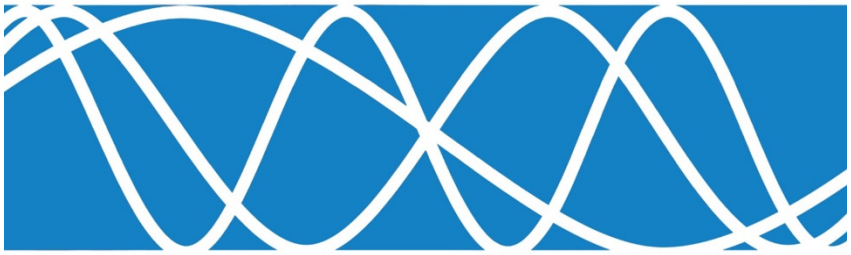
Noise and Vibration Feasibility Study

Proposed Mixed-Use Development
13 Mountain Street and 19–23 Elm Street
Grimsby, Ontario

May 16, 2025
HGC Project#: 02100167



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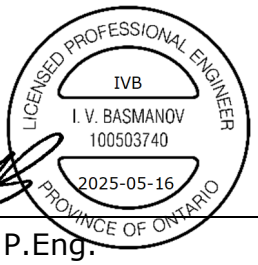
Version Control

Ver.	Date	Version Description	Prepared By
1.0	May 12, 2021	Noise and Vibration Feasibility Study to support official plan amendment and rezoning.	A. Rogers
2.0	May 16, 2025	-Modelling and evaluation revised to reflect updated site plan -Update of road and rail traffic data	I. Basmanov

Prepared by:



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HGC Noise Vibration Acoustics

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Table of Contents

1 INTRODUCTION & SUMMARY

Howe Gastmeier Chapnik Limited (HGC Noise Vibration Acoustics) was retained by Woolverton Holdings Corp. to complete a Noise and Vibration Feasibility Study for a proposed mixed-use development to be located at 13 Mountain Street and 19-23 Elm Street, in Grimsby, Ontario. This study is based on architectural drawings dated May 16, 2025, prepared by Studio JCI.

The site is located on the northeast corner of the intersection of Mountain Street and Elm Street. Figure 1 shows a key plan of the site. The development plan provides for the construction of a mixed-use 8-storey building connecting to two existing heritage buildings, Woolverton House and Woolverton Hall. The site plan is shown in Figure 2.

Road traffic on Mountain Street is the primary source of noise with potential impact on the proposed development. Road traffic on Elm Street and Main Street are secondary noise sources, as well as road traffic on the QEW and rail traffic on the CN rail line north of the site.

Traffic volumes for the surrounding roadways were obtained from the Niagara Region Transportation Services Division and the Ministry of Transportation (MTO). Traffic volumes for the rail line were obtained from CN. The transportation traffic data was used to predict future sound levels (L_{EQ}) at the proposed building façades and outdoor amenity areas. The predicted sound levels were compared to the guidelines of the Ministry of the Environment, Conservation and Parks (MECP) to develop associated traffic noise control recommendations for the proposed development.

The surrounding area includes low-rise commercial, retail, residential buildings. These neighbouring uses may generate some audible noise at times, but no specific sources of potential concern have been identified, and there were no related audible noises noted during the site visit. No quantitative assessment of

noise from any surrounding properties has been conducted in the context of this feasibility study.

There were no sources of vibration identified in the environment around this development site, and therefore potential vibration impacts are not of concern and are not mentioned further in this report.

The future mixed-use development will include non-residential uses, and consideration will need to be given during detailed design of the future non-residential spaces to ensure that those uses do not adversely impact the adjacent residential uses.

Warning clauses for noise are required to be included in the development agreements and/or lease provisions, and recommended wording for those clauses is provided herein.

2 SITE DESCRIPTION

The subject property is located in Grimsby, on the northeast corner of the intersection of Elm Street and Mountain Street. According to the architectural drawings dated May 16, 2025, the development will be comprised of an 8-storey residential building, above one level of underground parking. The ground floor is shown to include parking, mechanical and electrical spaces, utility areas, commercial space, community hub areas, and indoor amenity space. The intermediate floor includes community space, and parking internal to the building. Residential suites begin on the 2nd floor, which also includes a courtyard amenity space. Two existing buildings, Woolverton House and Woolverton Hall, will be connected to the development and be used as amenity space and community hub area. A single residential unit on the 2nd floor of Woolverton house is also proposed as it currently exists today.

The site is bound by Mountain Street to the west and Elm Street to the south. Main Street is located approximately 90 metres to the northeast. The Queen Elizabeth Way highway (QEW) is located approximately 615 metres to the

north. There is a rail corridor, carrying both CN and VIA trains, located approximately 410 metres to the north. At this distance, noise and vibration from the rail line does not strictly need to be considered; however, the rail line has been included as part of the noise model, for completeness.

A site visit was conducted in March of 2021, to make observations of the acoustical environment. The primary source of transportation sound emissions in the area was confirmed to be road traffic on Mountain Street, with contributions from road traffic on Elm Street. During the site visit, no other noise sources of particular concern were noted in the environment immediately surrounding the site.

The site is located in the downtown area of Grimsby, near Main Street, surrounded by low-rise commercial, retail, and residential buildings. To the south are low-rise residential buildings. To the west is a mix of low-rise residential and commercial buildings. To the north and east are low-rise commercial buildings with downtown Grimsby beyond. In terms of the classifications provided for in Ministry of the Environment (MECP) guidelines, this area is considered to be a Class 1 "urban" acoustical environment.

3 TRANSPORTATION NOISE ASSESSMENT

3.1 Noise Criteria

Guidelines for acceptable levels of road and rail traffic noise impacting residential developments are contained in the MECP publication NPC-300, "Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning," August, 2013 (release date October 21, 2013) [1], and are listed in Table 1 below. The values in Table 1 are energy equivalent (average) sound levels (L_{EQ}) in units of A-weighted deciBels (dBA).

Table 1: MECP Road/Rail Traffic Noise Criteria [dBA]

Space	Daytime [L_{EQ}-16hr] Road / Rail	Nighttime [L_{EQ}-8hr] Road / Rail
Outdoor Living Areas	55	--
Inside Living/Dining Rooms	45 / 40	45 / 40
Inside Bedrooms	45 / 40	40 / 35

These criteria apply to the surrounding vehicular traffic. Daytime refers to the period between 07:00 and 23:00, while nighttime refers to the period between 23:00 and 07:00. 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, or common areas associated with high-rise multi-unit buildings where passive outdoor recreation is expected to occur. Balconies and terraces with a depth of less than 4 meters are not considered OLAs under MECP guidelines, and accordingly the noise criteria are not applicable there. Larger private terraces require consideration only if they are the only OLA for the occupant; in general, common outdoor amenity terraces associated with high-rise buildings are the only OLAs that require consideration.

In cases where a minor excess (up to 5 dB) over the sound level limit in an OLA is anticipated, MECP 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.

Where the traffic noise level (L_{EQ}) is greater than 60 dBA at night or 65 dBA during the day, 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 MECP 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.

The indoor sound level limits for rail sources are 5 dB more stringent than for road sources, to account for the additional low-frequency (rumble) components of locomotives, hence the façade insulation requirements are calculated separately and then combined.

Warning clauses to notify future residents of possible excesses are required when nighttime road traffic sound levels exceed 50 dBA at the plane of the windows or when daytime sound levels exceed 55 dBA in the outdoor living areas or at the plane of the windows.

3.2 Traffic Data

3.2.1 Road Traffic Data

Traffic data summaries for the key roads surrounding the site were obtained from the Niagara Region Transportation Services Division (see Appendix A). These data were provided in the form of 8-hour intersection turning counts; in order to obtain 24-hour traffic volumes required to predict future sound levels during both the 16-hour daytime and 8-hour night-time periods, the following assumptions were made:

- The 24-hour traffic volumes were assumed to be double the obtained 8-hour daily peak volumes,
- The prediction considered traffic that will exist in 20 years (2045), assuming annual traffic growth of 2.5% on all roadways, as required by the Niagara Region for regional roads,
- Daytime (7:00 – 23:00) vs nighttime (23:00 – 7:00) traffic volumes were determined based on an assumed 90% day / 10% night split,
- Half of all trucks were assumed to be heavy, the other half medium, and buses were counted as medium trucks.

Traffic data for the QEW was obtained from the MTO in the form of Annual Average Daily Traffic (AADT) for the year 2021 and is also included in Appendix A. The following assumptions were made:

- The prediction considered traffic that will exist in 10 years (2035), assuming traffic annual growth of 2.5%, per MECP guidelines;

- A commercial vehicle percentage of 9% was provided; half were assumed to be heavy trucks, and the other half were assumed to be medium;
- Daytime (7:00 – 23:00) vs night-time (23:00 – 7:00) traffic volumes were determined based on an assumed 85% day / 15% night split.

The resulting future road traffic volumes for the roads used in this assessment are listed in Table 2, in addition to commercial vehicle (truck) percentages and the posted speed limit for each roadway.

Table 2: 2045 Projected Road Traffic Data

Roadway	AADT	Day / Night Split [%]	Trucks Percentage (%)		Speed Limit [km/h]
			Medium	Heavy	
Mountain Street (south of Main)	15,701	90 / 10	3.9	3.9	50
Elm Street (south of Main)	13,403	90 / 10	0.7	0.7	50
Main Street (east of Mountain)	18,442	90 / 10	1.2	1.2	50
QEW*	131,971	85 / 15	4.5	4.5	100

*Traffic data projected to 2035.

3.2.2 Rail Traffic Data

Rail traffic data was obtained from CN and VIA Rail, and is contained in Appendix A. This data was escalated to the year 2035 at an annual rate of 2.5%, as per MECP guidelines. The rail volumes used in the analysis are summarized in Table 3.

Table 3: 2035 Projected Rail Traffic Data

Type of Train	No. of engines (max)	No. of cars (max)	No. of Trains Night-time (23:00-07:00)	No. of Trains Night-time (23:00-07:00)	Max speed [mph]
Freight (CN)	4	140	5.2	0	60
Passenger (VIA)	2	10	2.6	0	65

3.3 Prediction Results

The sound propagation portion of the modelling has been completed using methods from ISO Standard 9613-2, "Acoustics - Attenuation of Sound During Propagation Outdoors" [2], which accounts for reduction in sound level with distance due to geometrical spreading, air absorption, ground attenuation and acoustical shielding by intervening structures. *CadnaA, version 2025,* software package was used for this purpose, as it is well equipped to process calculations in complex, three-dimensional environments. ISO 9613-2 is a widely recognized standard for predicting sound propagation in the environment, and is accepted by many Ontario municipalities, and the MECP.

The surrounding buildings were incorporated into the model. The road and rail noise sources have been included in the model as line sources, calibrated to be equal at a reference distance of 15 m to levels predicted in STAMSON 5.04, a computer algorithm developed by the MECP, based on the average daily traffic volumes presented in Tables 2 and 3.

The model was used to predict traffic noise levels at each of the building façades. Predicted daytime and night-time sound levels at the building façades are shown in Figures 3 and 4, respectively. Maximum sound level contributions at each façade for representative receptor locations in the building are shown in the table below. As expected, noise from the rail line is minimal in comparison with noise from the surrounding roadways.

Table 4: Road / Rail / Total Traffic Sound Level Prediction at Building Façades [dBA]

Time of Day	North	East	South	West
Day (16-hour average)	65 / 55 / 66	62 / 55 / 63	65 / 45 / 65	68 / 52 / 68
Night (8-hour average)	60 / -- / 60	58 / -- / 58	59 / -- / 59	62 / -- / 62

An outdoor amenity area is shown on the 2nd as a courtyard, between the east and west portions of the building. The receptor location for the outdoor amenity

space is represented by prediction location R1, as shown in Figure 2. The predicted sound level ($L_{Aeq,16hr}$) at this location is 49 dBA.

3.4 Discussion and Recommendations

The maximum predicted sound levels at the building façade were found to be up to 68 dBA during daytime hours, and up to 62 dBA during nighttime hours.

The following sections outline preliminary recommendations for building façade constructions and ventilation requirements to achieve the noise criteria discussed in Section 3.1.

3.4.1 Building Façade Constructions

Given the projected future sound levels at the building facades, MECP guidelines recommend that the building envelope be designed so that the indoor sound levels comply with the noise criteria in NPC-300.

Preliminary calculations have been performed to determine the building envelope constructions likely to be required to maintain indoor sound levels within MECP guidelines. The calculation methods were developed by the National Research Council (NRC). They are based on the maximum predicted future sound levels at the building façades, and the anticipated areas of the façade components (walls, doors and windows) relative to the floor area of the adjacent room.

For the purposes of this preliminary analysis, typical window-to-floor areas were conservatively assumed to be 80% (i.e. 60% fixed, 20% operable elements relative to floor area). Based upon these assumptions, and the maximum predicted sound levels at each facade, the fixed glazing along the north façade must achieve a sound transmission class (STC) rating of at least STC-31 to achieve the target indoor sound level criteria. Note that in an urban environment such as this, to help account for noises that are not specifically modelled (e.g., noise from human activities such as music from passing cars, revving of engines, etc.) we do not typically recommend less than STC-33, which can be achieved using reasonable glazing assemblies (e.g., two 5-6 mm

thick panes separated by a 13 mm air space). Glazing performance requirements can be verified through a more detailed analysis conducted during design development, when floor plans and elevations have been finalized.

It is assumed that exterior wall assemblies have sufficient sound insulation such that sound transmitted through them is negligible in comparison to the glazing. Precast or masonry exterior walls will meet these requirements, as should spandrel or metal panels backed by an independent drywall assembly.

3.4.2 Indoor Living Areas and Ventilation Requirements

Predicted sound levels at the west façade exceed 65 dBA during the daytime. Central air conditioning is required and is expected to be included in any event.

3.4.3 Outdoor Living Areas

Since there is a common outdoor amenity space on the second floor provided for the use of all residents, private terraces and balconies in the development do not require assessment. There are currently no private terraces and balconies being contemplated. The common outdoor amenity area is subject to the MECP criteria outlined in Table 1. The outdoor amenity space is represented by prediction location R1 on Figure 2.

The predicted future average daytime sound level is less than 55 dBA at the receptor location. No additional noise abatement is required for this amenity space to comply with the MECP criteria outlined in Section 3.1.

4 IMPACT OF THE DEVELOPMENT ON THE ENVIRONMENT

Sound levels from stationary (non-traffic) sources of noise such as rooftop air-conditioners, cooling towers, exhaust fans, etc. should not exceed the minimum one-hour L_{EQ} ambient (background) sound level from road traffic, at any potentially impacted residential point of reception (on or off site), to comply with City of Toronto Municipal Code 591. Typical minimum ambient sound levels

in the area are expected to be up about 50 dBA during the day and about 5 dB less at night, at nearby residential receptors. Thus, any electromechanical equipment associated with this development (e.g. cooling towers, fresh-air handling equipment, etc.) should be designed such that they do not result in noise impact beyond these ranges. It is noted that the proposed building will be taller than the existing neighbouring buildings, thus noise from the mechanical equipment on the roof of the new building are not expected to impact the neighbouring buildings provided that typical equipment and/or standard control measures are included in the design.

5 IMPACT OF THE DEVELOPMENT ON ITSELF

Section 5.8.1.1 of the Ontario Building Code (OBC), released on January 1, 2024, specifies the minimum required sound insulation characteristics for demising partitions of dwelling units, in terms of Sound Transmission Class (STC) or Apparent Sound Transmission Class (ASTC) values. In order to maintain adequate acoustical privacy between separate suites in a multi-tenant building, inter-suite walls must meet or exceed STC-50 or ASTC-47. Suite separation from a refuse chute, or elevator shaft, must meet or exceed STC-55. In addition, it is recommended that the floor/ceiling constructions separating suites from any amenity, commercial or other mechanical spaces also meet or exceed STC-55. Tables 1 and 2 in Section SB-3 of the Supplementary Guideline to the OBC provide a comprehensive list of constructions that will meet the above requirements.

Tarion’s Registrar Bulletin 19 (B19) requires the internal design of condominium projects to integrate suitable acoustic features to insulate the suites from noise from each other and amenities in accordance with the OBC, and to limit the potential intrusions of mechanical and electrical services in the development on its residents. If B19 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 is maintained within acceptable levels.

6 RECOMMENDED WARNING CLAUSES

MECP 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 potential noise concerns from sources in the area. The following clauses are recommended:

Type D:

> Purchasers/tenants 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.

Type E:

> Purchasers/tenants are advised that due to the proximity of this development to nearby retail/commercial facilities, sound levels from the facilities may at times be audible.

These sample clauses are provided only as examples, and can be modified by the owner's legal representative, in consultation with the Municipality, in order to suit site-specific requirements.

7 SUMMARY OF RECOMMENDATIONS

The following list summarizes the conclusions and 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. Recommended minimum glazing constructions to ensure adequate indoor sound levels from road traffic and other transient noises are outlined in Section 3.4.1.

2. Central air conditioning systems are recommended and are assumed to be provided in any event, as outlined in Section 3.4.2.

3. 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 road traffic noise and potential noise from nearby retail/commercial facilities. Recommended wording for these clauses is provided in Section 6. Such clauses are often included by reference to the Development Agreements in which they are contained.

4. Demising assemblies must be selected to meet the minimum requirements of the Ontario Building Code (OBC). Where B19R certification is needed, an acoustical consultant is required to review details of demising constrictions 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 that any potential impacts on adjacent properties are suitably minimized.

8 CONCLUSION

The results of this study indicate that the proposed development is feasible on this site from a noise impact perspective, with the inclusion of standard acoustical features. Preliminary design recommendations are provided herein and can be developed in greater detail as the design proceeds through tender and construction.

9 REFERENCES AND CITATIONS

1. *Ontario Ministry of the Environment, Conservation and Parks, Publication NPC-300, Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning, August 2013.*

2. *International Organization for Standardization, Acoustics – Attenuation of Sound during Propagation Outdoors – Part 2: General Method of Calculation, ISO-9613-2, Switzerland, 1996.*

3. *Niagara Region Public Works Department Policy Manual, Regional Road Traffic Noise Control, November 9, 2006*

4. *Google Maps Aerial Imagery, Internet application: maps.google.com.*

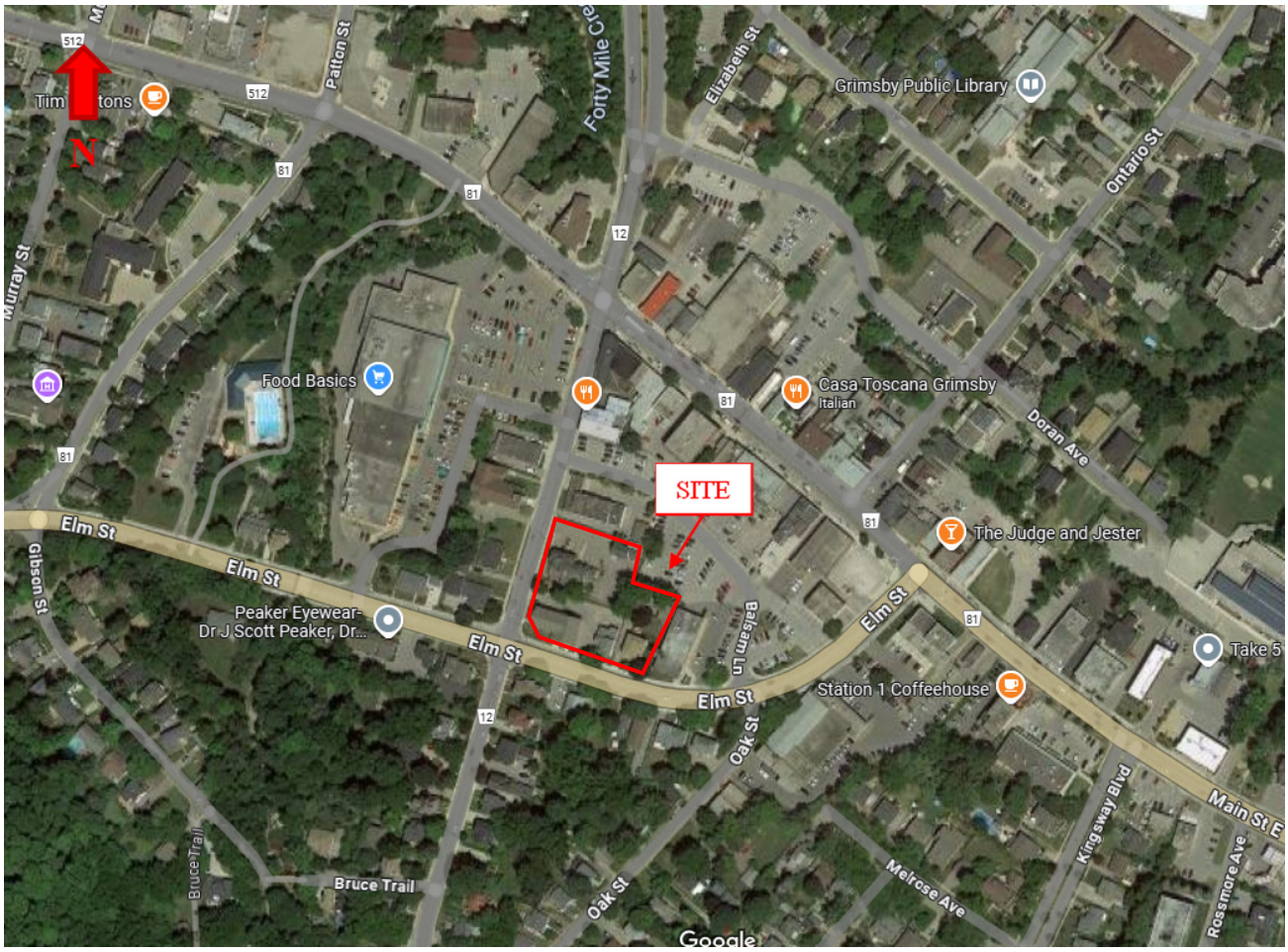


Figure 1: Key Plan

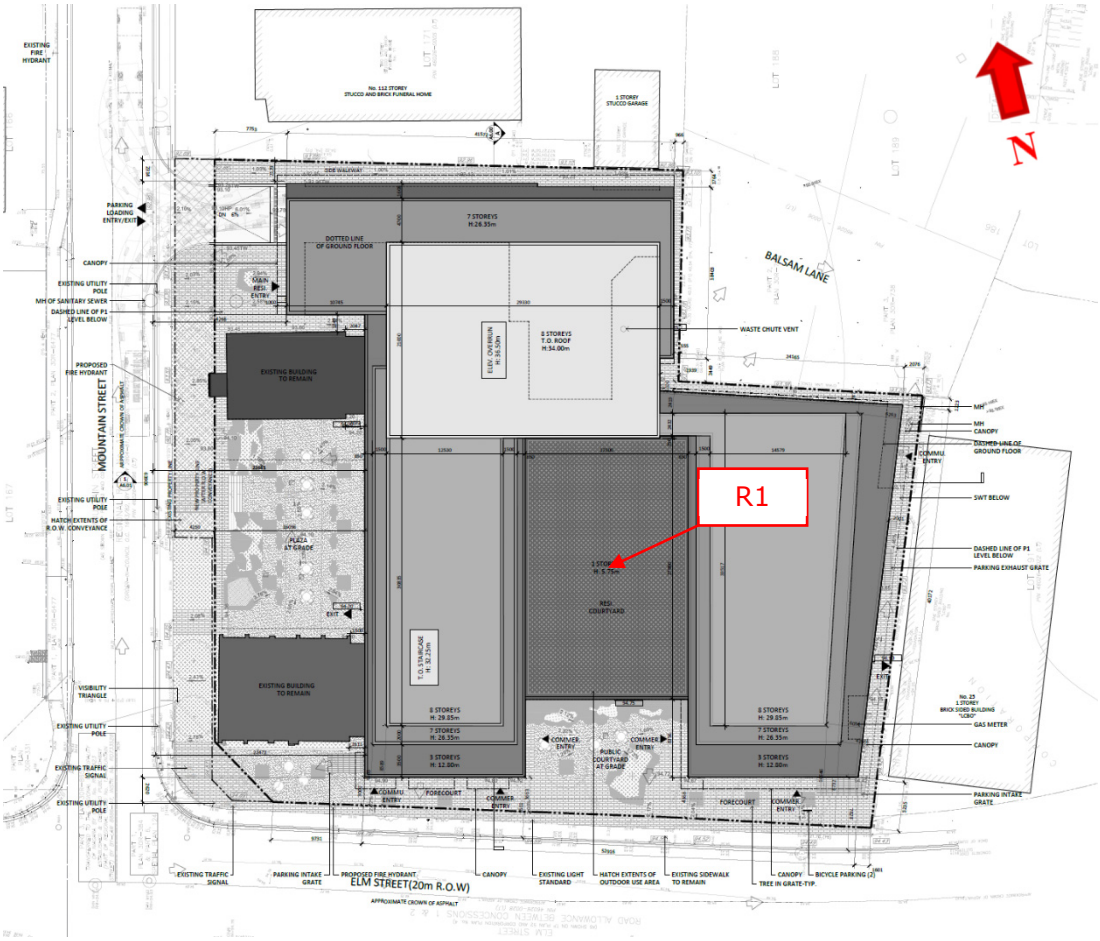


Figure 2: Site Plan

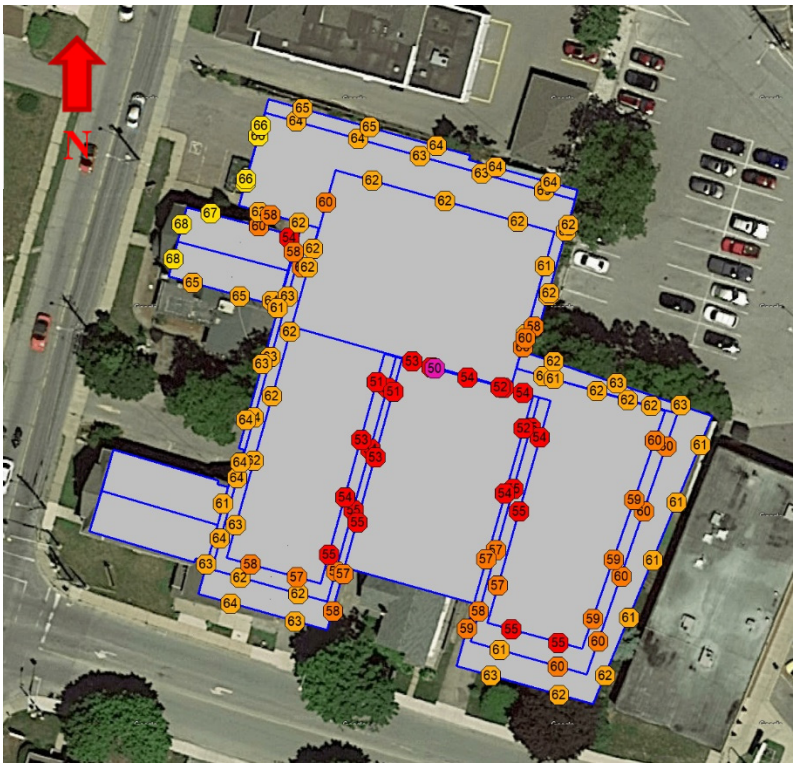


Figure 3: Daytime Sound Level Predictions from Traffic Sources

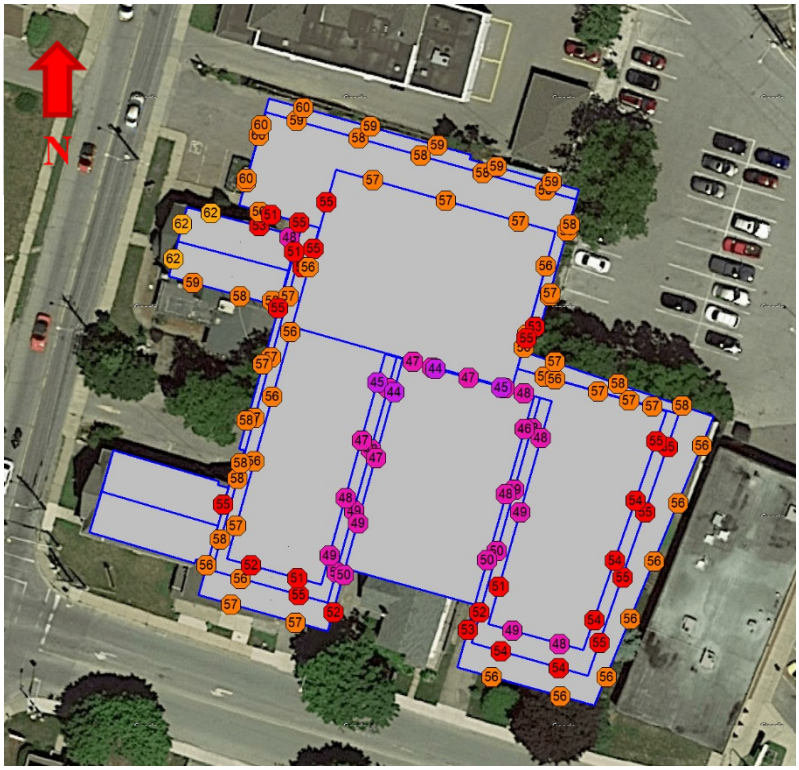


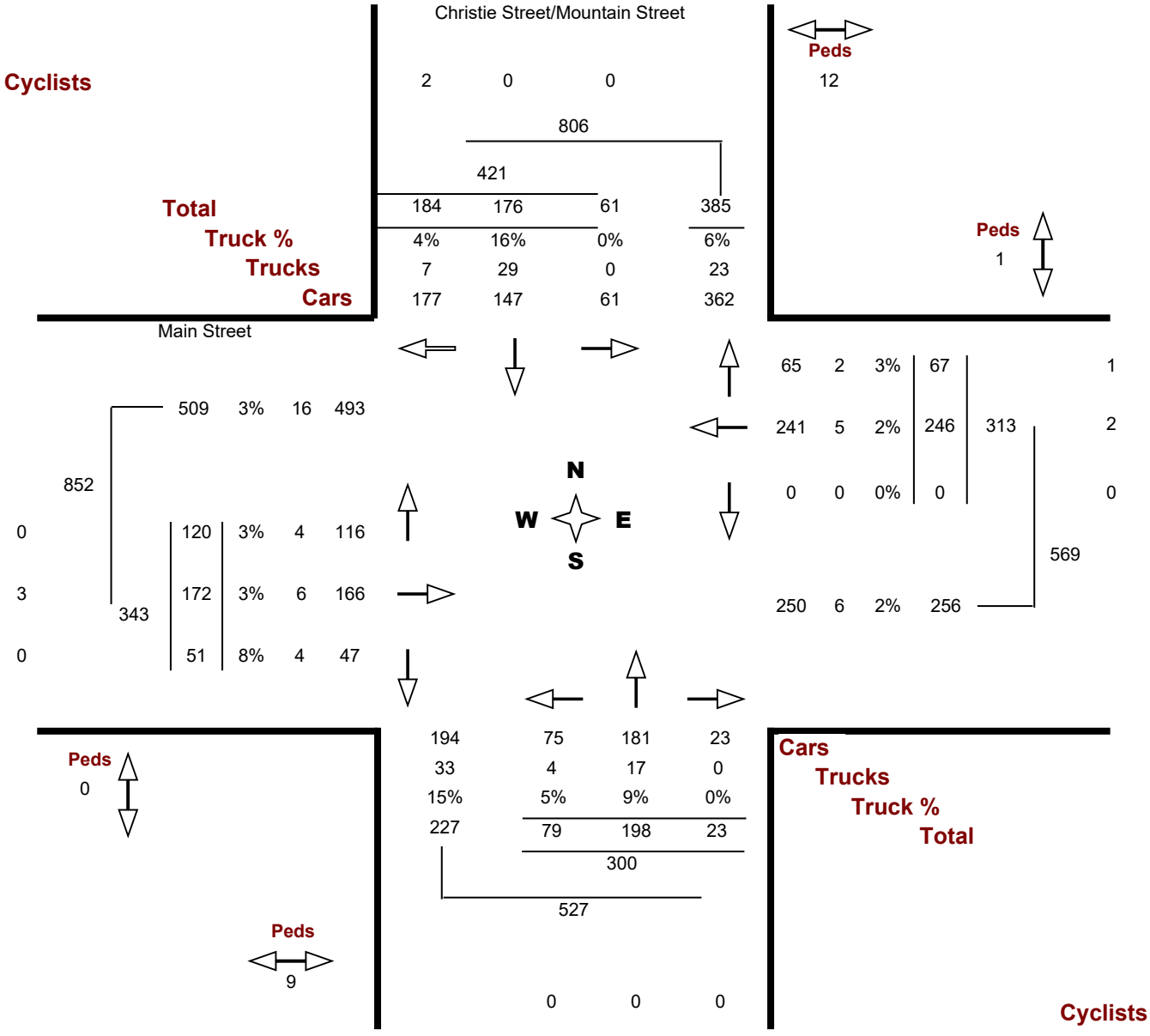
Figure 4: Nighttime Sound Level Predictions from Traffic Sources

Appendix A:

Traffic Data

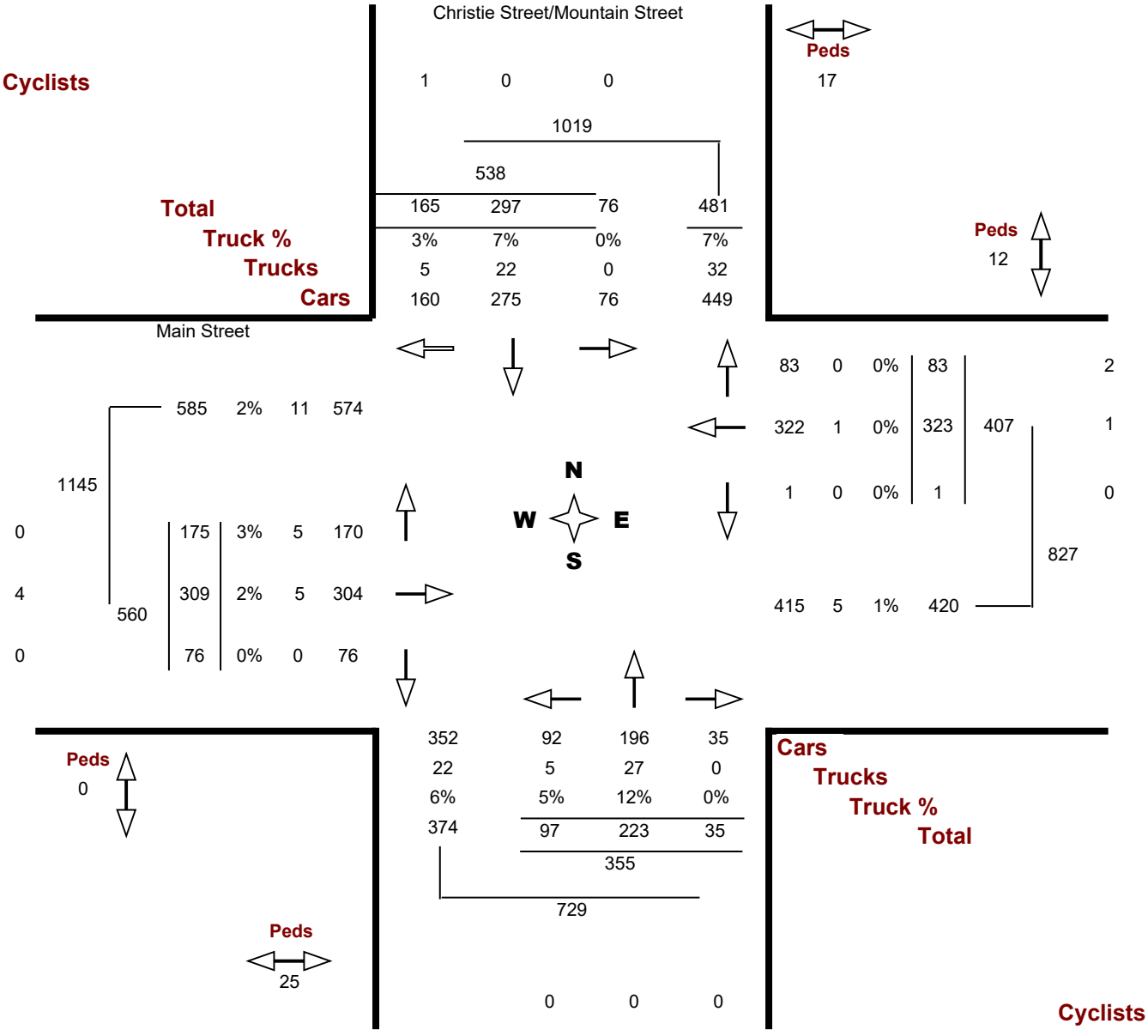
Turning Movements Report - AM Period

Location.....	Christie Street/Mountain Street @ Main Street	**GeoID.....**	01115
Municipality.	GRIMSBY	**Count Date.**	Tuesday, 08 October, 2024
Traffic Cont.	Traffic signal	**Count Time.**	07:00 AM — 09:00 AM
Major Dir.....	East west	**Peak Hour..**	08:00 AM — 09:00 AM



Turning Movements Report - PM Period

Location.....	Christie Street/Mountain Street @ Main Street	**GeoID.....**	01115
Municipality.	GRIMSBY	**Count Date.**	Tuesday, 08 October, 2024
Traffic Cont.	Traffic signal	**Count Time.**	03:00 PM — 06:00 PM
Major Dir.....	East west	**Peak Hour..**	03:15 PM — 04:15 PM



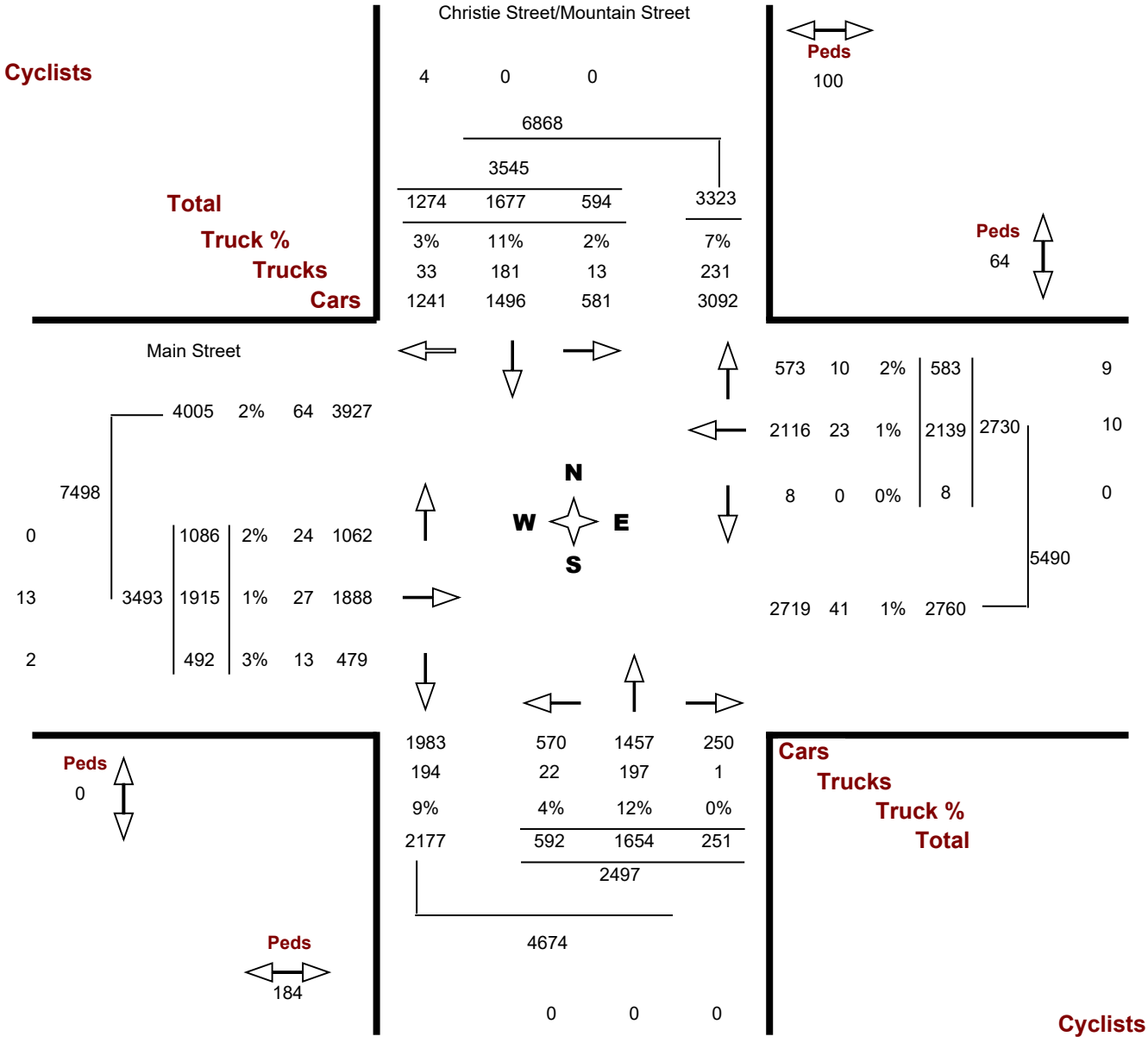
Turning Movement Count Report
Full Study

Location..... Christie Street/Mountain Street @ Main Street

Municipality..... GRIMSBY

GeoID..... 01115

Count Date..... Tuesday, 08 October, 2024



Turning Movement Count - Details Report (15 min)

Location..... Christie Street/Mountain Street @ Main Street

Municipality..... GRIMSBY

Count Date..... Tuesday, October 08, 2024

		Christie Street/Mountain Street											Main Street								
		North Approach					South Approach						East Approach					West Approach			
Time Period		LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT
07:00	07:15	14	17	17	0	48	7	45	1	0	53	0	29	25	0	54	21	22	5	0	48
07:15	07:30	9	24	31	0	64	16	41	3	0	60	0	27	23	0	50	33	27	7	0	67
07:30	07:45	5	29	27	0	61	14	50	4	0	68	0	44	16	0	60	17	34	4	0	55
07:45	08:00	17	34	30	0	81	19	55	1	0	75	1	57	15	0	73	27	47	13	0	87
Hourly Total		45	104	105	0	254	56	191	9	0	256	1	157	79	0	237	98	130	29	0	257
08:00	08:15	9	28	37	0	74	19	53	2	0	74	0	43	18	0	61	41	41	10	0	92
08:15	08:30	14	48	36	0	98	12	45	10	0	67	0	44	13	0	57	27	38	11	0	76
08:30	08:45	18	46	42	0	106	19	34	4	0	57	0	78	22	0	100	20	33	16	0	69
08:45	09:00	20	54	69	0	143	29	66	7	0	102	0	81	14	0	95	32	60	14	0	106
Hourly Total		61	176	184	0	421	79	198	23	0	300	0	246	67	0	313	120	172	51	0	343
11:00	11:15	18	51	32	0	101	19	50	8	0	77	0	76	12	0	88	25	49	12	0	86
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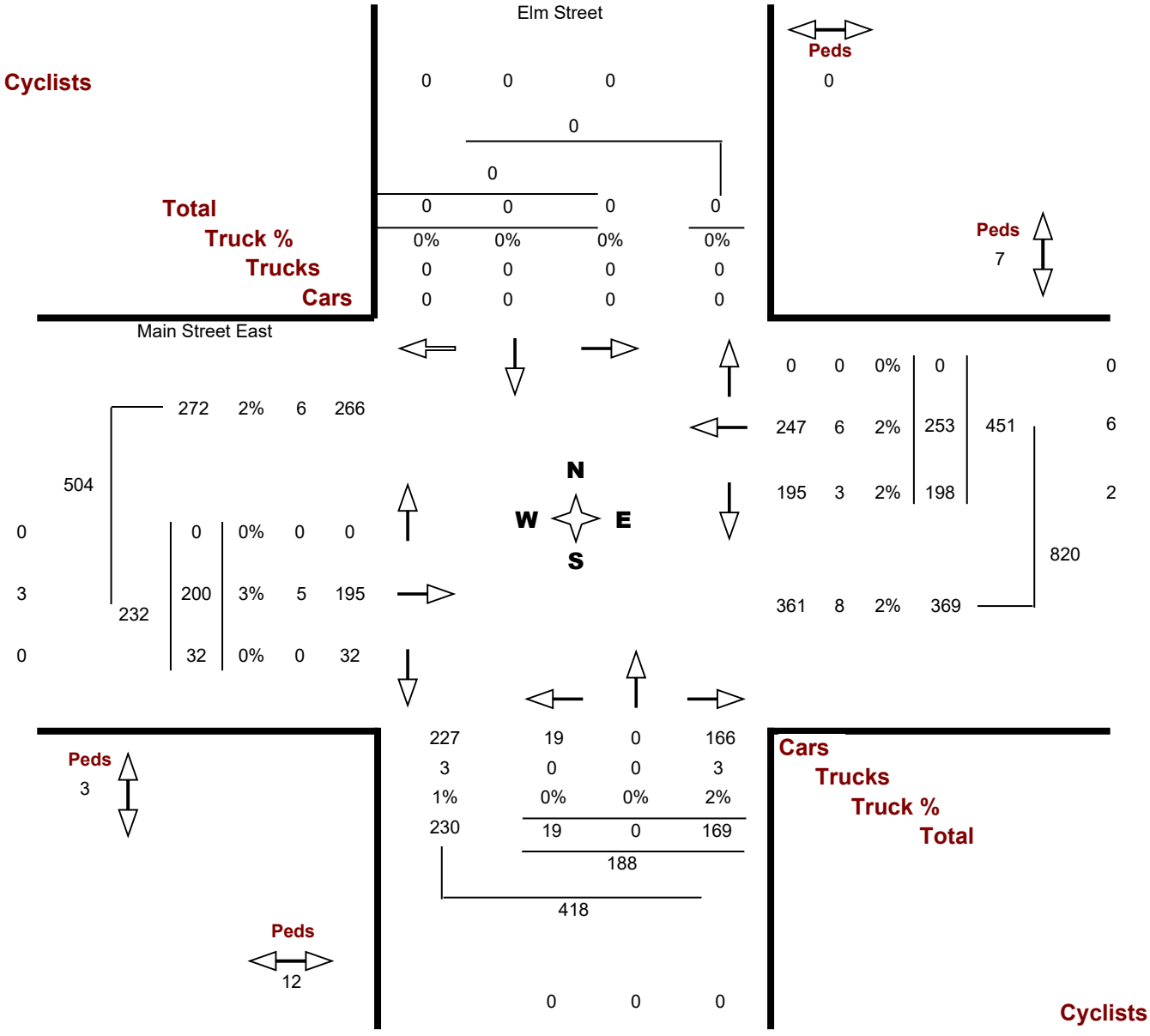
12:45	13:00	27	53	43	0	123	17	43	7	0	67	0	77	15	0	92	40	71	18	0	129
Hourly Total		97	172	185	0	454	79	201	31	0	311	1	289	67	0	357	145	256	73	0	474
13:00	13:15	22	54	29	0	105	22	62	12	0	96	0	67	20	0	87	33	85	23	0	141
13:15	13:30	19	58	46	0	123	18	55	8	0	81	1	67	22	0	90	36	49	16	0	101
13:30	13:45	27	45	36	0	108	19	51	8	0	78	0	71	23	0	94	39	57	16	0	112
13:45	14:00	28	43	49	0	120	10	49	11	0	70	1	65	16	0	82	42	69	10	0	121
Hourly Total		96	200	160	0	456	69	217	39	0	325	2	270	81	0	353	150	260	65	0	475
15:00	15:15	14	58	39	0	111	15	59	9	0	83	1	83	14	0	98	43	72	18	0	133
15:15	15:30	22	64	41	0	127	27	58	8	0	93	0	88	29	0	117	43	85	15	0	143
15:30	15:45	21	80	40	0	141	20	47	5	0	72	0	88	22	0	110	44	75	19	0	138
15:45	16:00	19	79	41	0	139	26	52	13	0	91	1	78	13	0	92	53	76	17	0	146
Hourly Total		76	281	161	0	518	88	216	35	0	339	2	337	78	0	417	183	308	69	0	560
16:00	16:15	14	74	43	0	131	24	66	9	0	99	0	69	19	0	88	35	73	25	0	133

		Christie Street/Mountain Street										Main Street									
		North Approach					South Approach					East Approach					West Approach				
Time Period		LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT
16:15	16:30	19	67	48	0	134	15	48	11	0	74	0	79	18	0	97	36	67	21	0	124
16:30	16:45	18	66	37	0	121	16	50	8	0	74	1	72	16	0	89	40	63	20	0	123
16:45	17:00	17	68	49	0	134	19	51	13	0	83	0	67	21	0	88	27	64	19	0	110
Hourly Total		68	275	177	0	520	74	215	41	0	330	1	287	74	0	362	138	267	85	0	490
17:00	17:15	13	60	41	0	114	14	59	12	0	85	0	60	15	0	75	47	88	19	0	154
17:15	17:30	21	58	36	0	115	18	57	4	0	79	0	79	14	0	93	35	57	25	0	117
17:30	17:45	19	69	38	0	126	18	44	8	0	70	0	51	16	0	67	30	69	16	0	115
17:45	18:00	16	70	35	0	121	21	34	12	0	67	0	65	21	0	86	32	49	11	0	92
Hourly Total		69	257	150	0	476	71	194	36	0	301	0	255	66	0	321	144	263	71	0	478
Grand Total		594	1677	1274	0	3545	592	1654	251	0	2497	8	2139	583	0	2730	1086	1915	492	0	3493
Truck %		2%	11%	3%	0%	6%	4%	12%	0%	0%	9%	0%	1%	2%	0%	1%	2%	1%	3%	0%	2%

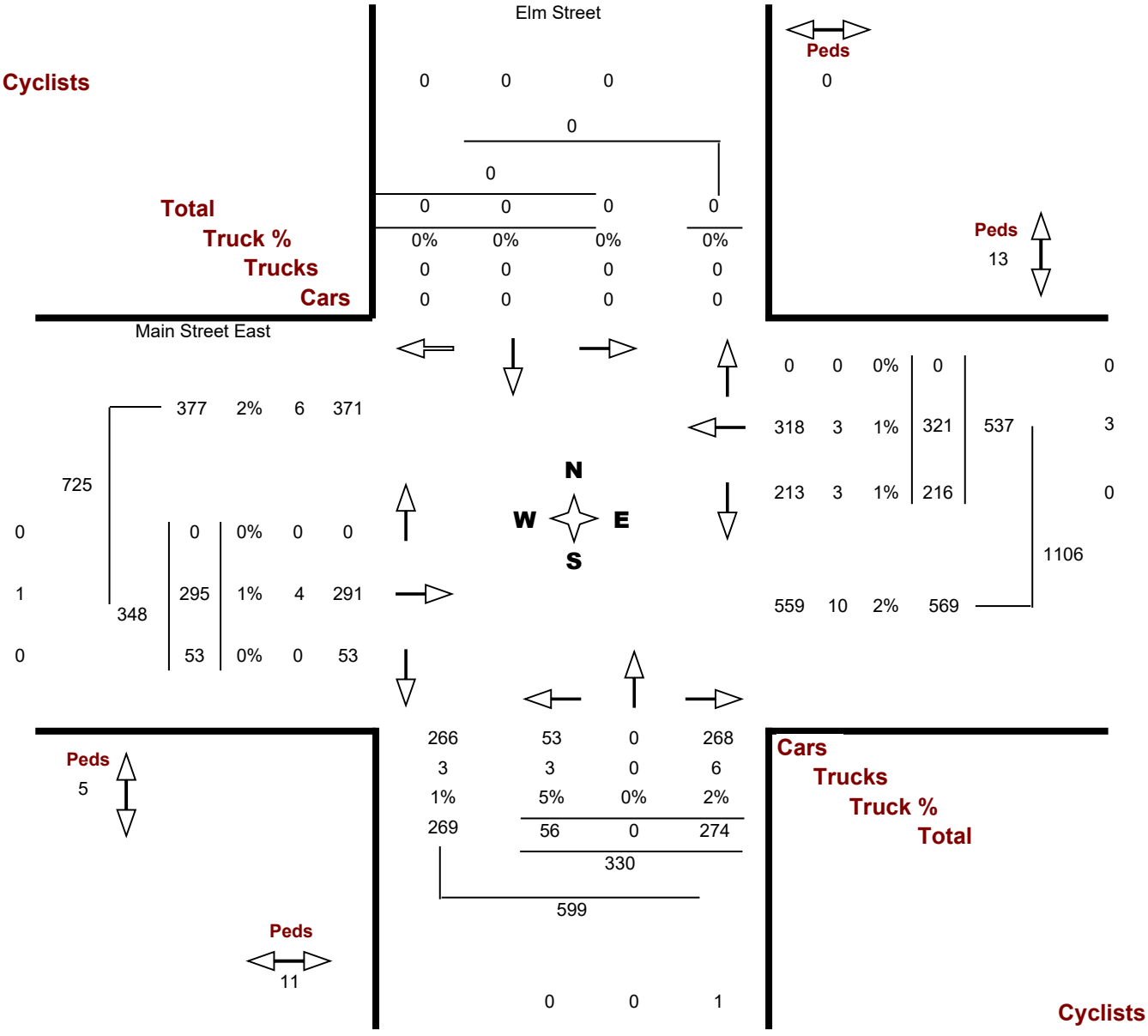
Turning Movements Report - AM Period

Location.....	Elm Street @ Main Street East	**GeoID.....**	01110
Municipality.	GRIMSBY	**Count Date.**	Tuesday, 08 October, 2024
Traffic Cont.	Traffic signal	**Count Time.**	07:00 AM — 09:00 AM
Major Dir.....	East west	**Peak Hour..**	08:00 AM — 09:00 AM



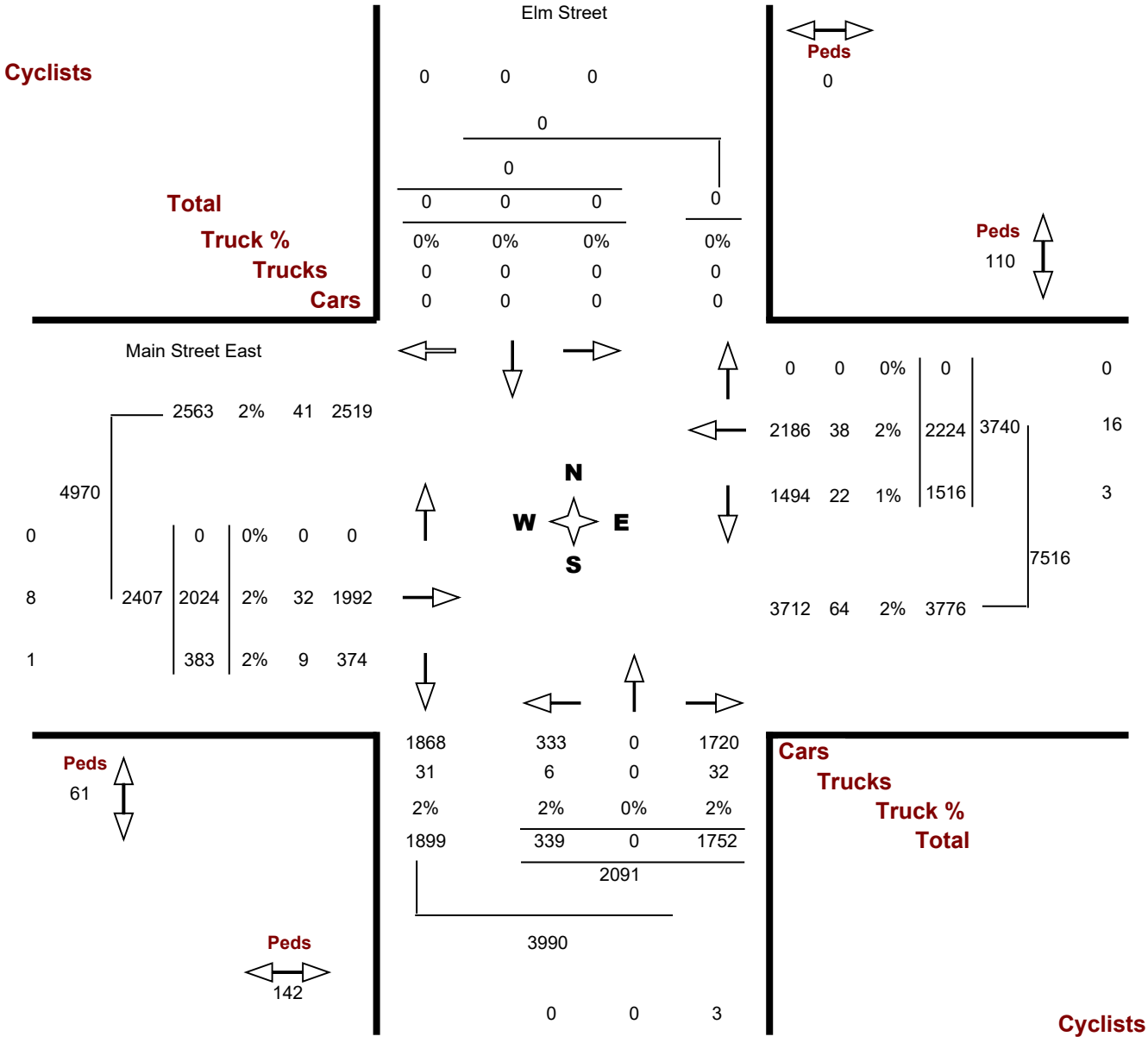
Turning Movements Report - PM Period

Location.....	Elm Street @ Main Street East	**GeoID.....**	01110
Municipality.	GRIMSBY	**Count Date.**	Tuesday, 08 October, 2024
Traffic Cont.	Traffic signal	**Count Time.**	03:00 PM — 06:00 PM
Major Dir.....	East west	**Peak Hour..**	03:00 PM — 04:00 PM



Turning Movement Count Report
Full Study

Location..... Elm Street @ Main Street East
Municipality..... GRIMSBY
GeoID..... 01110
Count Date..... Tuesday, 08 October, 2024



Turning Movement Count - Details Report (15 min)

Location..... Elm Street @ Main Street East

Municipality..... GRIMSBY

Count Date..... Tuesday, October 08, 2024

		Elm Street										Main Street East									
		North Approach					South Approach					East Approach					West Approach				
Time Period		LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT
07:00	07:15	0	0	0	0	0	2	0	16	0	18	24	49	0	0	73	0	25	4	0	29
07:15	07:30	0	0	0	0	0	1	0	17	0	18	26	47	0	0	73	0	26	3	0	29
07:30	07:45	0	0	0	0	0	1	0	22	0	23	34	43	0	0	77	0	38	3	0	41
07:45	08:00	0	0	0	0	0	6	0	42	0	48	41	65	0	0	106	0	58	5	0	63
Hourly Total		0	0	0	0	0	10	0	97	0	107	125	204	0	0	329	0	147	15	0	162
08:00	08:15	0	0	0	0	0	2	0	28	0	30	49	51	0	0	100	0	45	1	0	46
08:15	08:30	0	0	0	0	0	5	0	31	0	36	44	52	0	0	96	0	45	11	0	56
08:30	08:45	0	0	0	0	0	3	0	45	0	48	51	71	0	0	122	0	52	8	0	60
08:45	09:00	0	0	0	0	0	9	0	65	0	74	54	79	0	0	133	0	58	12	0	70
Hourly Total		0	0	0	0	0	19	0	169	0	188	198	253	0	0	451	0	200	32	0	232
11:00	11:15	0	0	0	0	0	7	0	51	0	58	43	71	0	0	114	0	64	10	0	74
11:15	11:30	0	0	0	0	0	17	0	49	0	66	55	76	0	0	131	0	62	12	0	74
11:30	11:45	0	0	0	0	0	16	0	51	0	67	50	71	0	0	121	0	66	11	0	77
11:45	12:00	0	0	0	0	0	13	0	50	0	63	39	92	0	0	131	0	73	22	0	95
Hourly Total		0	0	0	0	0	53	0	201	0	254	187	310	0	0	497	0	265	55	0	320
12:00	12:15	0	0	0	0	0	11	0	57	0	68	45	69	0	0	114	0	75	17	0	92
12:15	12:30	0	0	0	0	0	13	0	63	0	76	32	72	0	0	104	0	73	18	0	91
12:30	12:45	0	0	0	0	0	11	0	58	0	69	41	67	0	0	108	0	58	17	0	75
12:45	13:00	0	0	0	0	0	17	0	49	0	66	53	68	0	0	121	0	77	19	0	96
Hourly Total		0	0	0	0	0	52	0	227	0	279	171	276	0	0	447	0	283	71	0	354
13:00	13:15	0	0	0	0	0	14	0	61	0	75	50	70	0	0	120	0	73	15	0	88
13:15	13:30	0	0	0	0	0	17	0	63	0	80	55	67	0	0	122	0	68	15	0	83
13:30	13:45	0	0	0	0	0	5	0	53	0	58	51	82	0	0	133	0	57	15	0	72
13:45	14:00	0	0	0	0	0	7	0	56	0	63	52	78	0	0	130	0	61	27	0	88
Hourly Total		0	0	0	0	0	43	0	233	0	276	208	297	0	0	505	0	259	72	0	331
15:00	15:15	0	0	0	0	0	12	0	70	0	82	60	85	0	0	145	0	63	10	0	73
15:15	15:30	0	0	0	0	0	22	0	69	0	91	52	77	0	0	129	0	88	13	0	101
15:30	15:45	0	0	0	0	0	9	0	55	0	64	52	87	0	0	139	0	71	16	0	87
15:45	16:00	0	0	0	0	0	13	0	80	0	93	52	72	0	0	124	0	73	14	0	87
Hourly Total		0	0	0	0	0	56	0	274	0	330	216	321	0	0	537	0	295	53	0	348
16:00	16:15	0	0	0	0	0	19	0	70	0	89	54	75	0	0	129	0	68	12	0	80

		Elm Street										Main Street East									
		North Approach					South Approach					East Approach					West Approach				
Time Period		LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT
16:15	16:30	0	0	0	0	0	8	0	65	0	73	53	81	0	0	134	0	76	11	0	87
16:30	16:45	0	0	0	0	0	17	0	68	0	85	46	79	0	0	125	0	73	9	0	82
16:45	17:00	0	0	0	0	0	14	0	80	0	94	53	71	0	0	124	0	62	10	0	72
Hourly Total		0	0	0	0	0	58	0	283	0	341	206	306	0	0	512	0	279	42	0	321
17:00	17:15	0	0	0	0	0	8	0	72	0	80	55	56	0	0	111	0	81	14	0	95
17:15	17:30	0	0	0	0	0	12	0	75	0	87	59	72	0	0	131	0	60	11	0	71
17:30	17:45	0	0	0	0	0	11	0	76	0	87	47	55	0	0	102	0	84	9	0	93
17:45	18:00	0	0	0	0	0	17	0	45	0	62	44	74	0	0	118	0	71	9	0	80
Hourly Total		0	0	0	0	0	48	0	268	0	316	205	257	0	0	462	0	296	43	0	339
Grand Total		0	0	0	0	0	339	0	1752	0	2091	1516	2224	0	0	3740	0	2024	383	0	2407
Truck %		0%	0%	0%	0%	0%	2%	0%	2%	0%	2%	1%	2%	0%	0%	2%	0%	2%	2%	0%	2%

Year	Highway	Location Description	Dist (KM)	Pattern Type	AADT	SADT	SWADT	WADT	Truck AADT	Total Collisions	Total CR	Trucks Collisions	Truck CR
2016	QEW			IC	99,800	110,500	110,000	88,500	14,000	34	0.2	4	0.0
2017	QEW			IR	106,200	124,600	124,600	94,700	12,700	35	0.2	6	0.0
2018	QEW			IR	107,500	126,300	126,400	96,200	12,900	36	0.2	3	0.0
2019	QEW			IR	109,900	128,900	129,000	98,500	11,000	37	0.2	4	0.0
2021	QEW			IR	107,800	126,100	126,500	96,200	10,800	23	0.2	5	0.0
1988	QEW	BARTLETT AV IC-68	2.5	CTR	52,600	68,400	64,200	44,200	10,500	20	0.4	1	0.0
1989	QEW			CTR	54,900	69,700	66,400	47,200	11,000	33	0.6	8	0.2
1990	QEW			CTR	57,100	71,400	67,400	49,700	11,400	22	0.4	2	0.0
1991	QEW			CTR	58,800	74,100	73,500	51,200	11,800	30	0.5	7	0.1
1992	QEW			CTR	57,600	70,800	68,500	50,100	11,500	13	0.2	0	0.0
1993	QEW			CTR	58,200	73,300	70,400	49,500	11,600	17	0.3	2	0.0
1994	QEW			CTR	58,500	74,900	71,400	49,100	11,700	18	0.3	4	0.1
1995	QEW			CTR	63,800	81,900	78,500	53,500	12,800	20	0.3	1	0.0
1996	QEW			CTR	70,200	89,800	86,400	58,900	14,000	12	0.2	3	0.0
1997	QEW			CTR	70,500	90,200	86,700	59,200	14,100	15	0.2	3	0.0
1998	QEW			CTR	73,900	93,900	90,200	62,100	14,800	14	0.2	3	0.0
1999	QEW			CTR	75,900	95,600	91,800	63,800	12,100	13	0.2	0	0.0
2000	QEW			CTR	76,400	96,300	92,400	64,200	12,200	15	0.2	2	0.0
2001	QEW			CTR	78,700	99,300	95,200	66,400	11,000	9	0.1	1	0.0
2002	QEW			CTR	80,100	101,100	96,900	67,600	11,200	17	0.2	5	0.1
2003	QEW			CTR	81,800	101,700	97,700	69,400	10,600	17	0.2	8	0.1
2004	QEW			CTR	85,100	107,400	103,000	71,800	11,100	8	0.1	2	0.0
2005	QEW			CTR	84,900	105,200	101,000	72,000	11,000	15	0.2	2	0.0
2006	QEW			CTR	84,100	104,100	99,800	71,400	10,900	7	0.1	1	0.0
2007	QEW			CTR	87,900	108,900	107,900	74,500	11,400	11	0.1	2	0.0
2008	QEW			CTR	87,400	108,200	106,100	74,300	11,400	16	0.2	3	0.0
2009	QEW			CTR	91,500	111,600	108,000	77,800	11,900	4	0.0	1	0.0
2010	QEW			CTR	91,100	110,900	106,600	77,400	11,800	8	0.1	1	0.0
2011	QEW			CTR	95,100	115,700	111,300	80,700	12,400	15	0.2	5	0.1
2012	QEW			IC	86,500	95,800	92,900	76,800	11,200	26	0.3	1	0.0
2013	QEW			IC	96,500	106,800	106,200	85,600	12,500	27	0.3	5	0.1
2014	QEW			IC	98,100	108,600	108,100	87,000	12,800	28	0.3	9	0.1
2015	QEW			CTR	88,400	107,800	108,700	75,100	8,750	12	0.1	1	0.0
2016	QEW			CTR	99,300	121,100	122,100	84,400	9,850	18	0.2	2	0.0
2017	QEW			CTR	100,800	134,700	134,000	82,100	10,000	21	0.2	2	0.0
2018	QEW			CTR	102,300	136,600	136,100	83,300	10,100	31	0.3	3	0.0
2019	QEW			CTR	103,800	138,300	137,700	84,500	10,300	24	0.2	5	0.1
2021	QEW			IR	93,400	111,800	111,400	79,700	7,450	16	0.2	2	0.0
1988	QEW	MAPLE AV IC-71	3.6	CTR	47,300	61,500	57,700	39,700	9,450	41	0.7	5	0.1
1989	QEW			CTR	49,300	62,600	59,700	42,400	9,850	69	1.1	10	0.2
1990	QEW			CTR	51,300	64,100	60,500	44,600	10,300	48	0.7	6	0.1

System Engineering
Engineering Services

1 Administration Road
Concord, ON, L4K 1B9
T: 905.669.3264
F: 905.760.3406

Train Count Data

TRANSMITTAL

To: *Destinataire :*	HGC Engineering 2000 Argentia Rd Plaza, Suite 203 Mississauga ON L5N 1P7	*Project :*	GRM-32.17 - Winona Road , Hamilton, ON
Att'n:	Victor Garcia	*Routing:*	vgarcia@hgcengineering.com
From: *Expéditeur :*	Umair Naveed	*Date:*	2022/06/03
Cc:	Adjacent Development CN via e-mail		

☐ Urgent ☐ For Your Use ☐ For Review ■ For Your Information ☐ Confidential

Re: Train Traffic Data – CN Grimsby Subdivision near Winona in Hamilton, ON

Please find attached the requested Train Traffic Data; this data does not reflect GO Metrolinx Traffic. The application fee in the amount of **$500.00** +HST will be invoiced.

Should you have any questions, please do not hesitate to contact the undersigned at permits.gld@cn.ca

Sincerely,

Umair Naveed

Umair Naveed
Officer Public Works-Eastern Canada
Permits.gld@cn.ca

Date: 2022/06/03 Project Number: GRM-32.17 - Winona Road , Hamilton, ON

Dear Victor Garcia:

Re: Train Traffic Data – CN Grimsby Subdivision near Winona Road in Hamilton, ON

The following is provided in response to Victor's 2022/05/13 request for information regarding rail traffic in the vicinity of Winona road in Hamilton, ON at approximately Mile 32.17 on CN's Grimsby Subdivision.

Typical daily traffic volumes are recorded below. However, traffic volumes may fluctuate due to overall economic conditions, varying traffic demands, weather conditions, track maintenance programs, statutory holidays and traffic detours that when required may be heavy although temporary. For the purpose of noise and vibration reports, train volumes must be escalated by 2.5% per annum for a 10-year period.

Typical daily traffic volumes at this site location are as follows:

***Maximum train speed is given in Miles per Hour**

	0700-2300			
Type of Train	Volumes	Max.Consist	Max. Speed	Max. Power
Freight	4	140	60	4
Way Freight	0	25	60	4
Passenger	2	10	65	2

	2300-0700			
Type of Train	Volumes	Max.Consist	Max. Speed	Max. Power
Freight	0	140	60	4
Way Freight	0	25	60	4
Passenger	0	10	65	2

The volumes recorded reflect westbound and eastbound freight and passenger operations on CN's Grimsby Subdivision.

Except where anti-whistling bylaws are in effect, engine-warning whistles and bells are normally sounded at all at-grade crossings. There are four (4) at-grade crossings in the immediate vicinity of the study area at Mile 31.67 Fifty Road, Mile 32.17 Winona Road, Mile 32.69 Lewis Street and Mile 33.22 Mcneilly Road. Anti-whistling bylaws are in effect at these crossings. Please note that engine warning whistles may be sounded in cases of emergency, as a safety and or warning precaution at station locations and pedestrian crossings and occasionally for operating requirements.

With respect to equipment restrictions, the gross weight of the heaviest permissible car is 286,000 lbs.

The double mainline track is considered continuously welded rail throughout the study area.

The Canadian National Railway continues to be strongly opposed to locating developments near railway facilities and rights-of-way due to potential safety and environmental conflicts. Development adjacent to the Railway Right-of-Way is not appropriate without sound impact mitigation measures to reduce the incompatibility. For confirmation of the applicable rail noise, vibration and safety standards, Adjacent Development, Canadian National Railway Properties at Proximity@cn.ca should be contacted directly.

I trust the above information will satisfy your current request.

Sincerely,

Umair Naveed

Umair Naveed
Officer Public Works-Eastern Canada
Permits.gld@cn.ca

Iouri Basmanov

From: Sarangan Srikanth <Sarangan.Srikanth@cn.ca>
Sent: November 18, 2024 12:02 PM
To: Darryl McCumber
Cc: GLD-Permits
Subject: RE: Rail Traffic Data Verification

Hello Darryl,

This is to confirm that the data is still valid.

Thank you,

Sarangan Srikanth
Officer Public Works | Engineering-GLD- Eastern Canada
T: **905-669-3000** | C: **437-329-4963**

What's New at CN | *Quoi de neuf au CN*

From: Darryl McCumber <dmccumber@hgcacoustics.com>
Sent: Tuesday, November 12, 2024 5:36 PM
To: Sarangan Srikanth <Sarangan.Srikanth@cn.ca>
Cc: GLD-Permits <permits.gld@cn.ca>
Subject: RE: Rail Traffic Data Verification

Good evening,

HGC Noise Vibration Acoustics is preparing a noise feasibility study for a proposed development located at 13 Mountain Street and 19 Elm Street in Grimsby, Ontario. A google link is included below for your reference.

https://secure-web.cisco.com/19Pde-fc_luo3-QBf91_zRgF4-BARmmvzzY8LfYsyR3PLwZYZBHbnc3CAWmYVk-4c9z-lsuZSjbhzhdvpIGqzHF01viNqYjQY0Tz5UdfJ5iskeQo8y5darmQDrb1KBFLM2E-0No8WtwAx6aVKJNYJZC00bSkUy8ZwPrcUrlGlg6WpYTJ1HQQMxBUafqzipM_zRVQJU9HRswCvShnSiXqMkv39k7EGG_sXyN5erKax1vMr2CfRBXHhOej2NwFMEigCVhkuifXf_Rv_6MwNXRrQGNWD7eM_g0q2AQlzoULKDJfWP__FV8vcnUgx95rtDBDIV5-9Rkc3pJy3eZkUjH6GdCcydGdk0pVxD6_VFkPfmw3x5sDTEXY__VriClg-7dbJzdn-C4NSQyWHDBtfMKr5wWjB7QpfwAluiyyktNksg34/https%3A%2F%2Fmaps.app.goo.gl%2FYS5nRZ9FKuzUMyri9

We currently have the attached data. Is it still valid?

Regards,
Darryl McCumber, BASc, P.Eng.
Senior Engineer, Associate

HGC NOISE | VIBRATION | ACOUSTICS 1994-2024 30 YEARS

HGC NOISE VIBRATION ACOUSTICS
2000 Argentia Road, Plaza One, Suite 203, Mississauga, Ontario, Canada L5N 1P7
t: 905-826-4044 x245 **e**: dmccumber@hgcacoustics.com