
| [16:30-16:45] | 123 | 109 | 3 | 4 | 0 | 0 | 0 | 1 | 240 |
| [16:45-17:00] | 125 | 108 | 2 | 2 | 0 | 0 | 0 | 0 | 237 |
| | 461 | 405 | 10 | 6 | 1 | 0 | 1 | 1 | 885 |
| [17:00-17:15] | 108 | 93 | 0 | 3 | 1 | 0 | 1 | 0 | 206 |
| [17:15-17:30] | 128 | 99 | 1 | 1 | 0 | 1 | 0 | 0 | 230 |
| [17:30-17:45] | 134 | 115 | 4 | 1 | 1 | 0 | 1 | 0 | 256 |
| [17:45-18:00] | 104 | 85 | 2 | 2 | 1 | 0 | 1 | 0 | 195 |
| | 474 | 392 | 7 | 7 | 3 | 1 | 3 | 0 | 887 |
| [18:00-18:15] | 119 | 97 | 1 | 2 | 0 | 0 | 0 | 0 | 219 |
| [18:15-18:30] | 98 | 87 | 0 | 0 | 2 | 0 | 1 | 0 | 188 |
| [18:30-18:45] | 102 | 67 | 2 | 1 | 0 | 0 | 1 | 0 | 173 |
| [18:45-19:00] | 119 | 90 | 2 | 0 | 1 | 0 | 0 | 0 | 212 |
| | 438 | 341 | 5 | 3 | 3 | 0 | 2 | 0 | 792 |
| [19:00-19:15] | 88 | 70 | 1 | 3 | 0 | 0 | 1 | 0 | 163 |
| [19:15-19:30] | 106 | 93 | 4 | 0 | 0 | 2 | 0 | 0 | 205 |
| [19:30-19:45] | 87 | 82 | 0 | 1 | 1 | 0 | 1 | 0 | 172 |
| [19:45-20:00] | 74 | 62 | 0 | 0 | 0 | 0 | 0 | 0 | 136 |
| | 355 | 307 | 5 | 4 | 1 | 2 | 2 | 0 | 676 |
| [20:00-20:15] | 85 | 73 | 0 | 1 | 0 | 0 | 1 | 0 | 160 |
| [20:15-20:30] | 70 | 66 | 1 | 0 | 0 | 0 | 0 | 0 | 137 |
| [20:30-20:45] | 75 | 84 | 2 | 2 | 1 | 1 | 1 | 0 | 166 |
| [20:45-21:00] | 72 | 81 | 0 | 0 | 0 | 0 | 0 | 0 | 153 |
| | 302 | 304 | 3 | 3 | 1 | 1 | 2 | 0 | 616 |
| [21:00-21:15] | 69 | 52 | 2 | 0 | 0 | 0 | 1 | 0 | 124 |
| [21:15-21:30] | 50 | 42 | 0 | 0 | 0 | 0 | 0 | 0 | 92 |
| [21:30-21:45] | 41 | 53 | 0 | 0 | 0 | 0 | 1 | 0 | 95 |
| [21:45-22:00] | 53 | 41 | 0 | 2 | 0 | 0 | 0 | 0 | 96 |
| | 213 | 188 | 2 | 2 | 0 | 0 | 2 | 0 | 407 |
| [22:00-22:15] | 40 | 38 | 0 | 0 | 0 | 0 | 1 | 0 | 79 |
| [22:15-22:30] | 46 | 31 | 1 | 0 | 0 | 0 | 0 | 0 | 78 |
| [22:30-22:45] | 39 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 69 |

# Time/Class Report

| | | | | | |
|---|---|---|---|---|---|
| **Device ID:** 405294 | **Location:** 7908 | | | **Raw Count:** 12,060 | |
| **Operator:** MD | **Lane:** EB | | | **AADT Count:** 12,060 | |
| **Begin:** 08-31-2021 12:00 AM | **Street:** 610306 - EB | | | **AADT Factor:** 1 | |
| **End:** 09-01-2021 12:00 AM | **City:** Niagara Region | | | **Speed Limit:** 50 | |
| **Hours:** 24.00 | **County:** | | | | |
| **Period (min):** 15 | **State:** ON | | | | |

| Date And Time Range | < to 15 | 16 to 25 | 26 to 32 | 33 to 42 | 43 to 51 | 52 to 61 | 62 to 71 | 72 to > | Total |
|---|---|---|---|---|---|---|---|---|---|
| Tue,08-31-2021 | | | | | | | | | |
| [22:45-23:00] | 30 | 37 | 1 | 0 | 0 | 0 | 0 | 0 | 68 |
| | 155 | 136 | 2 | 0 | 0 | 0 | 1 | 0 | 294 |
| [23:00-23:15] | 26 | 22 | 0 | 2 | 0 | 0 | 0 | 0 | 50 |
| [23:15-23:30] | 20 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 38 |
| [23:30-23:45] | 34 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 60 |
| [23:45-00:00] | 25 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 44 |
| | 105 | 85 | 0 | 2 | 0 | 0 | 0 | 0 | 192 |
| 08-31-2021 12:00 AM | | | | | | | | | |
| 09-01-2021 12:00 AM | 6183 | 5496 | 110 | 121 | 50 | 15 | 38 | 7 | 12020 |

# Time/Class Report

| | | | | | |
|---|---|---|---|---|---|
| **Device ID:** 405077 | **Location:** 7908 | | | **Raw Count:** 11,871 | |
| **Operator:** MD | **Lane:** WB | | | **AADT Count:** 11,871 | |
| **Begin:** 08-31-2021 12:00 AM | **Street:** 610306 - WB | | | **AADT Factor:** 1 | |
| **End:** 09-01-2021 12:00 AM | **City:** Niagara Region | | | **Speed Limit:** 50 | |
| **Hours:** 24.00 | **County:** | | | | |
| **Period (min):** 15 | **State:** ON | | | | |

| Date And Time Range | < to 15 | 16 to 25 | 26 to 32 | 33 to 42 | 43 to 51 | 52 to 61 | 62 to 71 | 72 to > | Total |
|---|---|---|---|---|---|---|---|---|---|
| Tue,08-31-2021 | | | | | | | | | |
| [00:00-00:15] | 25 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 47 |
| [00:15-00:30] | 30 | 28 | 1 | 0 | 0 | 0 | 0 | 0 | 59 |
| [00:30-00:45] | 27 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 49 |
| [00:45-01:00] | 19 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 38 |
| | 101 | 91 | 1 | 0 | 0 | 0 | 0 | 0 | 193 |
| [01:00-01:15] | 19 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 29 |
| [01:15-01:30] | 13 | 16 | 1 | 0 | 0 | 0 | 0 | 0 | 30 |
| [01:30-01:45] | 16 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 32 |
| [01:45-02:00] | 16 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 31 |
| | 64 | 57 | 1 | 0 | 0 | 0 | 0 | 0 | 122 |
| [02:00-02:15] | 11 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 22 |
| [02:15-02:30] | 15 | 7 | 0 | 1 | 0 | 0 | 0 | 0 | 23 |
| [02:30-02:45] | 15 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| [02:45-03:00] | 5 | 11 | 0 | 1 | 0 | 0 | 0 | 0 | 17 |
| | 46 | 44 | 0 | 2 | 0 | 0 | 0 | 0 | 92 |
| [03:00-03:15] | 8 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| [03:15-03:30] | 11 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| [03:30-03:45] | 9 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 14 |
| [03:45-04:00] | 8 | 13 | 0 | 0 | 0 | 0 | 0 | 1 | 22 |
| | 36 | 32 | 0 | 1 | 0 | 0 | 0 | 1 | 70 |
| [04:00-04:15] | 8 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 14 |
| [04:15-04:30] | 8 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| [04:30-04:45] | 4 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| [04:45-05:00] | 5 | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 12 |
| | 25 | 27 | 0 | 1 | 1 | 0 | 0 | 0 | 54 |
| [05:00-05:15] | 9 | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 16 |
| [05:15-05:30] | 8 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| [05:30-05:45] | 10 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 22 |
| [05:45-06:00] | 8 | 14 | 1 | 1 | 0 | 0 | 0 | 0 | 24 |
| | 35 | 43 | 1 | 2 | 0 | 0 | 0 | 0 | 81 |
| [06:00-06:15] | 13 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 38 |
| [06:15-06:30] | 19 | 23 | 0 | 0 | 0 | 0 | 1 | 0 | 43 |
| [06:30-06:45] | 20 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 41 |
| [06:45-07:00] | 12 | 27 | 0 | 1 | 2 | 0 | 1 | 0 | 43 |
| | 64 | 96 | 0 | 1 | 2 | 0 | 2 | 0 | 165 |
| [07:00-07:15] | 22 | 31 | 0 | 1 | 0 | 0 | 0 | 0 | 54 |
| [07:15-07:30] | 25 | 33 | 0 | 2 | 0 | 0 | 1 | 0 | 61 |
| [07:30-07:45] | 31 | 53 | 0 | 1 | 0 | 0 | 0 | 0 | 85 |

# Time/Class Report

| | | | | | |
|---|---|---|---|---|---|
| **Device ID:** 405077 | **Location:** 7908 | | | **Raw Count:** 11,871 | |
| **Operator:** MD | **Lane:** WB | | | **AADT Count:** 11,871 | |
| **Begin:** 08-31-2021 12:00 AM | **Street:** 610306 - WB | | | **AADT Factor:** 1 | |
| **End:** 09-01-2021 12:00 AM | **City:** Niagara Region | | | **Speed Limit:** 50 | |
| **Hours:** 24.00 | **County:** | | | | |
| **Period (min):** 15 | **State:** ON | | | | |

| Date And Time Range | < to 15 | 16 to 25 | 26 to 32 | 33 to 42 | 43 to 51 | 52 to 61 | 62 to 71 | 72 to > | Total |
|---|---|---|---|---|---|---|---|---|---|
| Tue,08-31-2021 | | | | | | | | | |
| [07:45-08:00] | 33 | 36 | 1 | 1 | 0 | 0 | 1 | 0 | 72 |
| | 111 | 153 | 1 | 5 | 0 | 0 | 2 | 0 | 272 |
| [08:00-08:15] | 32 | 46 | 0 | 0 | 1 | 0 | 0 | 0 | 79 |
| [08:15-08:30] | 32 | 42 | 2 | 3 | 0 | 0 | 1 | 0 | 80 |
| [08:30-08:45] | 28 | 61 | 0 | 1 | 0 | 0 | 0 | 0 | 90 |
| [08:45-09:00] | 46 | 49 | 2 | 2 | 1 | 0 | 1 | 0 | 101 |
| | 138 | 198 | 4 | 6 | 2 | 0 | 2 | 0 | 350 |
| [09:00-09:15] | 45 | 62 | 1 | 1 | 0 | 0 | 0 | 0 | 109 |
| [09:15-09:30] | 50 | 56 | 0 | 1 | 1 | 1 | 0 | 0 | 109 |
| [09:30-09:45] | 58 | 85 | 2 | 0 | 2 | 0 | 0 | 0 | 147 |
| [09:45-10:00] | 71 | 72 | 1 | 0 | 0 | 0 | 1 | 0 | 145 |
| | 224 | 275 | 4 | 2 | 3 | 1 | 1 | 0 | 510 |
| [10:00-10:15] | 59 | 98 | 0 | 2 | 0 | 0 | 1 | 0 | 160 |
| [10:15-10:30] | 74 | 67 | 4 | 1 | 0 | 1 | 1 | 0 | 148 |
| [10:30-10:45] | 86 | 86 | 1 | 1 | 1 | 0 | 1 | 0 | 176 |
| [10:45-11:00] | 85 | 86 | 2 | 2 | 0 | 0 | 1 | 0 | 176 |
| | 304 | 337 | 7 | 6 | 1 | 1 | 4 | 0 | 660 |
| [11:00-11:15] | 73 | 81 | 3 | 3 | 0 | 0 | 0 | 0 | 160 |
| [11:15-11:30] | 101 | 97 | 3 | 0 | 0 | 0 | 1 | 0 | 202 |
| [11:30-11:45] | 82 | 100 | 2 | 2 | 0 | 1 | 0 | 0 | 187 |
| [11:45-12:00] | 107 | 102 | 1 | 4 | 0 | 0 | 1 | 0 | 215 |
| | 363 | 380 | 9 | 9 | 0 | 1 | 2 | 0 | 764 |
| [12:00-12:15] | 92 | 102 | 0 | 1 | 0 | 0 | 0 | 0 | 195 |
| [12:15-12:30] | 106 | 121 | 1 | 2 | 0 | 0 | 1 | 0 | 231 |
| [12:30-12:45] | 98 | 102 | 2 | 1 | 1 | 0 | 0 | 0 | 204 |
| [12:45-13:00] | 98 | 83 | 0 | 4 | 0 | 0 | 1 | 0 | 186 |
| | 394 | 408 | 3 | 8 | 1 | 0 | 2 | 0 | 816 |
| [13:00-13:15] | 113 | 100 | 3 | 1 | 0 | 1 | 1 | 0 | 219 |
| [13:15-13:30] | 129 | 91 | 3 | 1 | 1 | 0 | 1 | 0 | 226 |
| [13:30-13:45] | 102 | 99 | 1 | 4 | 0 | 0 | 0 | 0 | 206 |
| [13:45-14:00] | 105 | 101 | 0 | 1 | 0 | 1 | 1 | 0 | 209 |
| | 449 | 391 | 7 | 7 | 1 | 2 | 3 | 0 | 860 |
| [14:00-14:15] | 113 | 110 | 1 | 2 | 0 | 0 | 0 | 0 | 226 |
| [14:15-14:30] | 82 | 123 | 0 | 1 | 3 | 0 | 1 | 0 | 210 |
| [14:30-14:45] | 97 | 108 | 0 | 2 | 2 | 0 | 0 | 0 | 209 |
| [14:45-15:00] | 118 | 101 | 0 | 1 | 2 | 0 | 1 | 0 | 223 |
| | 410 | 442 | 1 | 6 | 7 | 0 | 2 | 0 | 868 |

# Time/Class Report

| | | | | | |
|---|---|---|---|---|---|
| **Device ID:** 405077 | **Location:** 7908 | | | **Raw Count:** 11,871 | |
| **Operator:** MD | **Lane:** WB | | | **AADT Count:** 11,871 | |
| **Begin:** 08-31-2021 12:00 AM | **Street:** 610306 - WB | | | **AADT Factor:** 1 | |
| **End:** 09-01-2021 12:00 AM | **City:** Niagara Region | | | **Speed Limit:** 50 | |
| **Hours:** 24.00 | **County:** | | | | |
| **Period (min):** 15 | **State:** ON | | | | |

| Date And Time Range | < to 15 | 16 to 25 | 26 to 32 | 33 to 42 | 43 to 51 | 52 to 61 | 62 to 71 | 72 to > | Total |
|---|---|---|---|---|---|---|---|---|---|
| Tue,08-31-2021 | | | | | | | | | |
| [15:00-15:15] | 99 | 94 | 0 | 3 | 1 | 0 | 0 | 0 | 197 |
| [15:15-15:30] | 100 | 115 | 1 | 2 | 1 | 1 | 1 | 0 | 221 |
| [15:30-15:45] | 109 | 110 | 1 | 2 | 0 | 0 | 0 | 0 | 222 |
| [15:45-16:00] | 102 | 125 | 1 | 2 | 0 | 0 | 2 | 0 | 232 |
| | 410 | 444 | 3 | 9 | 2 | 1 | 3 | 0 | 872 |
| [16:00-16:15] | 116 | 106 | 0 | 0 | 0 | 0 | 0 | 0 | 222 |
| [16:15-16:30] | 121 | 103 | 0 | 1 | 1 | 0 | 1 | 0 | 227 |
| [16:30-16:45] | 93 | 110 | 2 | 1 | 0 | 0 | 0 | 0 | 206 |
| [16:45-17:00] | 107 | 100 | 0 | 2 | 0 | 0 | 1 | 0 | 210 |
| | 437 | 419 | 2 | 4 | 1 | 0 | 2 | 0 | 865 |
| [17:00-17:15] | 128 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 227 |
| [17:15-17:30] | 120 | 121 | 2 | 2 | 0 | 0 | 1 | 0 | 246 |
| [17:30-17:45] | 88 | 118 | 0 | 1 | 2 | 0 | 0 | 0 | 209 |
| [17:45-18:00] | 96 | 101 | 0 | 1 | 0 | 0 | 1 | 0 | 199 |
| | 432 | 439 | 2 | 4 | 2 | 0 | 2 | 0 | 881 |
| [18:00-18:15] | 88 | 108 | 1 | 0 | 0 | 0 | 0 | 0 | 197 |
| [18:15-18:30] | 102 | 86 | 0 | 1 | 0 | 0 | 1 | 0 | 190 |
| [18:30-18:45] | 97 | 81 | 1 | 0 | 0 | 0 | 0 | 0 | 179 |
| [18:45-19:00] | 89 | 85 | 0 | 2 | 0 | 0 | 1 | 0 | 177 |
| | 376 | 360 | 2 | 3 | 0 | 0 | 2 | 0 | 743 |
| [19:00-19:15] | 88 | 88 | 1 | 2 | 0 | 0 | 0 | 0 | 179 |
| [19:15-19:30] | 79 | 86 | 0 | 2 | 0 | 0 | 1 | 0 | 168 |
| [19:30-19:45] | 79 | 82 | 0 | 0 | 0 | 0 | 0 | 0 | 161 |
| [19:45-20:00] | 91 | 78 | 0 | 0 | 0 | 0 | 1 | 0 | 170 |
| | 337 | 334 | 1 | 4 | 0 | 0 | 2 | 0 | 678 |
| [20:00-20:15] | 84 | 94 | 0 | 0 | 0 | 0 | 0 | 0 | 178 |
| [20:15-20:30] | 81 | 88 | 0 | 0 | 0 | 0 | 1 | 0 | 170 |
| [20:30-20:45] | 78 | 91 | 0 | 1 | 1 | 0 | 0 | 0 | 171 |
| [20:45-21:00] | 89 | 67 | 2 | 0 | 0 | 0 | 1 | 0 | 159 |
| | 332 | 340 | 2 | 1 | 1 | 0 | 2 | 0 | 678 |
| [21:00-21:15] | 80 | 90 | 0 | 0 | 0 | 0 | 0 | 0 | 170 |
| [21:15-21:30] | 54 | 64 | 0 | 0 | 1 | 0 | 1 | 0 | 120 |
| [21:30-21:45] | 55 | 68 | 0 | 0 | 0 | 0 | 0 | 0 | 123 |
| [21:45-22:00] | 58 | 54 | 0 | 0 | 0 | 0 | 1 | 0 | 113 |
| | 247 | 276 | 0 | 0 | 1 | 0 | 2 | 0 | 526 |
| [22:00-22:15] | 49 | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 109 |
| [22:15-22:30] | 56 | 62 | 0 | 1 | 0 | 0 | 1 | 0 | 120 |
| [22:30-22:45] | 51 | 58 | 0 | 0 | 0 | 0 | 0 | 0 | 109 |

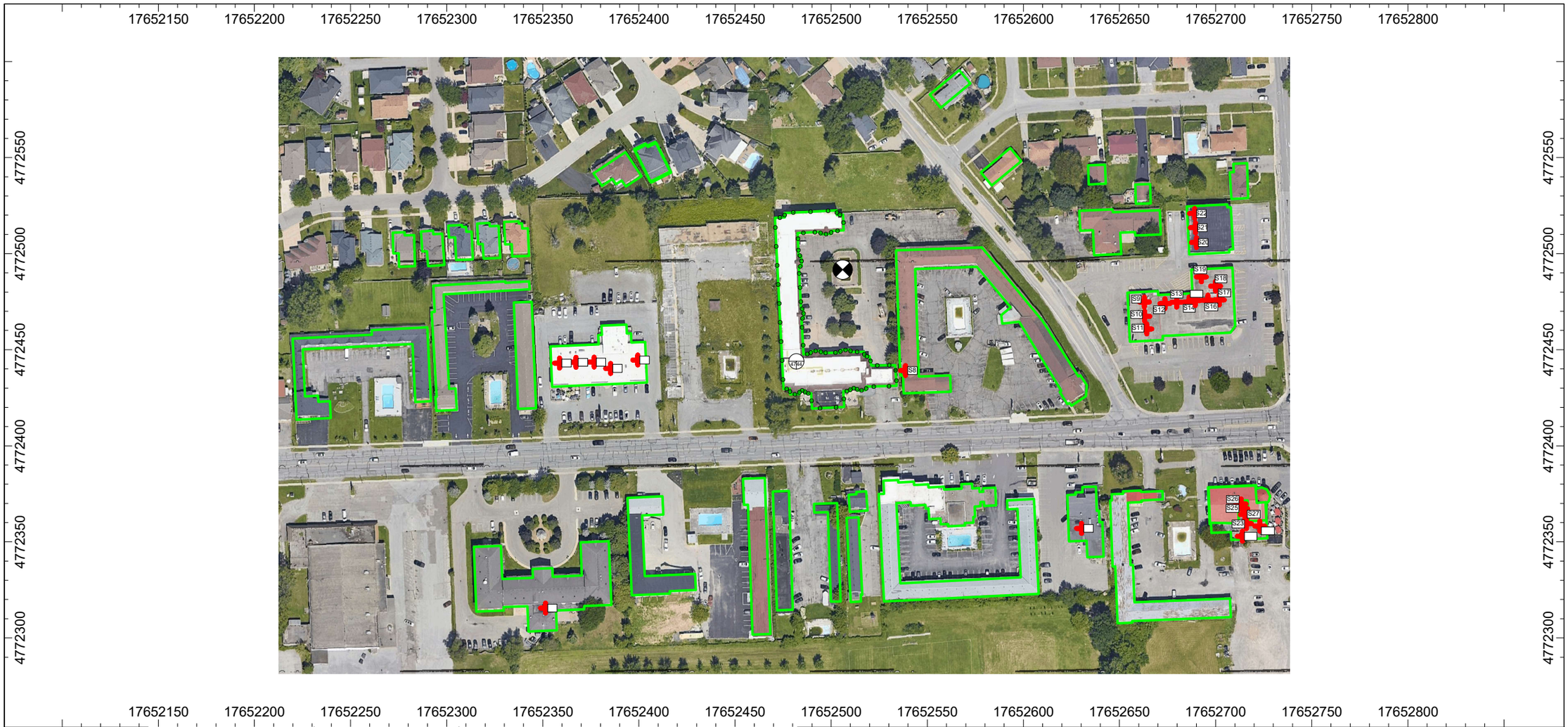
# Time/Class Report

| | | | | | |
|---|---|---|---|---|---|
| **Device ID:** 405077 | **Location:** 7908 | | | **Raw Count:** 11,871 | |
| **Operator:** MD | **Lane:** WB | | | **AADT Count:** 11,871 | |
| **Begin:** 08-31-2021 12:00 AM | **Street:** 610306 - WB | | | **AADT Factor:** 1 | |
| **End:** 09-01-2021 12:00 AM | **City:** Niagara Region | | | **Speed Limit:** 50 | |
| **Hours:** 24.00 | **County:** | | | | |
| **Period (min):** 15 | **State:** ON | | | | |

| Date And Time Range | < to 15 | 16 to 25 | 26 to 32 | 33 to 42 | 43 to 51 | 52 to 61 | 62 to 71 | 72 to > | Total |
|---|---|---|---|---|---|---|---|---|---|
| Tue,08-31-2021 | | | | | | | | | |
| [22:45-23:00] | 45 | 47 | 0 | 0 | 0 | 0 | 1 | 0 | 93 |
| | 201 | 227 | 0 | 1 | 0 | 0 | 2 | 0 | 431 |
| [23:00-23:15] | 50 | 43 | 2 | 1 | 0 | 0 | 0 | 0 | 96 |
| [23:15-23:30] | 32 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 59 |
| [23:30-23:45] | 34 | 39 | 1 | 0 | 0 | 0 | 0 | 0 | 74 |
| [23:45-00:00] | 29 | 21 | 1 | 0 | 0 | 0 | 0 | 0 | 51 |
| | 145 | 130 | 4 | 1 | 0 | 0 | 0 | 0 | 280 |
| 08-31-2021 12:00 AM | | | | | | | | | |
| 09-01-2021 12:00 AM | 5681 | 5943 | 55 | 83 | 25 | 6 | 37 | 1 | 11831 |

| Highway | Location Description From | Location Description To | Dist. (KM) | 2019 AADT |
|---|---|---|---|---|
| QEW | FORT ERIE GODERICH ST PEACE BRIDGE PLAZA | CENTRAL AV IC | 0.2 | 14000 |
| QEW | CENTRAL AV IC | CONCESSION RD IC-1 | 0.9 | 18800 |
| QEW | CONCESSION RD IC-1 | THOMPSON RD IC-2 | 1.0 | 19100 |
| QEW | THOMPSON RD IC-2 | GILMORE RD IC-5 | 2.5 | 21500 |
| QEW | GILMORE RD IC-5 | BOWEN RD IC-7 | 2.1 | 24900 |
| QEW | BOWEN RD IC-7 | NETHERBY RD IC-12 NIAGARA FALLS LTS | 5.5 | 26600 |
| QEW | NETHERBY RD IC-12 NIAGARA FALLS LTS | SODOM RD IC-16 | 3.3 | 22400 |
| QEW | SODOM RD IC-16 | LYONS CREEK RD IC-21 | 6.6 | 31300 |
| QEW | LYONS CREEK RD IC-21 | MCLEOD RD IC-27 | 4.5 | 34400 |
| QEW | MCLEOD RD IC-27 | HWY 420 IC-30 | 3.0 | 47500 |
| QEW | HWY 420 IC-30 | THOROLD STONE RD IC-32 | 2.0 | 74000 |
| QEW | THOROLD STONE RD IC-32 | MOUNTAIN RD IC-34 | 2.5 | 70700 |
| QEW | MOUNTAIN RD IC-34 | HWY 405(WBL) IC-37 | 2.5 | 72200 |
| QEW | HWY 405(WBL) IC-37 | GLENDALE AV IC-38 | 1.3 | 91300 |
| QEW | GLENDALE AV IC-38 | NIAGARA ST SERVICE RDS | 4.9 | 94000 |
| QEW | NIAGARA ST SERVICE RDS | NIAGARA ST IC-44 | 1.2 | 83100 |
| QEW | NIAGARA ST IC-44 | LAKE ST IC-46 | 1.7 | 84600 |
| QEW | LAKE ST IC-46 | ONTARIO ST IC-47 | 1.3 | 124900 |
| QEW | ONTARIO ST IC-47 | MARTINDALE RD IC-48 | 0.8 | 102200 |
| QEW | MARTINDALE RD IC-48 | HWY 406 IC-49 | 0.7 | 76800 |
| QEW | HWY 406 IC-49 | SEVENTH ST IC-51 | 2.0 | 101100 |
| QEW | SEVENTH ST IC-51 | JORDAN RD IC-55 | 4.3 | 102400 |
| QEW | JORDAN RD IC-55 | VICTORIA AV IC-57 | 2.9 | 109300 |
| QEW | VICTORIA AV IC-57 | ONTARIO ST IC-64 | 6.7 | 110800 |
| QEW | ONTARIO ST IC-64 | BARTLETT AV IC-68 | 3.8 | 104700 |
| QEW | BARTLETT AV IC-68 | MAPLE AV IC-71 | 2.5 | 103800 |
| QEW | MAPLE AV IC-71 | CASABLANCA BV IC-74 | 3.6 | 113900 |
| QEW | CASABLANCA BV IC-74 | FIFTY RD IC-78 | 3.6 | 119500 |
| QEW | FIFTY RD IC-78 | FRUITLAND RD IC-83 | 5.1 | 127300 |
| QEW | FRUITLAND RD IC-83 | HAMILTON 20 IC-88 CENTENNIAL PKWY | 5.2 | 124200 |
| QEW | HAMILTON 20 IC-88 CENTENNIAL PKWY | NIKOLA TESLA BLVD IC-89 | 1.7 | 124400 |
| QEW | NIKOLA TESLA BLVD IC-89 | EASTPORT RD IC-93 (HWY 7189) | 4.0 | 147300 |
| QEW | EASTPORT RD IC-93 (HWY 7189) | HAMILTON HARBOUR ENTRANCE | 0.9 | 155700 |
| QEW | HAMILTON HARBOUR ENTRANCE | NORTH SHORE BLVD IC-97 | 2.4 | 162900 |

ATTACHMENT C




40.0
45.0
50.0
55.0
60.0
65.0
70.0
75.0

ACOUSTIC ENGINEERING Ltd.

- Point Source
- Building
- Receiver
- Building Evaluation

STATIONARY NOISE IMPACT
7737 LUNDY'S LANE, NIAGARA fALLS, ONTARIO

FIGURE 1
NOISE IMPACT FROM NEIGHBORING BUILDINGS TO THE SITE

ATTACHMENT D

Table C1
Stationary Noise Impact Source Data
7737 Lundy's Lane, Niagara Falls, Ontario

| Noise Source Description | Cadna ID | Total SWL (dBA) | Data Source or Representative Data | Height Absolute (m) | Above Roof (m) | x | y |
|---|---|---|---|---|---|---|---|
| S1 | Small_HVAC | 70.9 | Small_HVAC | 7.5 | 1.5 | 17652399 | 4772445 |
| S2 | Small_HVAC | 70.9 | Small_HVAC | 7.5 | 1.5 | 17652377 | 4772444 |
| S3 | Small_HVAC | 70.9 | Small_HVAC | 7.5 | 1.5 | 17652367 | 4772443 |
| S4 | Small_HVAC | 70.9 | Small_HVAC | 7.5 | 1.5 | 17652359 | 4772443 |
| S5 | Medium_HVAC | 79.9 | Medium_HVAC | 7.5 | 1.5 | 17652385 | 4772440 |
| S6 | Medium_HVAC | 79.9 | Medium_HVAC | 11.5 | 1.5 | 17652351 | 4772316 |
| S7 | Small_HVAC | 70.9 | Small_HVAC | 7.5 | 1.5 | 17652630 | 4772357 |
| S8 | Small_HVAC | 70.9 | Small_HVAC | 8.5 | 1.5 | 17652539 | 4772439 |
| S9 | Small_HVAC | 70.9 | Small_HVAC | 7.1 | 1.5 | 17652663 | 4772475 |
| S10 | Small_HVAC | 70.9 | Small_HVAC | 7.1 | 1.5 | 17652663 | 4772467 |
| S11 | Small_HVAC | 70.9 | Small_HVAC | 7.1 | 1.5 | 17652664 | 4772461 |
| S12 | Small_HVAC | 70.9 | Small_HVAC | 7.1 | 1.5 | 17652674 | 4772474 |
| S13 | Small_HVAC | 70.9 | Small_HVAC | 7.1 | 1.5 | 17652680 | 4772475 |
| S14 | Small_HVAC | 70.9 | Small_HVAC | 7.1 | 1.5 | 17652686 | 4772475 |
| S15 | Small_HVAC | 70.9 | Small_HVAC | 7.1 | 1.5 | 17652689 | 4772476 |
| S16 | Small_HVAC | 70.9 | Small_HVAC | 7.1 | 1.5 | 17652696 | 4772476 |
| S17 | Small_HVAC | 70.9 | Small_HVAC | 7.1 | 1.5 | 17652702 | 4772476 |
| S18 | Small_HVAC | 70.9 | Small_HVAC | 7.1 | 1.5 | 17652700 | 4772483 |
| S19 | Small_HVAC | 70.9 | Small_HVAC | 7.1 | 1.5 | 17652693 | 4772488 |
| S20 | Small_HVAC | 70.9 | Small_HVAC | 7.1 | 1.5 | 17652690 | 4772506 |
| S21 | Small_HVAC | 70.9 | Small_HVAC | 7.1 | 1.5 | 17652690 | 4772514 |
| S22 | Small_HVAC | 70.9 | Small_HVAC | 7.1 | 1.5 | 17652689 | 4772521 |
| S23 | Small_HVAC | 70.9 | Small_HVAC | 7.1 | 1.5 | 17652716 | 4772359 |
| S24 | Small_HVAC | 70.9 | Small_HVAC | 7.1 | 1.5 | 17652723 | 4772358 |
| S25 | Small_HVAC | 70.9 | Small_HVAC | 7.1 | 1.5 | 17652714 | 4772367 |
| S26 | Small_HVAC | 70.9 | Small_HVAC | 7.1 | 1.5 | 17652713 | 4772370 |
| S27 | Medium_HVAC | 79.9 | Medium_HVAC | 7.1 | 1.5 | 17652715 | 4772364 |
| S28 | Medium_HVAC | 79.9 | Medium_HVAC | 7.1 | 1.5 | 17652714 | 4772353 |