aercoustics

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NOISE IMPACT STUDY – **Project: 20085.00**

1518-1526 Stittsville Main Street

Stittsville, Ontario

Prepared for:

McIntosh Perry Consulting Engineers
115 Wallgreen Road, RR#3
Carp, ON
K0A 1L0

Prepared by:

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Kohl Clark, B.Eng

Derek Flake, M.Sc., P.Eng

November 26, 2020

Revision History

Version	Description	Author	Reviewed	Date
- -	Initial Report	SZ	KC	November 26, 2020

Important Notice and Disclaimer

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Executive Summary

Aercoustics Engineering Limited has been retained by McIntosh Perry Consulting Engineers to prepare a Noise Impact Study in support of an application for a Site Plan Control approval to permit a mixed-use development in the City of Ottawa, located at 1518-1526 Stittsville Main Street in the community of Stittsville.

The purpose of this study is to examine the existing and future noise environment in the development area and evaluate its impact potential on future receptors. This report also investigates the noise control features that are required to meet the noise guidelines of the Ontario Ministry of the Environment, Conservation and Parks and to satisfy the requirements of the City of Ottawa.

The proposed development consists of one (1) four-storey residential building and one (1) two-storey restaurant building with external patio. Figure 1 provides a key plan showing the proposed development location. Figure 2 shows the site plan of the proposed development, including critical noise sensitive receptors and calculation locations. The main environmental noise source in the subject study area is road traffic from Stittsville Main Street.

The subject site is not significantly impacted by rail traffic, aircraft, or stationary noise sources.

Road noise level calculations were performed in accordance with the MECP guidelines and by the Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT). The City of Ottawa's document "Environmental Noise Control Guidelines" (ENCG) has also been considered in this study. The highest predicted road traffic noise level is 63 dBA during daytime and 56 dBA during nighttime hours at the northeast residential façade. Based on these levels, standard exterior window and wall components that meet the requirements of the Ontario Building Code (OBC) are expected to be sufficient for meeting the MECP indoor sound level guidelines.

Sample warning clause wording to address noise issues has been provided as required.

The development is expected to have minimal impact on the surrounding environment; this should be confirmed at the once details of proposed noise generating mechanical equipment becomes available. As the aforementioned details become available, further analysis should be conducted to assess the impact of noise sources associated with the development on noise-sensitive locations within the development itself.

Table of Contents

1 Introduction

Aercoustics Engineering Limited (Aercoustics) has been retained by McIntosh Perry Consulting Engineers (McIntosh Perry) to prepare a Noise Impact Study (NIS) to support an application for Site Plan Approval (SPA) for a mixed-use development in the City of Ottawa, municipally located at 1518-1526 Stittsville Main Street in the community of Stittsville. This noise study is intended to support an application for a Site Plan Control approval.

The purpose of this study was to examine the existing and future noise environment in the development area and evaluate its impact potential on future receptors. This report also investigates the noise control features that are required for the development to meet the noise guidelines of the Ontario Ministry of the Environment, Conservation and Parks (MECP) and to satisfy the requirements of the City of Ottawa. This report considers the MECP guideline NPC-300 "Stationary and Transportation Sources – Approval and Planning" (August 2013) as well as the City of Ottawa guideline "Environmental Noise Control Guidelines" ("ENCG") (September 2016).

The proposed development consists of one (1) four-storey residential building and one (1) two-storey building which includes a restaurant with associated patio space as well as an office space. The site is located on the southwest side of Stittsville Main Street and approximately 40 m southeast of the Abbott Street West intersection. Adjacent land uses include commercial and retail properties on Stittsville Main Street, a day care centre including a rear play area which backs on to the subject site, and residential properties on the surrounding local roads.

Figure 1 provides a key plan showing the proposed development location. Figure 2 shows the site plan of the proposed development, including critical noise sensitive receptors and calculation locations. The main environmental noise source in the subject study area is road traffic from Stittsville Main Street.

The subject site is not significantly impacted by rail traffic, aircraft, or stationary noise sources.

2 Guidelines and Criteria

2.1 Transportation Noise – Outdoor Living Area (OLA)

MECP Guidelines as well as the ENCG recommend that equivalent noise levels (L_{eq}-16hr) in outdoor living areas should not exceed 55 dBA. If it is not technically, economically, or administratively feasible to achieve a level of 55 dBA, predicted noise levels between 55 dBA and 60 dBA may be acceptable provided that the future occupants of the building are made aware of the potential noise problems through appropriate warning clauses. Noise levels above 60 dBA are generally not acceptable and will warrant noise control measures.

All unenclosed balconies that are less than 4 m in depth and outside the exterior of the building façade are exempt from meeting the MECP outdoor noise criteria with regards to transportation noise sources. Should the depth of the future balconies and terraces be greater than 4 m, they will be subject to the MECP noise level limit of 55 dBA.

2.2 Transportation Noise – Indoor Living Spaces

Bedrooms are required to meet an indoor noise level (L_{eq}-8hr) of 40 dBA from road traffic during nighttime hours. The indoor daytime noise level (L_{eq}-16hr) due to road traffic must not exceed 45 dBA for living or dining rooms. Lounges, lobbies, retail or general office spaces should meet a daytime indoor noise level of 50 dBA from road traffic. In order to achieve these levels, the MECP guidelines provide a basis for the types of windows, exterior walls, and doors that will be required based on projected outdoor noise levels.

The MECP also requires that a central air conditioning system be installed for dwellings when the daytime or nighttime outdoor transportation noise levels at the plane of window of bedrooms or living/dining rooms are above 65 dBA or 60 dBA, respectively. The provision for the future installation of central air conditioning must be made if:

- the nighttime sound level is greater than 50 dBA and less than or equal to 60 dBA on the outside face of a bedroom window; or
- the daytime sound level is greater than 55 dBA and less than or equal to 65 dBA on the outside face of a bedroom or living/dining room window.

The above provision usually involves a central air conditioning system or a ducted heating system sized to accommodate the addition of central air conditioning by the occupant. It is to be noted that the current design anticipates the installation of either a central air conditioning system or a ducted heating system to service each residential unit.

The required limits as per NPC-300 are summarized in Table 1.

Table 1: Indoor Sound Level Limits Due to Road Traffic

Type of Space	Time Period	L_{eq} (dBA) Road Traffic
Living/dining, den areas of residences, hospitals, nursing homes, schools, day-care centres (Indoor)	07:00 – 23:00	45 dBA
Living/dining, den areas of residences, hospitals, nursing homes (Indoor)	23:00 – 07:00	45 dBA
Sleeping quarters (Indoor)	07:00 – 23:00	45 dBA
	23:00 – 07:00	40 dBA
Outdoor Living Areas (OLA)	07:00 – 23:00	55 dBA

3 Noise Level Predictions

3.1 Road Traffic Noise Calculations Procedure

The dominant road traffic noise source in the subject study area is Stittsville Main Street. Abbott Street West, located northwest of the site, was considered acoustically insignificant due to the relatively low traffic volumes along this road segment.

Road traffic noise level calculations were performed in accordance with the MECP Guidelines and the Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT), as well as the City of Ottawa's ENCG. Sample copies of the traffic noise predictions from MECP's Road and Rail Traffic Noise Prediction Model STAMSON (Version 5.04) are included in Appendix B.

The equivalent sound levels (L_{eq}) due to road traffic were calculated at the worst-case noise sensitive residential receptors on the northwest, northeast and southeast façades of the residential component of the proposed development. It is understood that all residential balconies are to be less than 4 m in depth and are therefore exempt from the transportation noise MECP criteria. Noise levels were also calculated for an at-grade OLA location at ground level to the north of the residential buildings.

3.2 Road Traffic Data

Per Appendix B of the ENCG, the implied roadway class for Stittsville Main Street is that of a 2-Lane Rural Arterial (2-RAU) roadway. For additional accuracy, traffic counts and heavy vehicle percentage information have been based on the road traffic data provided by the City of Ottawa as summarized in Table 2.

In accordance with MECP guidance, vehicle volumes were escalated by 2% per annum for a 10-year period following the estimated completion of the development to establish the Ultimate AADT. Copies of the received data are included in Appendix B.

Table 2: Road Traffic Volumes

	Stittsville Main Street (north of Abbott Street)	Stittsville Main Street (south of Abbott Street)
24-hour Volumes (Current AADT)	16,000	14,500
24-hour Volumes (Ultimate AADT)	20,750	18,750
Day/Night Split (%)	90/10*	90/10*
Percentage of Trucks (%)	4.3	4.1
Medium/Heavy Split (%)	1.7/2.6*	1.7/2.5*
Grade (%)	0	0
Posted Speed (km/hr)	50	50

*Assumed

4 Transportation Noise Predictions

Table 3 lists the predicted 16-hour daytime and 8-hour nighttime L_{eq} noise levels due to road traffic at noise sensitive locations within the development, labelled on the site plan in Figure 2. Sample calculations are provided in Appendix B.

Table 3: Calculated Noise Levels Due to Road Traffic

Calculation Location (Figure 2)	Receptor Height (m)	Description	L_{eq} (dBA)	
			Day	Night
C01 - Northwest Façade	10.5	4th floor residential unit facing northwest; partial exposure to Stittsville Main Street	60	53
C02 - Northeast Façade	10.5	4th floor residential unit facing northeast; full exposure to Stittsville Main Street	63	56
C03 - Southeast Façade	10.5	4th floor residential unit facing southeast; partial exposure to Stittsville Main Street	59	53
OLA1 - Northwest Amenity Area Patio	1.5	Ground level OLA	60	-

5 Noise Control Recommendations

5.1 Transportation Noise – Outdoor Living Areas

Outdoor locations used by the restaurant and at balconies less than 4 m in depth are not subject the outdoor sound level limits for road traffic noise. Calculations for the amenity area patio located outside the northwest façade of the residential building have been included. Based on the predicted 16-hour daytime L_{eq} level of 60 dBA, no acoustic barriers would be required for an OLA at this location subject to Warning Clause A, as found in Section 7, being included in the purchase and sale/lease agreements of the affected suite(s).

Any other residential OLAs, including any terraces that are to be more than 4 m deep, should be analysed in further detail if introduced later in the design process.

5.2 Transportation Noise – Indoor Living Spaces

Indoor noise levels due to road traffic will depend on both the external road traffic noise level and the sound isolation performance of the building envelope. Based on the predicted noise levels shown in Table 3, standard exterior window and wall components that meet the requirements of the Ontario Building Code (OBC) should be sufficient for meeting the MECP indoor sound level guidelines.

The daytime and nighttime noise levels dictate that residential suites should be provided with a provision for adding air conditioning at the discretion of future occupants. In this case Warning Clause C, as found in Section 7, should be included in the purchase and sale/lease agreements of all suites.

5.3 Stationary Noise Sources

Based on the review of aerial imagery of the proposed site, as well as a site visit conducted by Aercoustics personnel on August 28, 2020, no significant sources of stationary noise have been observed which would be expected to generate a significant noise impact on the proposed development.

The current site plan and elevation drawings show an at-grade chiller on the southwest side of the site and a mechanical equipment location close to the centre of the residential building roof. As of the time of this report, detailed mechanical equipment specifications are unknown. Mechanical equipment which may be included in the design may include emergency generator(s), cooling tower(s), air handling equipment, restaurant exhaust equipment, or others. A detailed analysis should be conducted once equipment details become available and should include an assessment of the noise impact on the surrounding noise sensitive receptors, as well as on the residential development itself. This assessment should be performed in accordance with NPC-300 as well as the City of Ottawa By-law No.2017-255.

Similarly, the design and associated administrative controls of the restaurant patio should be considered to minimize the impact of noise from patrons on the surrounding area.

6 Conclusions

The results of this study indicate that standard exterior window and wall components that meet the requirements of the Ontario Building Code (OBC) should be sufficient for compliance with the MECP and ENCG criteria for indoor sound levels.

As indicated in the MECP implementation guidelines, where noise may be a concern, future occupants will be advised through warning clauses. Notes and sample wording for the warning clauses is provided in Section 7 of this report.

Further analysis should be conducted to confirm the noise impact of the development, including the restaurant area, both on itself and the surrounding environment when more detailed information is available for the proposed mechanical equipment and building construction.

7 Warning Clauses

Purchase, rental and lease agreements for all units in the proposed residential buildings are recommended to include the following warning clauses:

Warning Clause Type A:

"Purchasers/tenants are advised that sound levels due to increasing road traffic on Stittsville Main Street may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the City of Ottawa and the Ministry of the Environment, Conservation and Parks."

Warning Clause Type 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 City of Ottawa and the Ministry of the Environment, Conservation and Parks."

8 References

1. ORNAMENT – “Ontario Road Noise Analysis Method for Environmental and Transportation”, Ontario Ministry of the Environment, October, 1989.

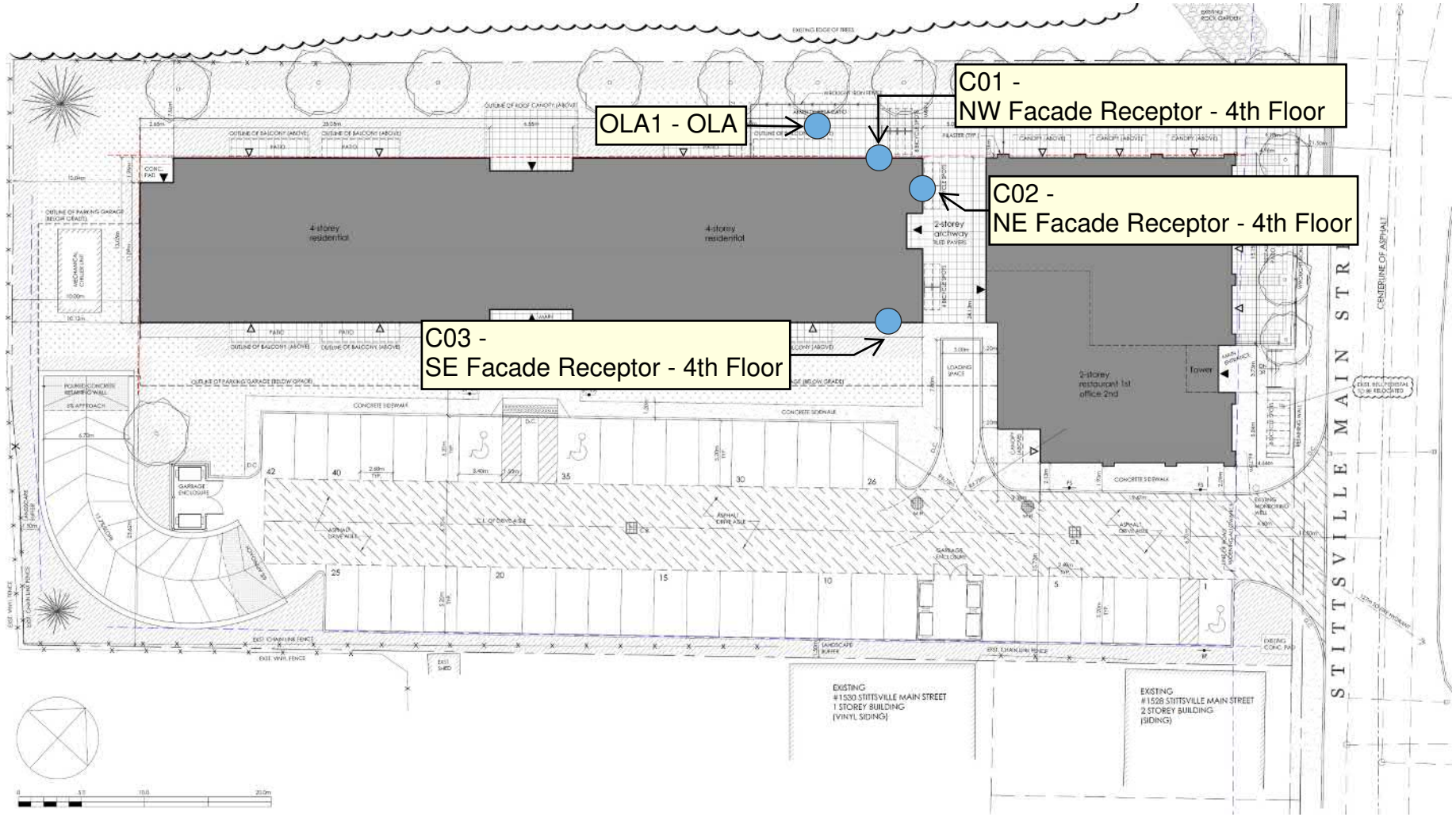
2. “Building Practice Note No. 56: Controlling Sound Transmission into Buildings”, by J.D. Quirt, Division of Building Research, National Research Council of Canada, September, 1995.

3. “Stationary and Transportation Sources – Approval and Planning”, Ontario Ministry of the Environment, Publication NPC-300, August, 2013.

4. “Environmental Noise Control Guidelines”, City of Ottawa, September 2016

5. “By-law No. 2017-255”, City of Ottawa, May, 2017.

aercoustics	Project ID: 20085.00	**Project Name**
	Scale: NTS Drawn by: SZ Reviewed by: KC Date: Oct 13, 2020 Revision: 1	1518-1526 Stittsville Main Street - Noise Impact Study
		Figure Title Key Plan showing site location and surrounding area
		Figure 1



aercoustics	Project ID: 20085.00 Scale: NTS Drawn by: SZ Reviewed by: KC Date: Nov 26, 2020 Revision: 2	**Project Name** 1518-1526 Stittsville Main Street	
		Figure Title Site Plan	**Figure 2**

Appendix A
Site Plan & Drawings

Zoning Regulations Site Zoning: TM9[2272] H(15), consolidation date: August 26, 2015 Proposed Use: Apartment dwelling, Restaurant and Office.		
	REQUIRED	PROVIDED
Minimum Lot Area (m²)	No minimum	4,759
Minimum Lot Width (m)	No minimum	47.93
Front Yard Setback (m)		4.6
i) minimum	*No minimum*	
ii) maximum	*3*	
Interior Side Yard Setback (m)		3
i) minimum	*1.2*	
ii) maximum	6	
Rear Yard Setback (m)		10
2) all other cases	*10*	
Building Height (m)		15.0
i) minimum	*6.7*	4 storeys
ii) maximum	*20m / 4 storeys*	
Minimum width of landscape (m)	*No minimum*	1.5

Site Statistics	
Building Area/Footprint	1,235 m²
Gross Floor Area (G.F.A.)	
G.F.A. - Restaurant Only	256 m²
G.F.A. - Kitchen Only	55 m²
G.F.A. - Office Only	170 m²
Dwelling Units:	33

Parking Requirements Table 101 - Min. Parking Space Rates	
Area C (on Schedule 1A)	
Restaurant and Kitchen (Ground Floor)	10 per 100 m² of G.F.A.
Parking - required(*)	16.1 spaces
Office (Second Floor)	2.4 per 100 m² of G.F.A.
Parking - required	4.1 spaces
Dwelling, Low-Rise or Mid-Rise	1.2 per dwelling
Parking - required	39.6 spaces

Visitor Parking Requirements Table 102 - Minimum Visitor Parking	
Dwelling, Low-Rise and Mid-Rise	0.2 per dwelling
Parking - required	6.6 spaces

(*) per Zoning By-Law Provision 197(14).

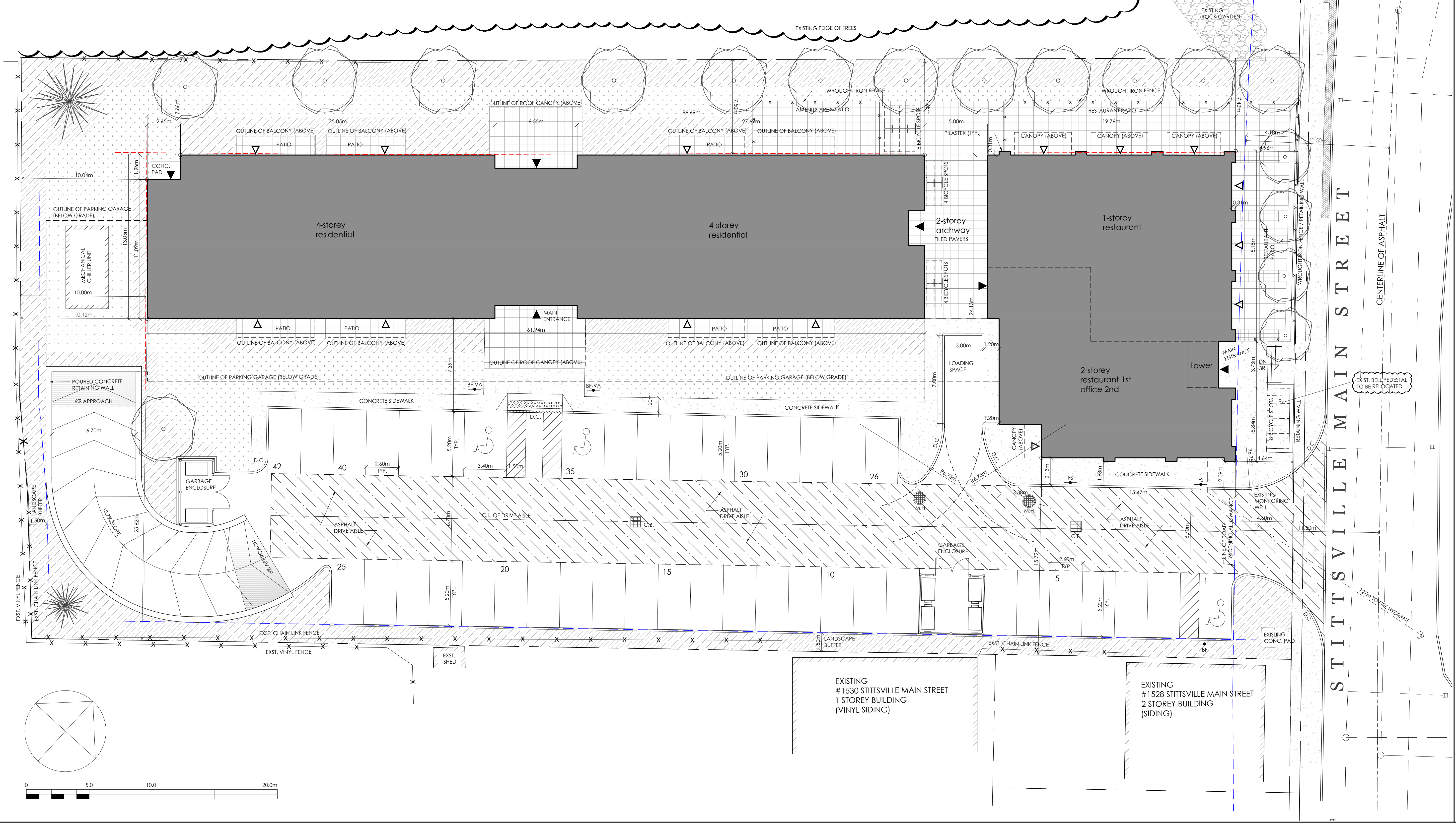
	Required	Provided
Total Parking(**)	63 spaces	77 spaces
...underground		35 spaces
...at grade		42 spaces
Min. Number of Spaces for Persons with Disabilities	4 (for 20-99)	4 spaces
...underground		1 space
...at grade		3 spaces
Required Type A (Van)	2 spaces	2 spaces
Required Type B	2 spaces	2 spaces

(**) per Zoning By-Law Provisions 100(8)(b) and 104(1).

Bicycle Parking Requirements Table 111A - Bicylcle Parking Space Rates	
Dwelling, Low-Rise or Mid-Rise	0.5 per dwelling
Parking - required	16.5 spaces
Restaurant and Kitchen (Ground Floor)	1 per 250 m² of G.F.A.
Parking - required	1.2 spaces
Office (Second Floor)	1 per 250 m² of G.F.A.
Parking - required	0.7 spaces

	Required	Provided
Total Bicycle Parking	18.4 spaces	24 spaces
...underground		0 spaces
...at grade		24 spaces

Loading Space Requirements Table 113A - Minimum Loading Spaces	
Non-Residential Uses (Ground Floor)	0, less than 350 m²
Office (Second Floor)	0, less than 350 m²



NO.	REVISION	DATE
1	ISSUED FOR REVIEW	JULY 09/2020
2	ISSUED FOR REVIEW	SEPT. 15/2020
3	ISSUED FOR REVIEW	SEPT. 18/2020
4	ISSUED FOR REVIEW	SEPT. 24/2020
5	PARKING GARAGE ACCESS REVIEW	OCT. 08/2020
6	ISSUED FOR SITE PLAN APPROVAL	NOV. 18/2020

General Notes

1. Site plan is based on the plan of survey (REF. No. 326-10-GOULBOURN, JOB No. AA15600) prepared by Fairhall, Moffatt & Woodland Limited dated April 16, 2020. Refer to legal survey for site specific legal information.
2. Refer to civil and landscape drawings for all services and landscape related items.
3. Refer to civil for complete grade information.
4. Garbage and recycling will be handled and stored in dedicated garbage enclosure areas (2 total). It will be collected by a private waste & recycling operations facility.
5. Snow storage: accumulated snow will be trucked off-site.

LEGEND

- PROPERTY LINE
- SETBACK / LANDSCAPE BUFFER (AS NOTED)
- CURB (REFER: CITY OF OTTAWA STANDARDS, CITY SPECIFICATION: SC 1.4.)
- DEPRESSED CURB (PEDESTRIAN CURB RAMP) (REFER: CITY OF OTTAWA STANDARDS, CITY SPECIFICATION: SC 1.4. AND SC6)
- TYPICAL CURB RAMP SEE SECTION 3.4 OF THE CITY OF OTTAWA ACCESSIBILITY DESIGN STANDARDS FOR ADDITIONAL INFORMATION
- DESIGNATED BARRIER FREE PARKING SPACE
- BF — BARRIER FREE PARKING SIGN
- BF-VA — BARRIER FREE PARKING - VAN ACCESSIBLE
- FS — FIRE ROUTE SIGN
- BOLLARD
- DENOTES BUILDING EXIT
- DENOTES BUILDING ENTRY (NON DESIGNATED EXIT)
- FH — FIRE HYDRANT
- U/P — UTILITY POLE
- PROPOSED DOWNSPOUT LOCATION
- PROPOSED GAP AND GRATE IN CONCRETE SIDEWALK AT DOWNSPOUT LOCATION (REFER TO CIVIL)
- CATCH BASIN (C.B.) (REFER TO CIVIL)
- STORM (STM) / MAN HOLE (M.H.) COVER (REFER TO CIVIL)
- LIGHT STANDARD W/POLE BASE
- LIGHT FIXTURE
- TURF
- SOFT LANDSCAPING
- CONCRETE
- DENOTES FIRE ROUTE
- LANDSCAPE PAVERS

CONSTRUCTION

ONTARIO ASSOCIATION OF ARCHITECTS
MALCOLM WILDEBOER
LICENCE
6685

Vandenberg & Wildeboer
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THE OLD STONE LODGE · 160 FLAMBOROUGH WAY · OTTAWA (KANATA) · ONTARIO · K2K 3H9

PROJECT TITLE

THE STATION
1518-1524-1526 STITTSVILLE MAIN STREET

DRAWING TITLE

OVERALL SITE PLAN

DESIGNED BY: MW
DRAWN BY: SC
START DATE: JULY 2020
SCALE: AS SHOWN
PROJECT NO. 1932

DRAWING No. A001

PLOT DATE: November 25, 2020

1 / A200 NORTH ELEVATION
SCALE: 1:125

2 / A200 SOUTH ELEVATION: PARKING DRIVE AISLE
SCALE: 1:125

3 / A200 EAST ELEVATION: STITTSVILLE MAIN STREET
SCALE: 1:125

4 / A200 WEST ELEVATION
SCALE: 1:125

NO.	REVISION	DATE
1	ISSUED FOR SITE PLAN APPROVAL	NOV. 18/2020

LEGEND

- 1 — MASONRY VENEER
  HANSEN WILLIAMSBURG MK2 MAX SIZE OR APPROVED EQ.
- 2A — PREFINISHED FIBER CEMENT SHAKE & SHINGLE SIDING
  JAMES HARDIE OR APPROVED EQ.
- 2B — PREFINISHED VERTICAL SIDING
  JAMES HARDIE OR APPROVED EQ.
- 2C — PREFINISHED TRIM BOARD
  JAMES HARDIE OR APPROVED EQ.
- 3 — PREFINISHED HERITAGE RIB METAL ROOFING
  20" SPACING, MARITIME GREY BY IDEAL ROOFING OR EQ.
- 4 — RIDGE VENT
- 5A — PREFINISHED METAL FASCIA
- 5B — PREFINISHED ALUMINUM EAVESTROUGH
  COLOUR TO MATCH STEPPED FASCIA
- 6 — PVC TRIM BOARD (SMOOTH FINISH)
  AZEK OR APPROVED EQ.
- 7 — ALUMINUM CLAD WINDOW
- 8 — CEMENTITIOUS PARGING ON CONCRETE FOUNDATION
- 9 — MECHANICAL EQUIPMENT
- 10 — SCREEN WALL SYSTEM
  AZEK OR APPROVED EQ.
- 11 — ROOF BRACKET
- 12 — ROOF CANOPY
- 13 — PREFINISHED METAL RAILING
- 14 — PVC PARAPET MOULDING (SMOOTH FINISH)
  AZEK OR APPROVED EQ.

CONSTRUCTION

ONTARIO ASSOCIATION OF ARCHITECTS
MALCOLM WILDEBOER
LICENCE
6685

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PROJECT TITLE
THE STATION
1518-1524-1526 STITTSVILLE MAIN STREET

DRAWING TITLE
BUILDING ELEVATIONS

DESIGNED BY: MW
DRAWN BY: SC
START DATE: JULY 2020
SCALE: AS SHOWN
PROJECT NO. 1932

DRAWING No.
A200

PLOT DATE: November 24, 2020

Appendix B
Road Traffic Data & Sample Calculations

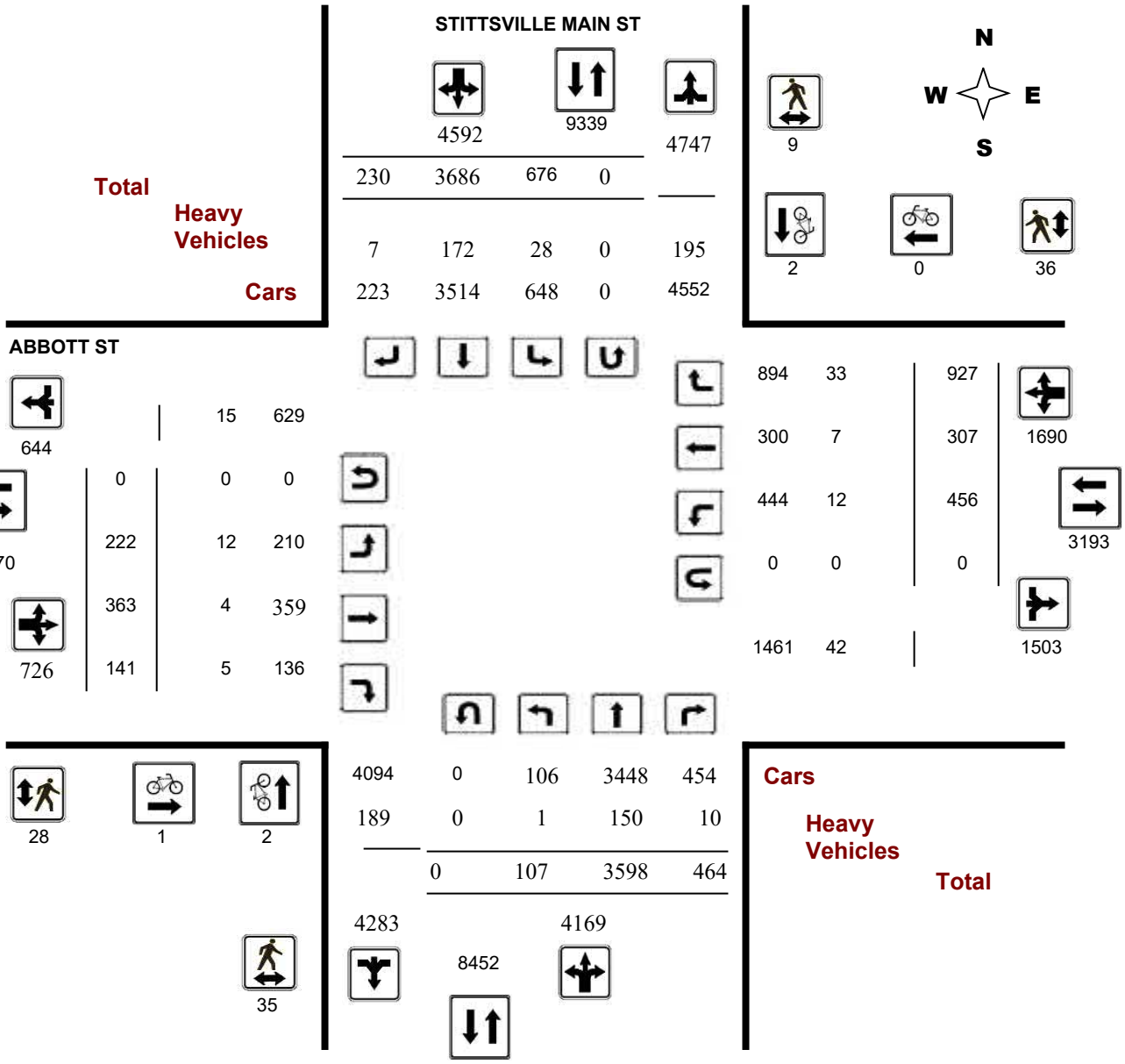
Transportation Services - Traffic Services

Turning Movement Count - Study Results

ABBOTT ST @ STITTSVILLE MAIN ST

Survey Date: Wednesday, December 05, 2018
Start Time: 07:00
WO No: 38197
Device: Miovision

Full Study Diagram



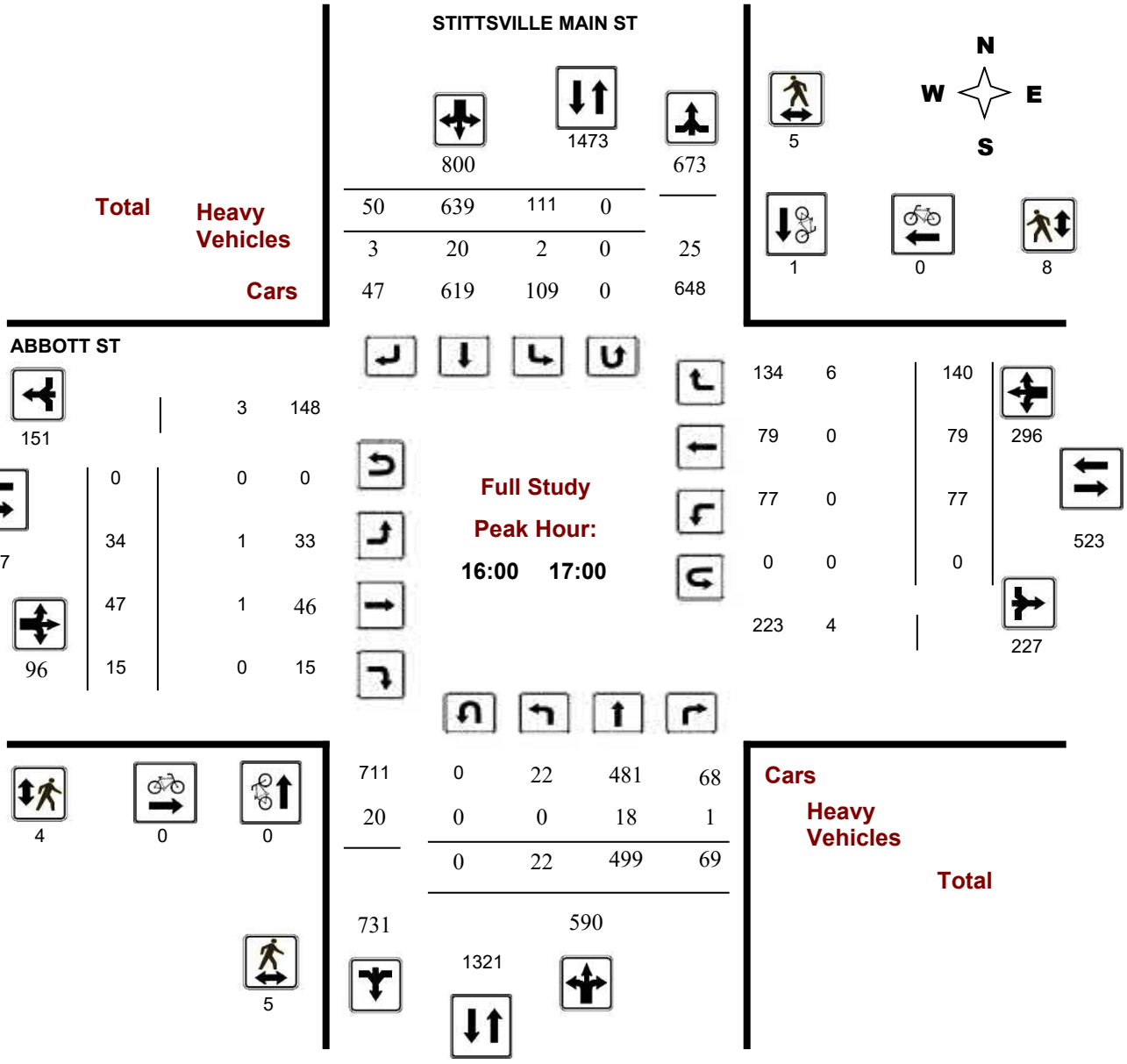
Transportation Services - Traffic Services

Turning Movement Count - Study Results

ABBOTT ST @ STITTSVILLE MAIN ST

Survey Date: Wednesday, December 05, 2018
Start Time: 07:00
WO No: 38197
Device: Miovision

Full Study Peak Hour Diagram



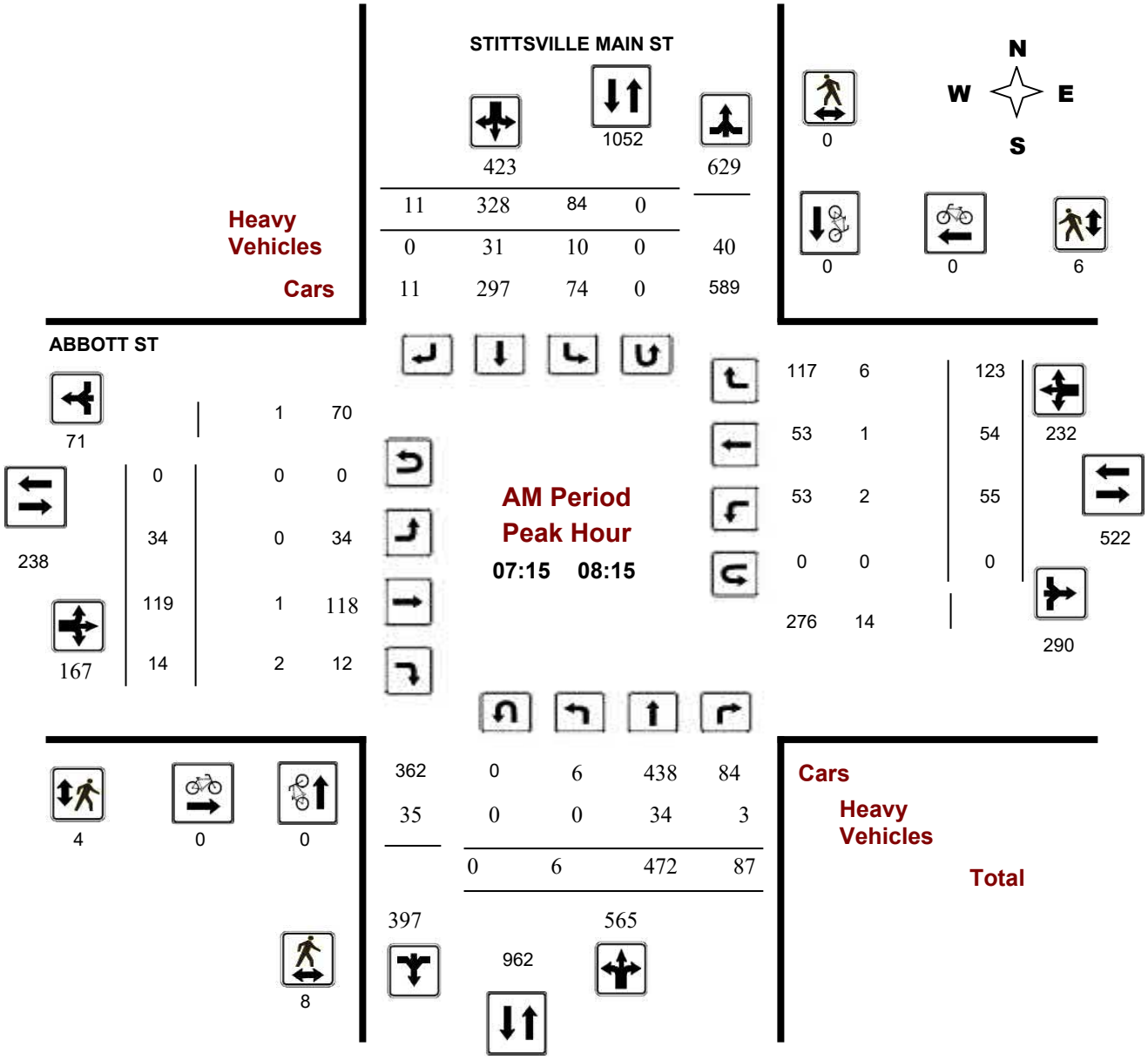
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ABBOTT ST @ STITTSVILLE MAIN ST

Survey Date: Wednesday, December 05, 2018 **WO No:** 38197

Start Time: 07:00 **Device:** Miovision



Comments

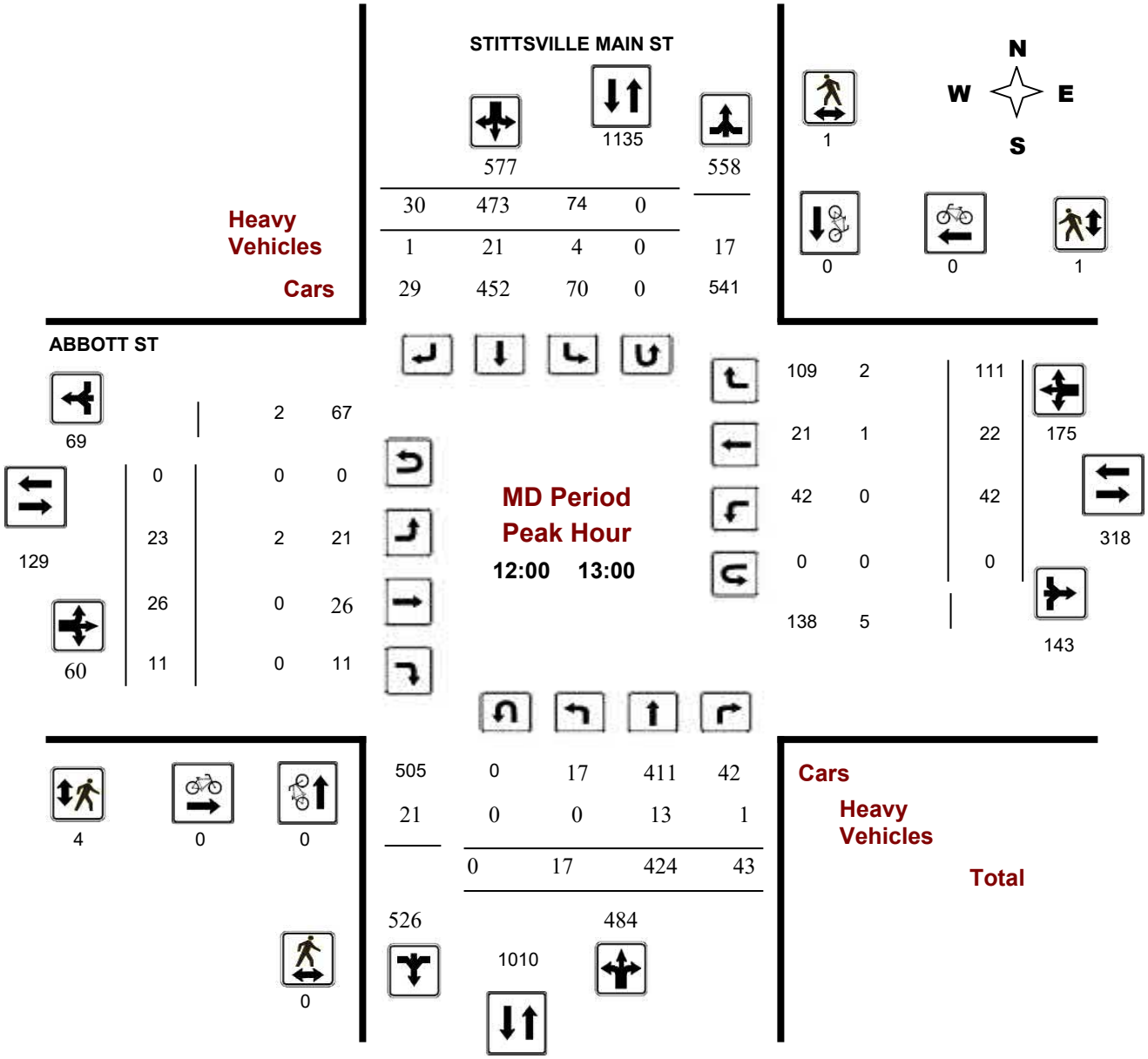
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ABBOTT ST @ STITTSVILLE MAIN ST

Survey Date: Wednesday, December 05, 2018
Start Time: 07:00

WO No: 38197
Device: Miovision



Comments

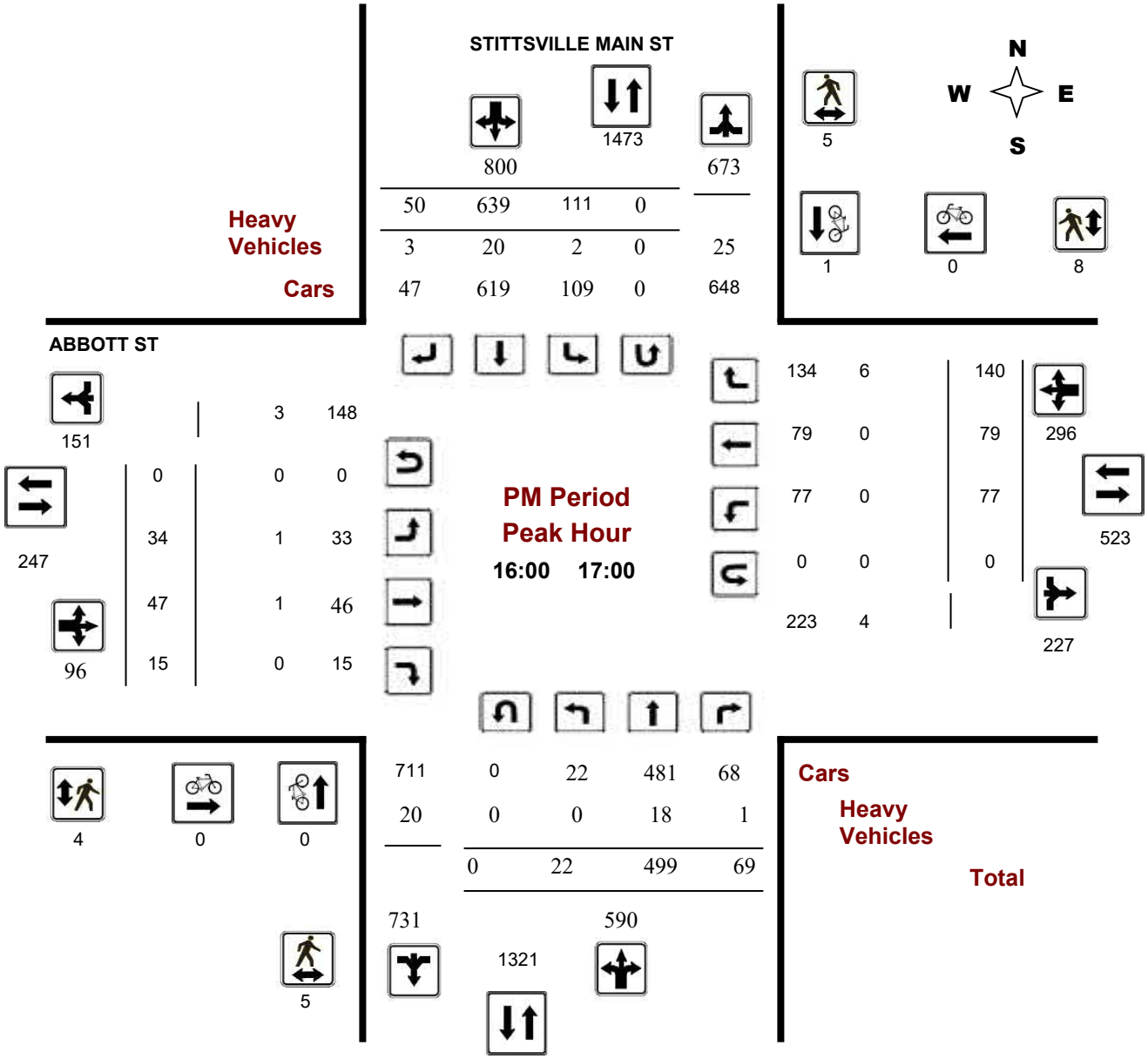
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ABBOTT ST @ STITTSVILLE MAIN ST

Survey Date: Wednesday, December 05, 2018 **WO No:** 38197

Start Time: 07:00 **Device:** Miovision



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ABBOTT ST @ STITTSVILLE MAIN ST

Survey Date: Wednesday, December 05, 2018 **WO No:** 38197

Start Time: 07:00 **Device:** Miovision

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, December 05, 2018

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

AADT Factor

1.00

	STITTSVILLE MAIN ST									ABBOTT ST									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	8	444	81	**533**	92	301	12	**405**	**938**	31	117	11	**159**	44	38	90	**172**	**331**	**1269**
08:00 09:00	9	485	53	**547**	54	326	13	**393**	**940**	41	53	25	**119**	60	32	134	**226**	**345**	**1285**
09:00 10:00	12	471	57	**540**	75	358	17	**450**	**990**	18	28	23	**69**	35	14	117	**166**	**235**	**1225**
11:30 12:30	8	442	42	**492**	81	447	26	**554**	**1046**	24	17	14	**55**	46	21	108	**175**	**230**	**1276**
12:30 13:30	20	394	47	**461**	83	459	41	**583**	**1044**	20	26	18	**64**	47	17	107	**171**	**235**	**1279**
15:00 16:00	15	422	63	**500**	76	551	27	**654**	**1154**	23	28	21	**72**	77	44	125	**246**	**318**	**1472**
16:00 17:00	22	499	69	**590**	111	639	50	**800**	**1390**	34	47	15	**96**	77	79	140	**296**	**392**	**1782**
17:00 18:00	13	441	52	**506**	104	605	44	**753**	**1259**	31	47	14	**92**	70	62	106	**238**	**330**	**1589**
Sub Total	107	3598	464	**4169**	676	3686	230	**4592**	**8761**	222	363	141	**726**	456	307	927	**1690**	**2416**	**11177**
U Turns				**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total	107	3598	464	**4169**	676	3686	230	**4592**	**8761**	222	363	141	**726**	456	307	927	**1690**	**2416**	**11177**
EQ 12Hr	149	5001	645	**5795**	940	5124	320	**6383**	**12178**	309	505	196	**1009**	634	427	1289	**2349**	**3358**	**15536**

Note: These values are calculated by multiplying the totals by the appropriate expansion factor. **1.39**

AVG 12Hr	140	4713	608	**5461**	886	4829	301	**6016**	**12178**	291	476	185	**951**	597	402	1214	**2214**	**3358**	**15536**

Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor. **1**

AVG 24Hr	184	6175	796	**7154**	1160	6326	395	**7880**	**15034**	381	623	242	**1246**	783	527	1591	**2900**	**4146**	**19180**

Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor. **1.31**

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ABBOTT ST @ STITTSVILLE MAIN ST

Survey Date: Wednesday, December 05, 2018 **WO No:** 38197

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute Increments

		STITTSVILLE MAIN ST									ABBOTT ST									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	2	92	11	105	19	59	3	81	16	9	11	2	22	7	4	18	29	16	237
07:15	07:30	2	115	17	134	22	77	3	102	20	10	25	3	38	9	5	15	29	20	303
07:30	07:45	3	130	29	162	28	88	1	117	27	9	45	4	58	7	9	23	39	27	376
07:45	08:00	1	107	24	132	23	77	5	105	19	3	36	2	41	21	20	34	75	19	353
08:00	08:15	0	120	17	137	11	86	2	99	12	12	13	5	30	18	20	51	89	12	355
08:15	08:30	3	113	12	128	8	79	3	90	8	5	6	4	15	12	6	18	36	8	269
08:30	08:45	5	127	12	144	18	81	7	106	8	7	20	9	36	12	1	28	41	8	327
08:45	09:00	1	125	12	138	17	80	1	98	8	17	14	7	38	18	5	37	60	8	334
09:00	09:15	6	137	27	170	22	97	3	122	17	9	7	4	20	7	7	41	55	17	367
09:15	09:30	2	114	11	127	26	100	5	131	14	1	8	9	18	8	2	26	36	14	312
09:30	09:45	0	123	11	134	13	82	2	97	8	2	9	6	17	5	4	31	40	8	288
09:45	10:00	4	97	8	109	14	79	7	100	8	6	4	4	14	15	1	19	35	8	258
11:30	11:45	1	119	15	135	24	102	8	134	5	5	1	7	13	10	4	27	41	5	323
11:45	12:00	2	97	9	108	18	112	6	136	16	7	7	2	16	15	4	36	55	16	315
12:00	12:15	2	112	9	123	18	124	7	149	10	7	3	1	11	9	6	23	38	10	321
12:15	12:30	3	114	9	126	21	109	5	135	11	5	6	4	15	12	7	22	41	11	317
12:30	12:45	6	85	12	103	19	112	10	141	7	5	8	3	16	8	4	34	46	7	306
12:45	13:00	6	113	13	132	16	128	8	152	12	6	9	3	18	13	5	32	50	12	352
13:00	13:15	3	99	11	113	24	112	9	145	10	5	4	6	15	12	5	18	35	10	308
13:15	13:30	5	97	11	113	24	107	14	145	15	4	5	6	15	14	3	23	40	15	313
15:00	15:15	4	115	17	136	17	132	5	154	7	5	6	3	14	17	9	26	52	7	356
15:15	15:30	6	98	18	122	19	124	6	149	14	6	5	7	18	19	6	36	61	14	350
15:30	15:45	2	106	14	122	17	152	10	179	15	5	5	8	18	21	13	22	56	15	375
15:45	16:00	3	103	14	120	23	143	6	172	14	7	12	3	22	20	16	41	77	14	391
16:00	16:15	4	119	14	137	26	182	9	217	11	10	14	3	27	23	20	27	70	11	451
16:15	16:30	11	125	13	149	33	152	15	200	11	7	9	4	20	15	20	40	75	11	444
16:30	16:45	3	128	28	159	28	154	11	193	13	6	14	5	25	16	17	35	68	13	445
16:45	17:00	4	127	14	145	24	151	15	190	9	11	10	3	24	23	22	38	83	9	442
17:00	17:15	6	113	18	137	24	172	13	209	8	12	10	3	25	17	22	21	60	8	431
17:15	17:30	2	100	12	114	23	140	13	176	5	9	13	3	25	11	14	25	50	5	365
17:30	17:45	2	116	12	130	28	144	10	182	6	4	15	3	22	22	15	25	62	6	396
17:45	18:00	3	112	10	125	29	149	8	186	4	6	9	5	20	20	11	35	66	4	397
Total:		107	3598	464	4169	676	3686	230	4592	368	222	363	141	726	456	307	927	1690	368	11,177

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ABBOTT ST @ STITTSVILLE MAIN ST

Survey Date: Wednesday, December 05, 2018 **WO No:** 38197

Start Time: 07:00 **Device:** Miovision

Full Study Cyclist Volume

Time Period		STITTSVILLE MAIN ST			ABBOTT ST			
		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	1	0	1	1	0	1	2
07:15	07:30	0	0	0	0	0	0	0
07:30	07:45	0	0	0	0	0	0	0
07:45	08:00	0	0	0	0	0	0	0
08:00	08:15	0	0	0	0	0	0	0
08:15	08:30	0	0	0	0	0	0	0
08:30	08:45	0	0	0	0	0	0	0
08:45	09:00	0	0	0	0	0	0	0
09:00	09:15	0	0	0	0	0	0	0
09:15	09:30	0	1	1	0	0	0	1
09:30	09:45	0	0	0	0	0	0	0
09:45	10:00	0	0	0	0	0	0	0
11:30	11:45	0	0	0	0	0	0	0
11:45	12:00	0	0	0	0	0	0	0
12:00	12:15	0	0	0	0	0	0	0
12:15	12:30	0	0	0	0	0	0	0
12:30	12:45	0	0	0	0	0	0	0
12:45	13:00	0	0	0	0	0	0	0
13:00	13:15	0	0	0	0	0	0	0
13:15	13:30	0	0	0	0	0	0	0
15:00	15:15	1	0	1	0	0	0	1
15:15	15:30	0	0	0	0	0	0	0
15:30	15:45	0	0	0	0	0	0	0
15:45	16:00	0	0	0	0	0	0	0
16:00	16:15	0	1	1	0	0	0	1
16:15	16:30	0	0	0	0	0	0	0
16:30	16:45	0	0	0	0	0	0	0
16:45	17:00	0	0	0	0	0	0	0
17:00	17:15	0	0	0	0	0	0	0
17:15	17:30	0	0	0	0	0	0	0
17:30	17:45	0	0	0	0	0	0	0
17:45	18:00	0	0	0	0	0	0	0
Total		2	2	**4**	1	0	1	5

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ABBOTT ST @ STITTSVILLE MAIN ST

Survey Date: Wednesday, December 05, 2018 **WO No:** 38197

Start Time: 07:00 **Device:** Miovision

Full Study Pedestrian Volume

	STITTSVILLE MAIN ST			ABBOTT ST			
Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	**Total**	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	**Total**	**Grand Total**
07:00 07:15	0	0	**0**	0	0	**0**	**0**
07:15 07:30	1	0	**1**	2	3	**5**	**6**
07:30 07:45	4	0	**4**	1	0	**1**	**5**
07:45 08:00	2	0	**2**	0	1	**1**	**3**
08:00 08:15	1	0	**1**	1	2	**3**	**4**
08:15 08:30	1	0	**1**	2	0	**2**	**3**
08:30 08:45	2	0	**2**	1	1	**2**	**4**
08:45 09:00	1	0	**1**	0	1	**1**	**2**
09:00 09:15	1	0	**1**	1	1	**2**	**3**
09:15 09:30	1	0	**1**	1	2	**3**	**4**
09:30 09:45	1	0	**1**	1	2	**3**	**4**
09:45 10:00	1	0	**1**	0	0	**0**	**1**
11:30 11:45	0	0	**0**	0	1	**1**	**1**
11:45 12:00	2	1	**3**	0	1	**1**	**4**
12:00 12:15	0	0	**0**	3	0	**3**	**3**
12:15 12:30	0	0	**0**	0	0	**0**	**0**
12:30 12:45	0	0	**0**	1	0	**1**	**1**
12:45 13:00	0	1	**1**	0	1	**1**	**2**
13:00 13:15	2	0	**2**	2	0	**2**	**4**
13:15 13:30	1	0	**1**	1	0	**1**	**2**
15:00 15:15	1	2	**3**	1	1	**2**	**5**
15:15 15:30	3	0	**3**	0	3	**3**	**6**
15:30 15:45	2	0	**2**	3	2	**5**	**7**
15:45 16:00	1	0	**1**	3	2	**5**	**6**
16:00 16:15	2	4	**6**	1	2	**3**	**9**
16:15 16:30	0	0	**0**	1	4	**5**	**5**
16:30 16:45	2	0	**2**	1	0	**1**	**3**
16:45 17:00	1	1	**2**	1	2	**3**	**5**
17:00 17:15	2	0	**2**	0	1	**1**	**3**
17:15 17:30	0	0	**0**	0	0	**0**	**0**
17:30 17:45	0	0	**0**	0	2	**2**	**2**
17:45 18:00	0	0	**0**	0	1	**1**	**1**
Total	35	9	**44**	28	36	**64**	**108**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ABBOTT ST @ STITTSVILLE MAIN ST

Survey Date: Wednesday, December 05, 2018 **WO No:** 38197

Start Time: 07:00 **Device:** Miovision

Full Study Heavy Vehicles

		STITTSVILLE MAIN ST									ABBOTT ST									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	5	0	**5**	2	9	0	**11**	**16**	1	0	0	**1**	0	1	2	**3**	**4**	**20**
07:15	07:30	0	7	0	**7**	3	10	0	**13**	**20**	0	0	1	**1**	0	0	0	**0**	**1**	**21**
07:30	07:45	0	10	2	**12**	6	9	0	**15**	**27**	0	1	0	**1**	0	0	3	**3**	**4**	**31**
07:45	08:00	0	10	1	**11**	1	7	0	**8**	**19**	0	0	0	**0**	1	1	3	**5**	**5**	**24**
08:00	08:15	0	7	0	**7**	0	5	0	**5**	**12**	0	0	1	**1**	1	0	0	**1**	**2**	**14**
08:15	08:30	0	3	0	**3**	0	5	0	**5**	**8**	1	0	0	**1**	3	2	0	**5**	**6**	**14**
08:30	08:45	0	5	0	**5**	0	3	0	**3**	**8**	0	0	1	**1**	1	0	0	**1**	**2**	**10**
08:45	09:00	0	5	1	**6**	0	2	0	**2**	**8**	2	1	0	**3**	0	0	1	**1**	**4**	**12**
09:00	09:15	0	12	0	**12**	0	5	0	**5**	**17**	1	0	0	**1**	0	0	0	**0**	**1**	**18**
09:15	09:30	0	2	1	**3**	0	10	1	**11**	**14**	0	0	0	**0**	0	0	0	**0**	**0**	**14**
09:30	09:45	0	4	0	**4**	0	4	0	**4**	**8**	0	0	0	**0**	0	0	1	**1**	**1**	**9**
09:45	10:00	0	4	0	**4**	0	4	0	**4**	**8**	0	0	0	**0**	0	0	0	**0**	**0**	**8**
11:30	11:45	0	3	0	**3**	0	2	0	**2**	**5**	0	0	0	**0**	1	0	2	**3**	**3**	**8**
11:45	12:00	0	9	0	**9**	0	6	1	**7**	**16**	1	1	1	**3**	0	0	3	**3**	**6**	**22**
12:00	12:15	0	2	0	**2**	3	5	0	**8**	**10**	0	0	0	**0**	0	0	0	**0**	**0**	**10**
12:15	12:30	0	5	0	**5**	0	6	0	**6**	**11**	2	0	0	**2**	0	0	1	**1**	**3**	**14**
12:30	12:45	0	2	1	**3**	1	3	0	**4**	**7**	0	0	0	**0**	0	0	0	**0**	**0**	**7**
12:45	13:00	0	4	0	**4**	0	7	1	**8**	**12**	0	0	0	**0**	0	1	1	**2**	**2**	**14**
13:00	13:15	1	3	0	**4**	3	3	0	**6**	**10**	0	0	0	**0**	2	0	2	**4**	**4**	**14**
13:15	13:30	0	5	0	**5**	3	6	1	**10**	**15**	0	0	0	**0**	1	0	1	**2**	**2**	**17**
15:00	15:15	0	4	1	**5**	0	2	0	**2**	**7**	0	0	1	**1**	0	0	1	**1**	**2**	**9**
15:15	15:30	0	7	1	**8**	1	5	0	**6**	**14**	1	0	0	**1**	0	0	1	**1**	**2**	**16**
15:30	15:45	0	5	0	**5**	2	8	0	**10**	**15**	0	0	0	**0**	1	0	0	**1**	**1**	**16**
15:45	16:00	0	5	1	**6**	1	7	0	**8**	**14**	1	0	0	**1**	1	1	4	**6**	**7**	**21**
16:00	16:15	0	3	0	**3**	2	4	2	**8**	**11**	1	1	0	**2**	0	0	2	**2**	**4**	**15**
16:15	16:30	0	7	1	**8**	0	2	1	**3**	**11**	0	0	0	**0**	0	0	2	**2**	**2**	**13**
16:30	16:45	0	5	0	**5**	0	8	0	**8**	**13**	0	0	0	**0**	0	0	0	**0**	**0**	**13**
16:45	17:00	0	3	0	**3**	0	6	0	**6**	**9**	0	0	0	**0**	0	0	2	**2**	**2**	**11**
17:00	17:15	0	2	0	**2**	0	6	0	**6**	**8**	1	0	0	**1**	0	1	0	**1**	**2**	**10**
17:15	17:30	0	1	0	**1**	0	4	0	**4**	**5**	0	0	0	**0**	0	0	0	**0**	**0**	**5**
17:30	17:45	0	0	0	**0**	0	6	0	**6**	**6**	0	0	0	**0**	0	0	1	**1**	**1**	**7**
17:45	18:00	0	1	0	**1**	0	3	0	**3**	**4**	0	0	0	**0**	0	0	0	**0**	**0**	**4**
Total:	None	1	150	10	**161**	28	172	7	**207**	**368**	12	4	5	**21**	12	7	33	**52**	**73**	**441**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ABBOTT ST @ STITTSVILLE MAIN ST

Survey Date: Wednesday, December 05, 2018 **WO No:** 38197

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute U-Turn Total

Time Period		STITTSVILLE MAIN ST		ABBOTT ST		
		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		0	0	0	0	0

```
STAMSON 5.0        NORMAL REPORT        Date: 09-10-2020 11:10:18
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: R_Nth.te             Time Period: Day/Night 16/8 hours
Description: C01 - Northwest facade receptor

Road data, segment # 1: Main St Nth (day/night)
-----------------------------------------------
Car traffic volume  : 17857/1984  veh/TimePeriod  *
Medium truck volume :   321/36    veh/TimePeriod  *
Heavy truck volume  :   481/53    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:
    24 hr Traffic Volume (AADT or SADT):  16027
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  13.00
    Medium Truck % of Total Volume     :   1.72
    Heavy Truck  % of Total Volume     :   2.58
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Main St Nth (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   -60.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  40.00 / 40.00  m
Receiver height           :  10.50 / 10.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: Main St Sth (day/night)
-----------------------------------------------
Car traffic volume  : 16188/1799  veh/TimePeriod  *
Medium truck volume :   280/31    veh/TimePeriod  *
Heavy truck volume  :   419/47    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:
    24 hr Traffic Volume (AADT or SADT):  14505
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  13.00
    Medium Truck % of Total Volume     :   1.66
    Heavy Truck  % of Total Volume     :   2.48
    Day (16 hrs) % of Total Volume     :  90.00
```

```
Data for Segment # 2: Main St Sth (day/night)
-----------------------------------------------
Angle1   Angle2           : -60.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  40.00 / 40.00  m
Receiver height           :  10.50 / 10.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: Main St Nth (day)
-----------------------------------
Source height = 1.27 m

ROAD (0.00 + 55.23 + 0.00) = 55.23 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -60   0.00  67.28   0.00  -4.26  -7.78   0.00   0.00   0.00  55.23
-------------------------------------------------------------------------------
Segment Leq : 55.23 dBA

Results segment # 2: Main St Sth (day)
-----------------------------------
Source height = 1.26 m

ROAD (0.00 + 57.71 + 0.00) = 57.71 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -60      0   0.00  66.74   0.00  -4.26  -4.77   0.00   0.00   0.00  57.71
-------------------------------------------------------------------------------
Segment Leq : 57.71 dBA

Total Leq All Segments: 59.65 dBA
```

```
Results segment # 1: Main St Nth (night)
----------------------------------------
Source height = 1.26 m

ROAD (0.00 + 48.69 + 0.00) = 48.69 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -60   0.00  60.73   0.00  -4.26  -7.78   0.00   0.00   0.00  48.69
-------------------------------------------------------------------------------
Segment Leq : 48.69 dBA

Results segment # 2: Main St Sth (night)
----------------------------------------
Source height = 1.26 m

ROAD (0.00 + 51.20 + 0.00) = 51.20 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -60      0   0.00  60.23   0.00  -4.26  -4.77   0.00   0.00   0.00  51.20
-------------------------------------------------------------------------------
Segment Leq : 51.20 dBA

Total Leq All Segments: 53.13 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 59.65
                           (NIGHT): 53.13
```

```
STAMSON 5.0        NORMAL REPORT        Date: 11-10-2020 18:33:43
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r_east.te            Time Period: Day/Night 16/8 hours
Description: C02 - Northeast facade receptor

Road data, segment # 1: Main St Nth (day/night)
-----------------------------------------------
Car traffic volume  : 17857/1984  veh/TimePeriod  *
Medium truck volume :   321/36    veh/TimePeriod  *
Heavy truck volume  :   481/53    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  16027
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  13.00
    Medium Truck % of Total Volume     :   1.72
    Heavy Truck  % of Total Volume     :   2.58
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Main St Nth (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   -60.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  40.00 / 40.00  m
Receiver height           :  10.50 / 10.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: Main St Sth (day/night)
-----------------------------------------------
Car traffic volume  : 16188/1799  veh/TimePeriod  *
Medium truck volume :   280/31    veh/TimePeriod  *
Heavy truck volume  :   419/47    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

    24 hr Traffic Volume (AADT or SADT):  14505
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  13.00
    Medium Truck % of Total Volume     :   1.66
    Heavy Truck  % of Total Volume     :   2.48
    Day (16 hrs) % of Total Volume     :  90.00
```

```
Data for Segment # 2: Main St Sth (day/night)
----------------------------------------------
Angle1   Angle2           : -60.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  40.00 / 40.00  m
Receiver height           :  10.50 / 10.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: Main St Nth (day)
--------------------------------------

Source height = 1.27 m

ROAD (0.00 + 55.23 + 0.00) = 55.23 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -60   0.00  67.28   0.00  -4.26  -7.78   0.00   0.00   0.00  55.23
-------------------------------------------------------------------------------

Segment Leq : 55.23 dBA

Results segment # 2: Main St Sth (day)
--------------------------------------
Source height = 1.26 m

ROAD (0.00 + 61.69 + 0.00) = 61.69 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -60     90   0.00  66.74   0.00  -4.26  -0.79   0.00   0.00   0.00  61.69
-------------------------------------------------------------------------------

Segment Leq : 61.69 dBA

Total Leq All Segments: 62.57 dBA
```

```
Results segment # 1: Main St Nth (night)
----------------------------------------

Source height = 1.26 m

ROAD (0.00 + 48.69 + 0.00) = 48.69 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -60   0.00  60.73   0.00  -4.26  -7.78   0.00   0.00   0.00  48.69
-------------------------------------------------------------------------------

Segment Leq : 48.69 dBA

Results segment # 2: Main St Sth (night)
----------------------------------------
Source height = 1.26 m

ROAD (0.00 + 55.18 + 0.00) = 55.18 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -60     90   0.00  60.23   0.00  -4.26  -0.79   0.00   0.00   0.00  55.18
-------------------------------------------------------------------------------
Segment Leq : 55.18 dBA

Total Leq All Segments: 56.06 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 62.57
                           (NIGHT): 56.06
```

```
STAMSON 5.0        NORMAL REPORT        Date: 09-10-2020 11:50:32
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r_sth.te             Time Period: Day/Night 16/8 hours
Description: C03 - Southeast facade receptor

Road data, segment # 1: Main St Sth (day/night)
-----------------------------------------------
Car traffic volume  : 16188/1799  veh/TimePeriod  *
Medium truck volume :   280/31    veh/TimePeriod  *
Heavy truck volume  :   419/47    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:
    24 hr Traffic Volume (AADT or SADT):  14505
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  13.00
    Medium Truck % of Total Volume     :   1.66
    Heavy Truck  % of Total Volume     :   2.48
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Main St Sth (day/night)
---------------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  40.00 / 40.00  m
Receiver height           :  10.50 / 10.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: Main St Sth (day)
--------------------------------------
Source height = 1.26 m

ROAD (0.00 + 59.47 + 0.00) = 59.47 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.00  66.74   0.00  -4.26  -3.01   0.00   0.00   0.00  59.47
-------------------------------------------------------------------------------
Segment Leq : 59.47 dBA

Total Leq All Segments: 59.47 dBA
```

```
Results segment # 1: Main St Sth (night)
----------------------------------------
Source height = 1.26 m

ROAD (0.00 + 52.96 + 0.00) = 52.96 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.00  60.23   0.00  -4.26  -3.01   0.00   0.00   0.00  52.96
-------------------------------------------------------------------------------
Segment Leq : 52.96 dBA

Total Leq All Segments: 52.96 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 59.47
                           (NIGHT): 52.96
```

```
STAMSON 5.0        NORMAL REPORT        Date: 09-10-2020 14:48:05
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: OLA.te               Time Period: Day/Night 16/8 hours
Description: OLA1 - OLA receptor

Road data, segment # 1: Main St Nth (day/night)
-----------------------------------------------
Car traffic volume  : 17857/1984  veh/TimePeriod  *
Medium truck volume :   321/36    veh/TimePeriod  *
Heavy truck volume  :   481/53    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:
    24 hr Traffic Volume (AADT or SADT):  16027
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  13.00
    Medium Truck % of Total Volume     :   1.72
    Heavy Truck  % of Total Volume     :   2.58
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Main St Nth (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   -55.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  45.00 / 45.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: Main St Sth (day/night)
-----------------------------------------------
Car traffic volume  : 16188/1799  veh/TimePeriod  *
Medium truck volume :   280/31    veh/TimePeriod  *
Heavy truck volume  :   419/47    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:
    24 hr Traffic Volume (AADT or SADT):  14505
    Percentage of Annual Growth        :   2.00
    Number of Years of Growth          :  13.00
    Medium Truck % of Total Volume     :   1.66
    Heavy Truck  % of Total Volume     :   2.48
    Day (16 hrs) % of Total Volume     :  90.00
```

```
Data for Segment # 2: Main St Sth (day/night)
----------------------------------------------
Angle1   Angle2           : -55.00 deg   5.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  40.00 / 40.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: Main St Nth (day)
--------------------------------------
Source height = 1.27 m

ROAD (0.00 + 55.39 + 0.00) = 55.39 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -55   0.00  67.28   0.00  -4.77  -7.11   0.00   0.00   0.00  55.39
-------------------------------------------------------------------------------

Segment Leq : 55.39 dBA

Results segment # 2: Main St Sth (day)
--------------------------------------
Source height = 1.26 m

ROAD (0.00 + 57.71 + 0.00) = 57.71 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -55      5   0.00  66.74   0.00  -4.26  -4.77   0.00   0.00   0.00  57.71
-------------------------------------------------------------------------------

Segment Leq : 57.71 dBA

Total Leq All Segments: 59.71 dBA
```

End of Report