PATERSON GROUP

Environmental Noise Control Study
Proposed Residential Development

Mill Valley Estates
Almonte, Ontario

Prepared for Houchaimi Holdings Inc.

Report PG6496-1 Revision 1 dated December 7, 2022

Table of Contents

PAGE

Appendices

Appendix 1

Table 9 - Summary of Reception Points and Geometry (East)
Table 10 - Summary of Reception Points and Geometry (West)
Drawing PG6496-1 - Site Plan
Drawing PG6496-2 - Receptor Location Plan
Drawing PG6496-3 - Site Geometry
Drawing PG6496-3A - Site Geometry - REC 1-1 and REC 1-3
Drawing PG6496-3B - Site Geometry - REC 2-1 and REC 2-3
Drawing PG6496-3C - Site Geometry - REC 3-1 and REC 3-3
Drawing PG6496-3D - Site Geometry - REC 4-1 and REC 4-2
Drawing PG6496-3E - Site Geometry - REC 5-1 and REC 5-2
Drawing PG6496-3F - Site Geometry - REC 6-1 and REC 6-2
Drawing PG6496-3G - Site Geometry - REC 7-1 and REC 7-2
Drawing PG6496-3H - Site Geometry - REC 8-1 and REC 8-2
Drawing PG6496-3I - Site Geometry - REC 9-1 and REC 9-2
Drawing PG6496-3J - Site Geometry - REC 10-1 and REC 10-2
Drawing PG6496-3K - Site Geometry - REC 11-1 and REC 11-2
Drawing PG6496-3L - Site Geometry - REC 12-1 and REC 12-2
Drawing PG6496-3M - Site Geometry - REC 13-1 and REC 13-2
Drawing PG6496-3N - Site Geometry - REC 14-1 and REC 14-2
Drawing PG6496-3O - Site Geometry - REC 15-1 and REC 15-2
Drawing PG6496-3P - Site Geometry - REC 16-1 and REC 16-2
Drawing PG6496-3Q - Site Geometry - REC 17-1 and REC 17-2
Drawing PG6496-3R - Site Geometry - REC 18-1 and REC 18-2
Drawing PG6496-3S - Site Geometry - REC 19
Drawing PG6496-3T - Site Geometry - REC 20
Drawing PG6496-3U - Site Geometry - REC 21
Drawing PG6496-4 – Noise Attenuation Features

Appendix 2 STAMSON Results

Appendix 3 Reports by Others

1.0 Introduction

Paterson Group (Paterson) was commissioned by Houchaimi Holdings Inc. to conduct an environmental noise control study for the proposed residential development “Mill Valley Estates”, in the Township of Almonte, Ontario.

The objective of the current study is to:

- Determine the primary noise sources impacting the site and compare the projected sound levels to guidelines set out by the Ministry of Environment and Climate Change (MOECC).

- Review the projected noise levels and offer recommendations regarding warning classes, construction materials or alternative sound barriers.

The following report has been prepared specifically and solely for the aforementioned project which is described herein. It contains our findings and includes acoustical recommendations pertaining to the design and construction of the subject development as they are understood at the time of writing this report.

This study has been conducted according to the Ontario Ministry of the Environment Guideline NPC-300.

2.0 Proposed Development

It is understood that the proposed development will consist of four (4) three-storey apartment buildings and four hundred twenty-eight (428) house units. The apartment buildings will consist of 48 units and rise 10 metres above grade. The house units will consist of 34 units of single detached dwellings (35 ft), 73 units of single detached dwellings (42 ft), 72 units of single detached dwellings (45 ft), 88 units of semi-detached dwellings, and 161 units of townhouses. The house units will have two-stories and rise 7 metres above grade. Associated walkways, driveways, landscaped areas, parking areas, and storm water management facilities are further anticipated. Outdoor living areas, including rear yards of the housing units, are identified on the proposed site plan.

3.0 Methodology and Noise Assessment Criteria

The MOECC outlines three (3) sources of environmental noise that must be analyzed separately:

- Surface Transportation Noise
- Stationary Noise
  - new noise-sensitive development applications (noise receptors) in proximity to existing or approved stationary sources of noise, and
  - new stationary sources of noise (noise generating) in proximity to existing or approved noise-sensitive developments
- Aircraft Noise

Surface Transportation Noise

Surface roadway traffic noise, equivalent to sound level energy L_{eq}, provides a measure of the time varying noise level over a period of time. For roadways, the L_{eq} is commonly calculated on the basis of 16-hour (L_{eq16}) daytime (07:00-23:00) and 8-hour (L_{eq8}) nighttime (23:00-7:00) split to assess its impact on residential, commercial and institutional buildings.

The NPC-300 dictates that the influence area must contain any of following conditions to classify as a surface transportation noise source for a subject site:

- Within 100 m of the right-of-way of an existing or proposed arterial, collector or major collector road; a light rail transit corridor; bus rapid transit, or transit priority corridor
- Within 250 m of the right-of-way for an existing or proposed highway or secondary rail line
- Within 300 m from the right of way of a proposed or existing rail corridor or a secondary main railway line
- Within 500 m of an existing 400 series provincial highway, freeway or principle main railway line.

The Environmental Noise Guidelines for Stationary and Transportation Sources – NPC-300 outlines the limitations of noise levels in relation to the location of the receptors. These can be found in the following tables:

Table 1 – Noise Level Limit for Outdoor Living Areas

Time Period	L_{eq} Level (dBA)
Daytime, 7:00-23:00	55

- Standard taken from Table 2.2a; Sound Level Limit for Outdoor Living Areas – Road and Rail

Table 2 – Noise Level Limits for Indoor Living Areas

Type of Space	Time Period	L_{eq} Level (dBA)	
		Road	Rail
General offices, reception areas, retail stores, etc.	Daytime 7:00-23:00	50	45
Theatres, places of worship, libraries, individual or semi-private offices, conference rooms, reading rooms, etc.	Daytime 7:00-23:00	45	40
Living/dining/den areas of **residences**, hospitals, nursing/retirement homes, schools, day-care centres	Daytime 7:00-23:00	45	40
Living/dining/den areas of **residences**, hospitals, nursing/retirement homes etc. (except schools or day-care centres)	Nighttime 23:00-7:00	45	40
Sleeping quarters of hotels/motels	Nighttime 23:00-7:00	45	40
Sleeping quarters of **residences**, hospitals, nursing/retirement homes, etc.	Nighttime 23:00-7:00	40	35

- Standards taken from Table 2.2b, Sound Level Limit for Indoor Living Areas – Road and Rail and Table 2.2c, Supplementary Sound Level Limits for Indoor Spaces – Road and Rail

Predicted noise levels at the pane of window dictate the action required to achieve recommended noise levels. It is noted in NPC-300 that the limits outlined in Table 2 are for the noise levels on the interior of the window glass pane. An open window is considered to provide a 10 dBA noise reduction, while a standard closed window is capable to provide a minimum 20 dBA noise reduction. The noise level limits of residential building are 45 dBA daytime and 40 dBA nighttime. Therefore, where noise levels exceed 55 dBA daytime and 50 dBA nighttime, the ventilation for the building should consider the provision for central air conditioning. Where noise levels exceed 65 dBA daytime and 60 dBA nighttime, central air conditioning will be required, and the building components will require higher levels of sound attenuation.

When the noise levels are equal to or less than the specified criteria, no noise attenuation (control) measures are required.

When the exceedance of the recommended noise level limits is between 1 dBA and 5 dBA for outdoor living areas (55 dBA < Leq ≤ 60 dBA), the proposed development can be completed with no noise control measures incorporated into the site, but the prospective purchasers / tenants should be made aware by suitable Warning Clauses. When the exceedance of recommended noise level limits is more than 5 dBA for outdoor living areas (Leq > 60 dBA), noise control measures are required to reduce Leq to below 60 dBA and as close as 55 dBA as it is technically and economically feasible.

Noise attenuation (control) measures include any or all of the following:

- Noise attenuation barrier
- Provisions for the installation of central air conditioning
- Central air conditioning
- Architectural components designed to provide additional acoustic insulation

In addition to the implementation of noise attenuation features, if required, the following Warning Clauses may be recommended to advise the prospective purchasers / tenants of affected units of potential environmental noise problem:

Table 3 – Warning Clauses for Outdoor Living Areas

Leq (dBA)	Warning Clause	Description
55 dBA < $L_{eq(16)}$ ≤ 60 dBA	Warning Clause Type A	"Purchasers/tenants are advised that sound levels due to increasing road traffic (rail traffic) (air traffic) may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment."
60 dBA < $L_{eq(16)}$	Warning Clause Type B	"Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road traffic (rail traffic) (air traffic) may on occasions interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment."

- Clauses taken from section C8 Warning Clauses; Environmental Noise Guidelines for Stationary and Transportation Sources - NPC-300

Table 4 – Warning Clauses for Indoor Living Areas		
Leq (dBA)	**Warning Clause**	**Description**
55 dBA < $L_{eq(16)}$ ≤ 65 dBA 50 dBA < $L_{eq(8)}$ ≤ 60 dBA	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 Municipality and the Ministry of the Environment."
65 dBA < $L_{eq(16)}$ 60 dBA < $L_{eq(8)}$	Warning Clause Type D	"This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment."
➢ Clauses taken from section C8 Warning Clauses; Environmental Noise Guidelines for Stationary and Transportation Sources - NPC-300		

Stationary Noise

Stationary noise sources include sources or facilities that are fixed or mobile and can cause a combination of sound and vibration levels emitted beyond the property line. These sources may include commercial air conditioner units, generators and fans. Facilities that may contribute to stationary noise may include car washes, snow disposal sites, transit stations and manufacturing facilities.

The subject site is not in proximity to existing or approved stationary sources of noise. Therefore, a stationary noise analysis will not be required.

Aircraft / Airport Noise

The subject site is not located within the Airport Vicinity Development Zone. Therefore this project will not require an aircraft/airport noise analysis. No warning clauses regarding aircraft or airport noise will be required.

4.0 Analysis

Surface Transportation Noise

The subject development is bordered to the north by residential dwellings and undeveloped grassed area, to the east by Appleton Side Road, residential dwelling, and undeveloped grassed area, to the south by undeveloped grassed area, and to the west by Old Almonte Road followed by residential dwellings, Robert Hill Street, Johanna Street, Merrithew Street, Van Dusen Street, Jack Dalgity Street, and Stewart Lee Avenue. Appleton Side Road, Old Almonte Road, Robert Hill Street, Johanna Street, Merrithew Street, Van Dusen Street, Jack Dalgity Street, and Stewart Lee Avenue are identified within the 100 m radius of proposed development.

Based on the Municipality of Mississippi Mill's Official Plan, Appleton Side Road and Old Almonte Road are considered 2-lane urban collector roads (2-UCU). Other roads within the 100 m radius of the proposed development are not classified as either arterial, collector or major collector roads and therefore are not included in this study. The major sources of traffic noise are due to the Appleton Side Road to the east of the proposed development, and Old Almonte Road to the west of the proposed development.

All noise sources are presented in Drawing PG6496-3 - Site Geometry located in Appendix 1.

It is understood that a Traffic Impact Assessment was completed by CGH Transportation and is included in Appendix 3. Results of traffic counts for Old Almonte Road (Paterson Road) was reviewed with respect to standard growth rates and anticipated traffic patterns. It was determined that a 'worse case' scenario for this roadway would result in an AADT of 4001. The remainder of the AADT values were provided by the City of Ottawa, taking into consideration the right-of-way width and the implied roadway classification. It is understood that these values represent the maximum allowable capacity of the proposed roadways. The parameters to be used for sound level predictions can be found below.

Table 5 – Traffic and Road Parameters						
Segment	**Roadway Classification**	**AADT Veh/Day**	**Speed Limit (km/h)**	**Day/Night Split %**	**Medium Truck %**	**Heavy Truck %**
Appleton Side Road	2-UCU	8000	40	92/8	7	5
Old Almonte Road	2-UCU	4001	40	92/8	7	5

Four (4) levels of reception points were selected for this analysis. The following elevations were selected from the heights provided on the survey plan for the subject dwellings.

Table 6 – Elevations of Reception Points			
Floor Number	**Elevation at Centre of Window (m)**	**Floor Use**	**Daytime / Nighttime Analysis**
First Floor	1.5	Living Area/Bedroom	Daytime / Nighttime
Second Floor	4.5	Living Area/Bedroom	Daytime / Nighttime
Third Floor	8.5	Living Area/Bedroom	Daytime / Nighttime
Rear Yard	1.5	--	Outdoor Living Area

For this analysis, a reception point was taken at the centre of each floor, at the first floor and top floor. Outdoor living areas, for this project identified as rear yards, are anticipated at the house units of the proposed development. Three receptors (REC 19 to REC 21) were selected in the centre of rear yards adjacent to the major sources of traffic noise at 1.5 m high. One of these outdoor living area receptors (REC 19) was placed along the eastern boundary of proposed development and two receptors (REC 20 and REC 21) were placed along the western boundary of proposed development. Reception points are detailed on Drawing PG6496-2 - Receptor Locations presented in Appendix 1.

All horizontal distances have been measured from the reception point to the edge of the right-of-way. The roadway was analyzed where it intersected the 100 m buffer zone, which is reflected in the local angles described in Paterson Drawings PG6496-3A to 3U - Site Geometry in Appendix 1.

Tables 9 and 10 - Summary of Reception Points and Geometry, located in Appendix 1, provides a summary of the points of reception and their geometry with respect to the noise sources. The analysis is completed so that no effects of sound reflection off of the building facade are considered, as stipulated by the ENGC.

The subject site is gently levelled and at grade with the neighbouring roads within the 100 m radius.

The analysis was completed using STAMSON version 5.04, a computer program which uses the road and rail traffic noise prediction methods using ORNAMENT (Ontario Road Noise Analysis Method for Environment and Transportation) and STEAM (Sound from Trains Environment Analysis Method), publications from the Ontario Ministry of Environment and Energy.

5.0 Results

Surface Transportation Noise

The primary descriptors are the 16-hour daytime (7:00-23:00) and the 8-hour nighttime (23:00-7:00) equivalent sound levels, $L_{eq(16)}$ and $L_{eq(8)}$ for City roads.

The exterior noise levels due to roadway traffic sources were analyzed with the STAMSON version 5.04 software at all reception points. The input and output data of the STAMSON modeling can be found in Appendix 2, and the summary of the results can be found in Tables 7 and 8.

Table 7: Exterior Noise Levels due to Roadway Traffic Sources (Eastern Portion of Site)

Reception Point	Height Above Grade (m)	Receptor Location	Daytime $L_{eq(16)}$ (dBA)	Nighttime $L_{eq(8)}$ (dBA)
REC 1-1	1.5	3-Storey Building, Eastern Elevation, 1st Floor	59	51
REC 1-3	8.5	3-Storey Building, Eastern Elevation, 3rd Floor	60	52
REC 2-1	1.5	3-Storey Building, Northern Elevation, 1st Floor	53	46
REC 2-3	8.5	3-Storey Building, Northern Elevation, 3rd Floor	54	47
REC 3-1	1.5	3-Storey Building, Southern Elevation, 1st Floor	53	46
REC 3-3	8.5	3-Storey Building, Southern Elevation, 3rd Floor	54	47
REC 4-1	1.5	Single Detached House, Eastern Elevation, 1st Floor	59	51
REC 4-2	4.5	Single Detached House, Eastern Elevation, 2nd Floor	59	52
REC 5-1	1.5	Single Detached House, Northern Elevation, 1st Floor	54	47
REC 5-2	4.5	Single Detached House, Northern Elevation, 2nd Floor	55	47
REC 6-1	1.5	Single Detached House, Southern Elevation, 1st Floor	53	45
REC 6-2	4.5	Single Detached House, Southern Elevation, 2nd Floor	53	45
REC 7-1	1.5	Semi-detached House, Eastern Elevation, 1st Floor	49	41
REC 7-2	4.5	Semi-detached House, Eastern Elevation, 2nd Floor	50	42
REC 19	1.5	Single Detached House, rear yard	62	--

Table 8: Exterior Noise Levels due to Roadway Traffic Sources (Western Portion of Site)

Reception Point	Height Above Grade (m)	Receptor Location	Daytime $L_{eq(16)}$ (dBA)	Nighttime $L_{eq(8)}$ (dBA)
REC 8-1	1.5	Semi-detached House (north), Western Elevation, 1st Floor	56	48
REC 8-2	4.5	Semi-detached House (north), Western Elevation, 2nd Floor	56	48
REC 9-1	1.5	Semi-detached House (north), Northern Elevation, 1st Floor	51	44
REC 9-2	4.5	Semi-detached House (north), Northern Elevation, 2nd Floor	52	44
REC 10-1	1.5	Semi-detached House (north), Southern Elevation, 1st Floor	51	44
REC 10-2	4.5	Semi-detached House (north), Southern Elevation, 2nd Floor	52	44
REC 11-1	1.5	Semi-detached House (south), Western Elevation, 1st Floor	56	48
REC 11-2	4.5	Semi-detached House (south), Western Elevation, 2nd Floor	56	49
REC 12-1	1.5	Semi-detached House (south), Southern Elevation, 1st Floor	51	43
REC 12-2	4.5	Semi-detached House (south), Southern Elevation, 2nd Floor	51	44
REC 13-1	1.5	Single Detached House (north), Western Elevation, 1st Floor	52	44
REC 13-2	4.5	Single Detached House (north), Western Elevation, 2nd Floor	52	45
REC 14-1	1.5	Single Detached House (north), Northern Elevation, 1st Floor	48	40
REC 14-2	4.5	Single Detached House (north), Northern Elevation, 2nd Floor	48	41
REC 15-1	1.5	Single Detached House (south), Western Elevation, 1st Floor	52	44
REC 15-2	4.5	Single Detached House (south), Western Elevation, 2nd Floor	52	45
REC 16-1	1.5	Single Detached House (south), Southern Elevation, 1st Floor	48	40
REC 16-2	4.5	Single Detached House (south), Southern Elevation, 2nd Floor	49	41
REC 17-1	1.5	Townhouse, Western Elevation, 1st Floor	48	41
REC 17-2	4.5	Townhouse, Western Elevation, 2nd Floor	49	41
REC 18-1	1.5	Single Detached House, Western Elevation, 1st Floor	48	41
REC 18-2	4.5	Single Detached House, Western Elevation, 2nd Floor	49	41
REC 20	1.5	Semi-detached House (north), rear yard	59	--
REC 21	1.5	Semi-detached House (south), rear yard	59	--

6.0 Discussion and Recommendations

6.1 Outdoor Living Areas

Rear yards are anticipated at the house units of the proposed development. Three receptors (REC 19 to REC 21) were selected in the centre of rear yards near to the major sources of traffic noise at a height of 1.5 m. Of which, one receptor (REC 19) was placed along the eastern boundary of proposed development and two receptors (REC 20 and REC 21) were placed along the western boundary of proposed development.

It is assumed that the rear yards will only be utilized as outdoor living areas provided that the proposed dwellings are constructed. Utilizing the exteriors of proposed dwellings as noise barriers, the proposed Leq(16) at the rear yards of house units along the western boundary will be 59 dBA, which exceed the 55 dBA threshold value specified by the MOECC, but is below the 60 dBA. Therefore, the exceedance is acceptable with no additional attenuation measures provided that Warning Clause A is included on all deeds of sale on the houses adjacent to Old Almonte Road (Paterson Road).

Utilizing the exteriors of proposed dwellings as noise barriers, the proposed Leq(16) at the rear yards of house units along the eastern boundary will be 62 dBA, which exceed the 55 dBA threshold value specified by the MOECC. Upon review of the aforementioned result for the proposed development, a noise attenuation feature consisting of an acoustic fence along the rear yards of house units at the eastern boundary was considered. The acoustic fence would be considered a noise barrier and is designed to be 2.5 m high. The acoustic fence, in addition to utilizing the exteriors of the dwellings as noise barriers, was completed as REC 19TR which is included in Appendix 2. The result of STAMSON modeling indicates that the combination of the application of exterior claddings and the 2.5 m high noise barrier could reduce the anticipated noise levels at rear yards of house units along the eastern boundary to 54 dBA during the daytime period (7:00-23:00), which are below the 55 dBA threshold value specified by the MOECC. Therefore, further noise attenuation measure is not required.

6.2 Indoor Living Areas and Ventilation

The results of the STAMSON modeling indicate that the noise levels of proposed dwellings at the eastern portion of the proposed development will range between 49 dBA and 60 dBA during the daytime period (07:00-23:00) and between 41 dBA and 52 dBA during the nighttime period (23:00-7:00). The noise levels on the eastern elevation of proposed three-storey apartment buildings and single detached houses along the eastern site boundary will exceed the limit for the exterior of the pane of glass (55 dBA) specified by the MOECC. Therefore, the units on the eastern elevation of proposed apartment buildings and the aforementioned single detached houses should be designed with the provision of central air conditioning units, along with the warning clause Type C, as outlined in Table 3.

The results of the STAMSON modeling indicate that the noise levels of proposed dwellings at the western portion of the proposed development will range between 48 dBA and 56 dBA during the daytime period (07:00-23:00) and between 40 dBA and 49 dBA during the nighttime period (23:00-7:00). The noise levels on the western elevation of proposed semi-detached houses along the western site boundary will exceed the limit for the exterior of the pane of glass (55 dBA) specified by the MOECC. Therefore, the aforementioned semi-detached houses should be designed with the provision of central air conditioning units, along with the warning clause Type C, as outlined in Table 3.

It is also noted that the results of STAMSON modeling indicate that the noise levels of all dwellings at the proposed development will be below 65 dBA, and therefore standard building materials are acceptable to provide adequate soundproofing.

7.0 Summary of Findings

The subject site "Mill Valley Estates" is located at the Township of Almonte, Ontario. It is understood that the proposed development will consist of four (4) three-storey apartment buildings and four hundred twenty-eight (428) house units. The apartment buildings will rise 10 metres above grade and the house units will rise 7 metres above grade. There are two major sources of surface transportation noise to the proposed development: Appleton Side Road and Old Almonte Road.

Rear yards are anticipated as Outdoor Living Areas at the house units. Rear yards along the eastern site boundary and the western site boundary were selected for analysis.

The results of STAMSON modeling indicate that the noise levels at the rear yards of house units along the western site boundary are expected to be 59 dBA during the daytime period, which exceed the 55 dBA threshold value specified by the MOECC. This exceedance is acceptable with no additional noise attenuation features provided that Warning Clause A is included on all deeds of sale.

The noise levels at the rear yards of house units along the eastern site boundary are expected to be 62 dBA, during the daytime period, which exceed the 55 dBA threshold value specified by the MOECC. According to MOECC, noise control measures (i.e. barriers) are required to reduce the Leq to 55 dBA where technically and economically feasible. Based on the results of STAMSON modeling, we recommend the installation of 2.5 metres acoustic fence (solid wood fence with no gaps) along the rear yards of house units at the eastern site boundary of the proposed development. The revised analysis taking into consideration the proposed noise barrier indicates that the anticipated noise levels at the aforementioned rear yards can be reduced to 54 dBA. These noise levels are below the 55 dBA threshold value specified by the MOECC. Therefore, further noise attenuation measure is not required.

Several reception points were selected for the surface transportation noise analysis, consisting of the centre of first level and top level. The results of STAMSON modeling indicate that the noise levels on the eastern elevation of the proposed three-storey apartment buildings and single detached houses along the eastern site boundary are expected to exceed the 55 dBA threshold specified by the ENCG. The noise levels on the western elevation of the proposed semi-detached houses along the western site boundary are also expected to exceed the 55 dBA threshold specified by the ENCG. Therefore, the design with the provision of a central air conditioning unit, along with a warning clause Type C, will be

required for the units on the eastern elevation of proposed apartment buildings, the single detached houses along the eastern site boundary, and the semi-detached houses along the western site boundary. It is also noted that the results of STAMSON modeling indicate that the noise levels of all dwellings at the proposed development will be below 65 dBA, and therefore standard building materials are acceptable to provide adequate soundproofing.

The following warning clause is to be included on all Offers of Purchase and Sale and/or lease agreements on properties identified on Paterson Drawing PG6496-4 in Appendix 1:

Warning Clause C

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

Warning Clause A

"Purchasers/tenants are advised that sound levels due to increasing road traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment."

8.0 Statement of Limitations

The recommendations made in this report are in accordance with our present understanding of the project. Our recommendations should be reviewed when the project drawings and specifications are complete.

The present report applies only to the project described in this document. Use of this report for purposes other than those described herein or by person(s) other than Houchaimi Holdings Inc. or their agent(s) is not authorized without review by this firm for the applicability of our recommendations to the altered use of the report.

Paterson Group Inc.

December 7, 2022

Yolanda Tang, M.A.Sc. Stephanie A. Boisvenue, P.Eng.

Report Distribution:

- ❑ Houchaimi Holdings Inc. (email copy)
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APPENDIX 1

Table 9 - Summary of Reception Points and Geometry (Eastern Portion of the Site)

Table 10 - Summary of Reception Points and Geometry (Western Portion of the Site)

Drawing PG6496-1 - Site Plan

Drawing PG6496-2 - Receptor Location Plan

Drawing PG6496-3 - Site Geometry

Drawing PG6496-3A - Site Geometry - REC 1-1 and REC 1-3

Drawing PG6496-3B - Site Geometry - REC 2-1 and REC 2-3

Drawing PG6496-3C - Site Geometry - REC 3-1 and REC 3-3

Drawing PG6496-3D - Site Geometry - REC 4-1 and REC 4-2

Drawing PG6496-3E - Site Geometry - REC 5-1 and REC 5-2

Drawing PG6496-3F - Site Geometry - REC 6-1 and REC 6-2

Drawing PG6496-3G - Site Geometry - REC 7-1 and REC 7-2

Drawing PG6496-3H - Site Geometry - REC 8-1 and REC 8-2

Drawing PG6496-3I - Site Geometry - REC 9-1 and REC 9-2

Drawing PG6496-3J - Site Geometry - REC 10-1 and REC 10-2

Drawing PG6496-3K - Site Geometry - REC 11-1 and REC 11-2

Drawing PG6496-3L - Site Geometry - REC 12-1 and REC 12-2

Drawing PG6496-3M - Site Geometry - REC 13-1 and REC 13-2

Drawing PG6496-3N - Site Geometry - REC 14-1 and REC 14-2

Drawing PG6496-3O - Site Geometry - REC 15-1 and REC 15-2

Drawing PG6496-3P - Site Geometry - REC 16-1 and REC 16-2

Drawing PG6496-3Q - Site Geometry - REC 17-1 and REC 17-2

Drawing PG6496-3R - Site Geometry - REC 18-1 and REC 18-2

Drawing PG6496-3S - Site Geometry - REC 19

Drawing PG6496-3T - Site Geometry - REC 20

Drawing PG6496-3U - Site Geometry - REC 21

Drawing PG6496-4 – Noise Attenuation Features

Table 9 - Summary of Reception Points and Geometry
Mill Valley Estates (Eastern Portion of the Site)

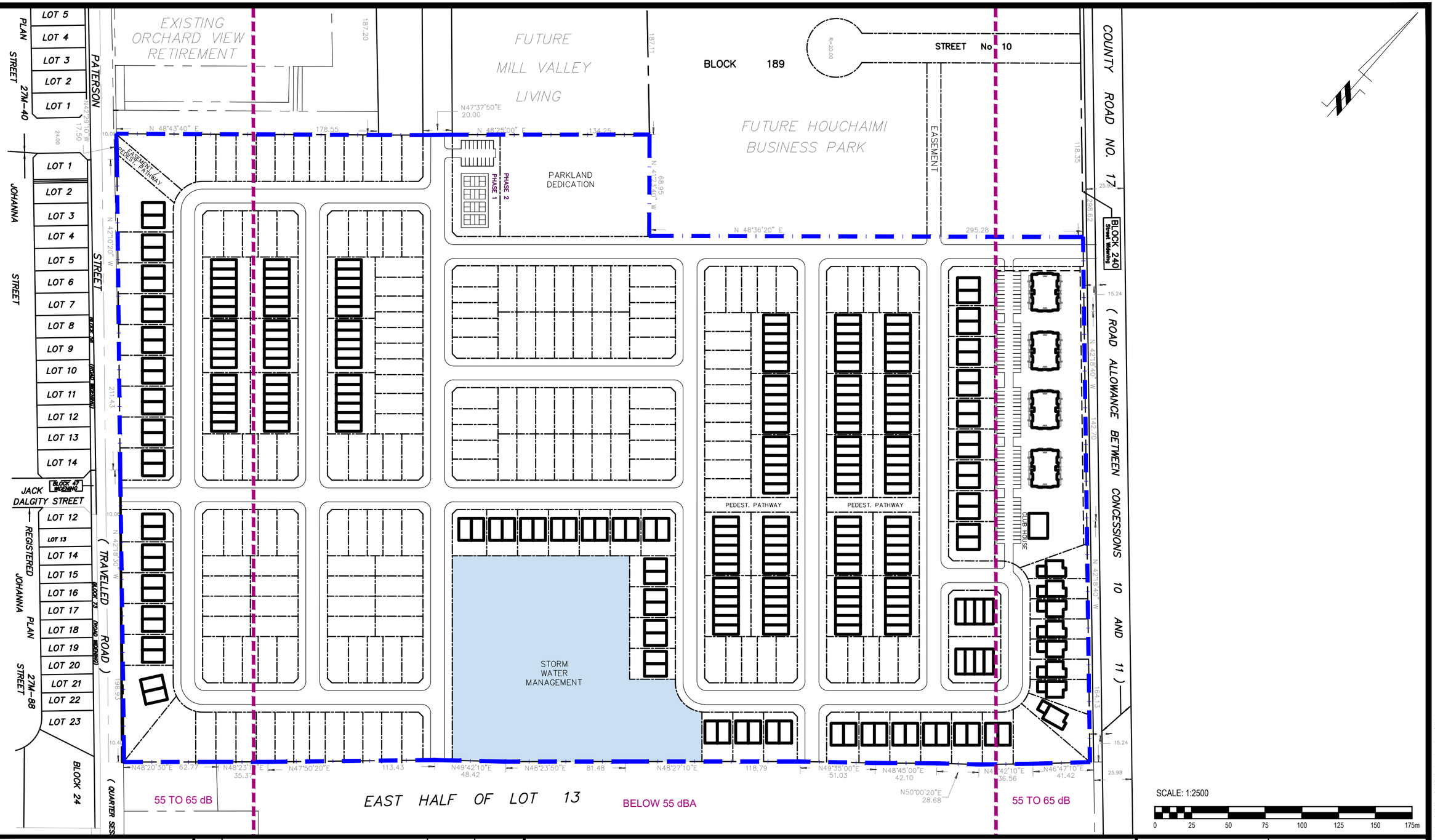
Point of Reception	Location	Leq Day (dBA)	Appleton Side Road					
			Horizontal (m)	Vertical (m)	Total (m)	Local Angle (degree)	Number of Rows of Houses	Density (%)
REC 1-1	3-Storey Building, Eastern Elevation, 1st Floor	59	25	1.5	25.0	-83, 85	n/a	n/a
REC 1-3	3-Storey Building, Eastern Elevation, 3rd Floor	60	25	8.5	26.4	-83, 85	n/a	n/a
REC 2-1	3-Storey Building, Northern Elevation, 1st Floor	53	35	1.5	35.0	-74, 0	n/a	n/a
REC 2-3	3-Storey Building, Northern Elevation, 3rd Floor	54	35	8.5	36.0	-74, 0	n/a	n/a
REC 3-1	3-Storey Building, Southern Elevation, 1st Floor	53	35	1.5	35.0	0, 82	n/a	n/a
REC 3-3	3-Storey Building, Southern Elevation, 3rd Floor	54	35	8.5	36.0	0, 82	n/a	n/a
REC 4-1	Single Detached House, Eastern Elevation, 1st Floor	59	25	1.5	25.0	-87, 81	n/a	n/a
REC 4-2	Single Detached House, Eastern Elevation, 2nd Floor	59	25	4.5	25.4	-87, 81	n/a	n/a
REC 5-1	Single Detached House, Northern Elevation, 1st Floor	54	30	1.5	30.0	-85, 0	n/a	n/a
REC 5-2	Single Detached House, Northern Elevation, 2nd Floor	55	30	4.5	30.3	-85, 0	n/a	n/a
REC 6-1	Single Detached House, Southern Elevation, 1st Floor	53	30	1.5	30.0	0, 44	n/a	n/a
REC 6-2	Single Detached House, Southern Elevation, 2nd Floor	53	30	4.5	30.3	0, 44	n/a	n/a
REC 7-1	Semi-detached House, Eastern Elevation, 1st Floor	49	60	1.5	60.0	-6, 59	n/a	n/a
REC 7-2	Semi-detached House, Eastern Elevation, 2nd Floor	50	60	4.5	60.2	-6, 59	n/a	n/a
REC 19	Single Detached House, rear yard	62	15	1.5	15.1	-88, 84	n/a	n/a

Table 10 - Summary of Reception Points and Geometry
Mill Valley Estates (Western Portion of the Site)

Point of Reception	Location	Leq Day (dBA)	Old Almonte Road					
			Horizontal (m)	Vertical (m)	Total (m)	Local Angle (degree)	Number of Rows of Houses	Density (%)
REC 8-1	Semi-detached House (north), Western Elevation, 1st Floor	56	25	1.5	25.0	-87, 83	n/a	n/a
REC 8-2	Semi-detached House (north), Western Elevation, 2nd Floor	56	25	4.5	25.4	-87, 83	n/a	n/a
REC 9-1	Semi-detached House (north), Northern Elevation, 1st Floor	51	30	1.5	30.0	0, 79	n/a	n/a
REC 9-2	Semi-detached House (north), Northern Elevation, 2nd Floor	52	30	4.5	30.3	0, 79	n/a	n/a
REC 10-1	Semi-detached House (north), Southern Elevation, 1st Floor	51	30	1.5	30.0	-85, 0	n/a	n/a
REC 10-2	Semi-detached House (north), Southern Elevation, 2nd Floor	52	30	4.5	30.3	-85, 0	n/a	n/a
REC 11-1	Semi-detached House (south), Western Elevation, 1st Floor	56	25	1.5	25.0	-86, 87	n/a	n/a
REC 11-2	Semi-detached House (south), Western Elevation, 2nd Floor	56	25	4.5	25.4	-86, 87	n/a	n/a
REC 12-1	Semi-detached House (south), Southern Elevation, 1st Floor	51	30	1.5	30.0	-69, 0	n/a	n/a
REC 12-2	Semi-detached House (south), Southern Elevation, 2nd Floor	51	30	4.5	30.3	-69, 0	n/a	n/a
REC 13-1	Single Detached House (north), Western Elevation, 1st Floor	52	40	1.5	40.0	-58, 68	n/a	n/a
REC 13-2	Single Detached House (north), Western Elevation, 2nd Floor	52	40	4.5	40.3	-58, 68	n/a	n/a
REC 14-1	Single Detached House (north), Northern Elevation, 1st Floor	48	45	1.5	45.0	0, 62	n/a	n/a
REC 14-2	Single Detached House (north), Northern Elevation, 2nd Floor	48	45	4.5	45.2	0, 62	n/a	n/a

Table 10 - Summary of Reception Points and Geometry
Mill Valley Estates (Western Portion of the Site)

Point of Reception	Location	Leq Day (dBA)	Old Almonte Road					
			Horizontal (m)	Vertical (m)	Total (m)	Local Angle (degree)	Number of Rows of Houses	Density (%)
REC 15-1	Single Detached House (south), Western Elevation, 1st Floor	52	40	1.5	40.0	-76, 53	n/a	n/a
REC 15-2	Single Detached House (south), Western Elevation, 2nd Floor	52	40	4.5	40.3	-76, 53	n/a	n/a
REC 16-1	Single Detached House (south), Southern Elevation, 1st Floor	48	45	1.5	45.0	-68, 0	n/a	n/a
REC 16-2	Single Detached House (south), Southern Elevation, 2nd Floor	49	45	4.5	45.2	-68, 0	n/a	n/a
REC 17-1	Townhouse, Western Elevation, 1st Floor	48	60	1.5	60.0	-81, 74	1	20
REC 17-2	Townhouse, Western Elevation, 2nd Floor	49	60	4.5	60.2	-81, 74	1	20
REC 18-1	Single Detached House, Western Elevation, 1st Floor	48	60	1.5	60.0	-74, 80	1	20
REC 18-2	Single Detached House, Western Elevation, 2nd Floor	49	60	4.5	60.2	-74, 80	1	20
REC 20	Semi-detached House (north), rear yard	59	15	1.5	15.1	-89, 86	n/a	n/a
REC 21	Semi-detached House (south), rear yard	59	15	1.5	15.1	-89, 88	n/a	n/a



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HOUCHAIMI HOLDINGS INC.

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
MILL VALLEY ESTATES

ALMONTE, ONTARIO

Title: **SITE PLAN**

Scale: 1:2500	Date: 11/2022
Drawn by: YA	Report No.: PG6496-1
Checked by: YT	Dwg. No.: **PG6496-1**
Approved by: SB	Revision No.: 1

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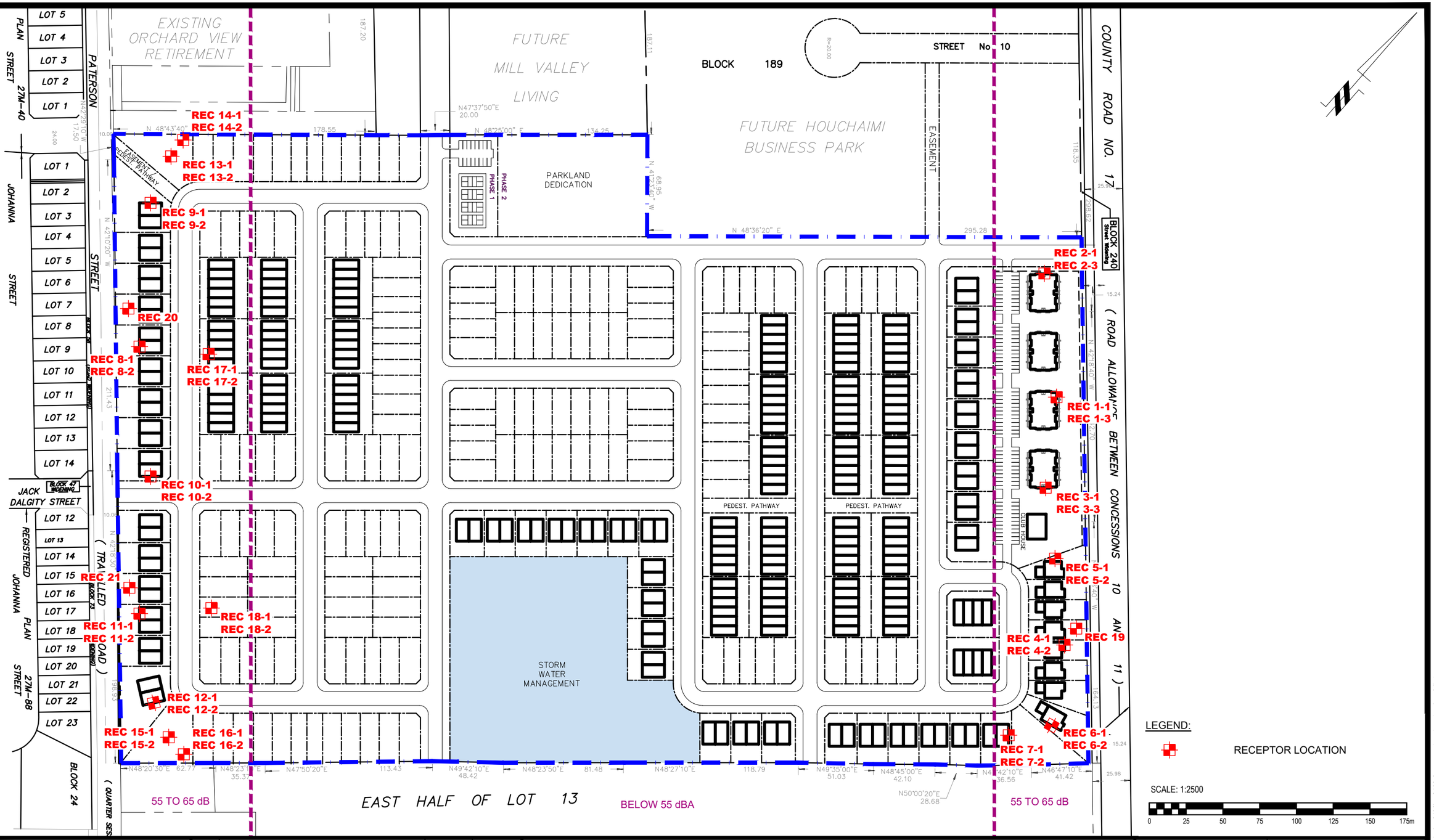

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HOUCHAIMI HOLDINGS INC.

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
MILL VALLEY ESTATES

ALMONTE, ONTARIO

Title:

RECEPTOR LOCATION PLAN

Scale: 1:2500	Date: 11/2022
Drawn by: YA	Report No.: PG6496-1
Checked by: YT	Dwg. No.: PG6496-2
Approved by: SB	Revision No.: 1

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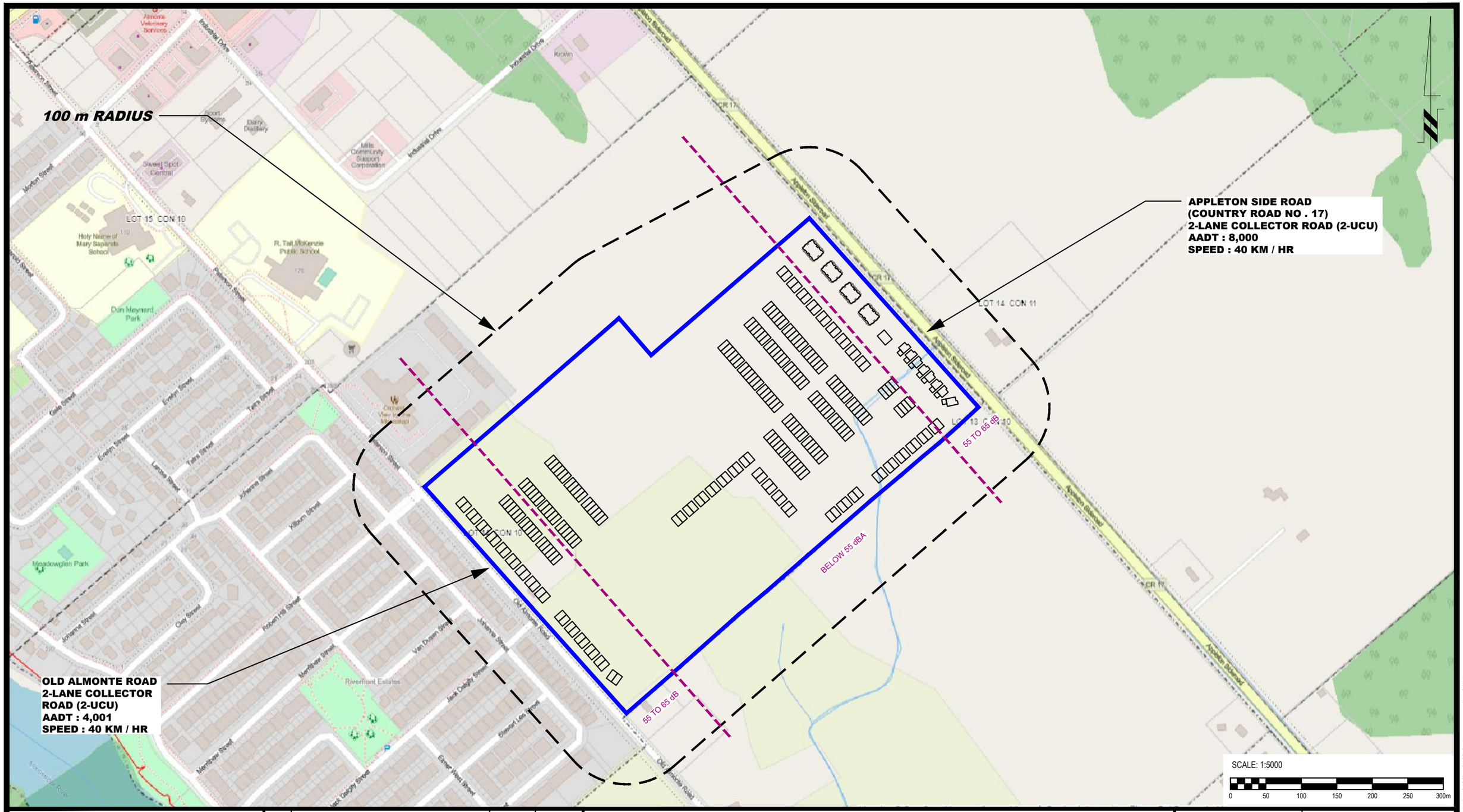

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NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
MILL VALLEY ESTATES

ALMONTE, ONTARIO

Title:

SITE GEOMETRY

Scale: 1:5000	Date: 11/2022
Drawn by: YA	Report No.: PG6496-1
Checked by: YT	Dwg. No.: PG6496-3
Approved by: SB	Revision No.: 1

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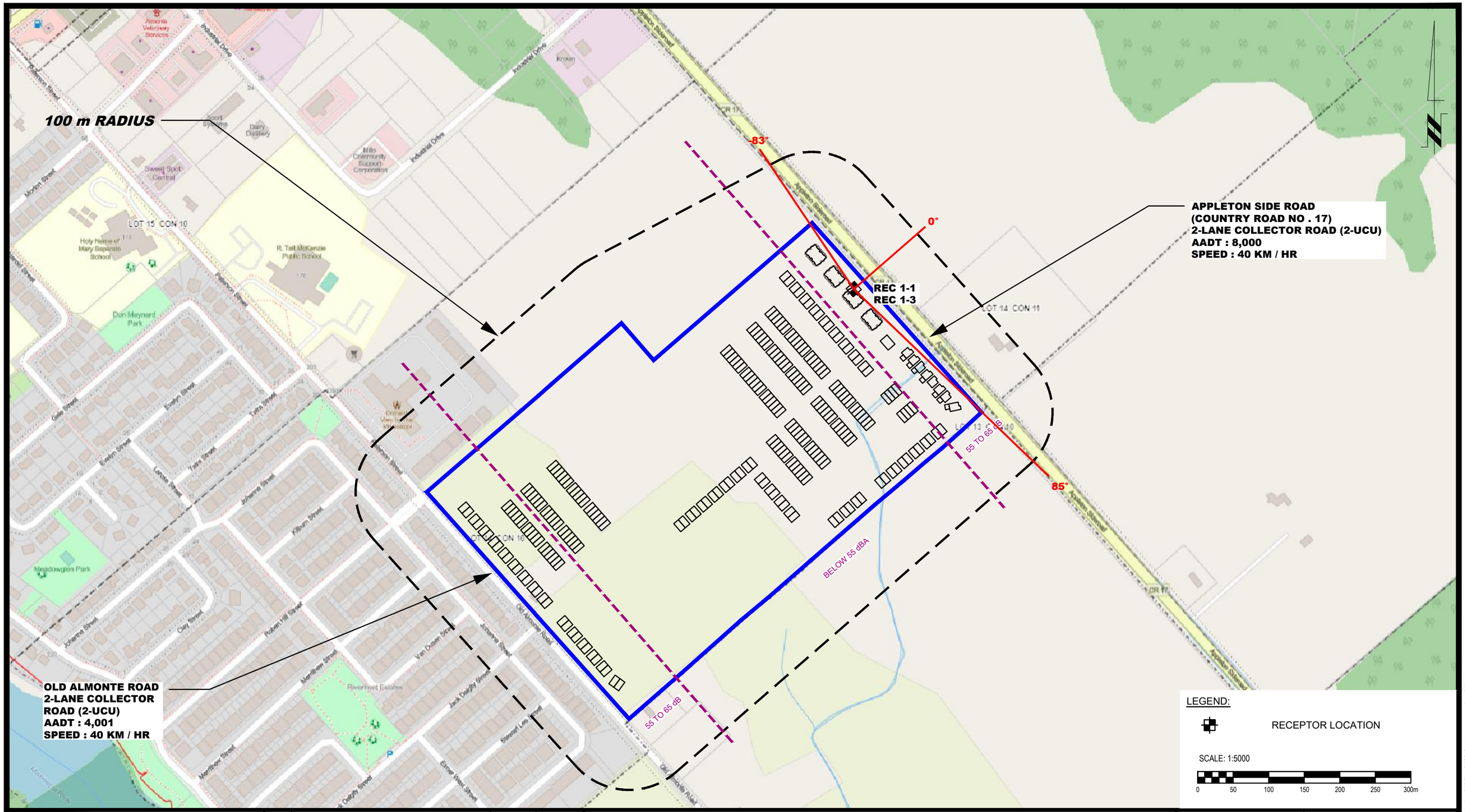

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NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
MILL VALLEY ESTATES

ALMONTE, ONTARIO

Title:

SITE GEOMETRY - REC 1-1 AND REC 1-3

Scale: 1:5000	Date: 11/2022
Drawn by: YA	Report No.: PG6496-1
Checked by: YT	Dwg. No.: PG6496-3A
Approved by: SB	Revision No.: 1

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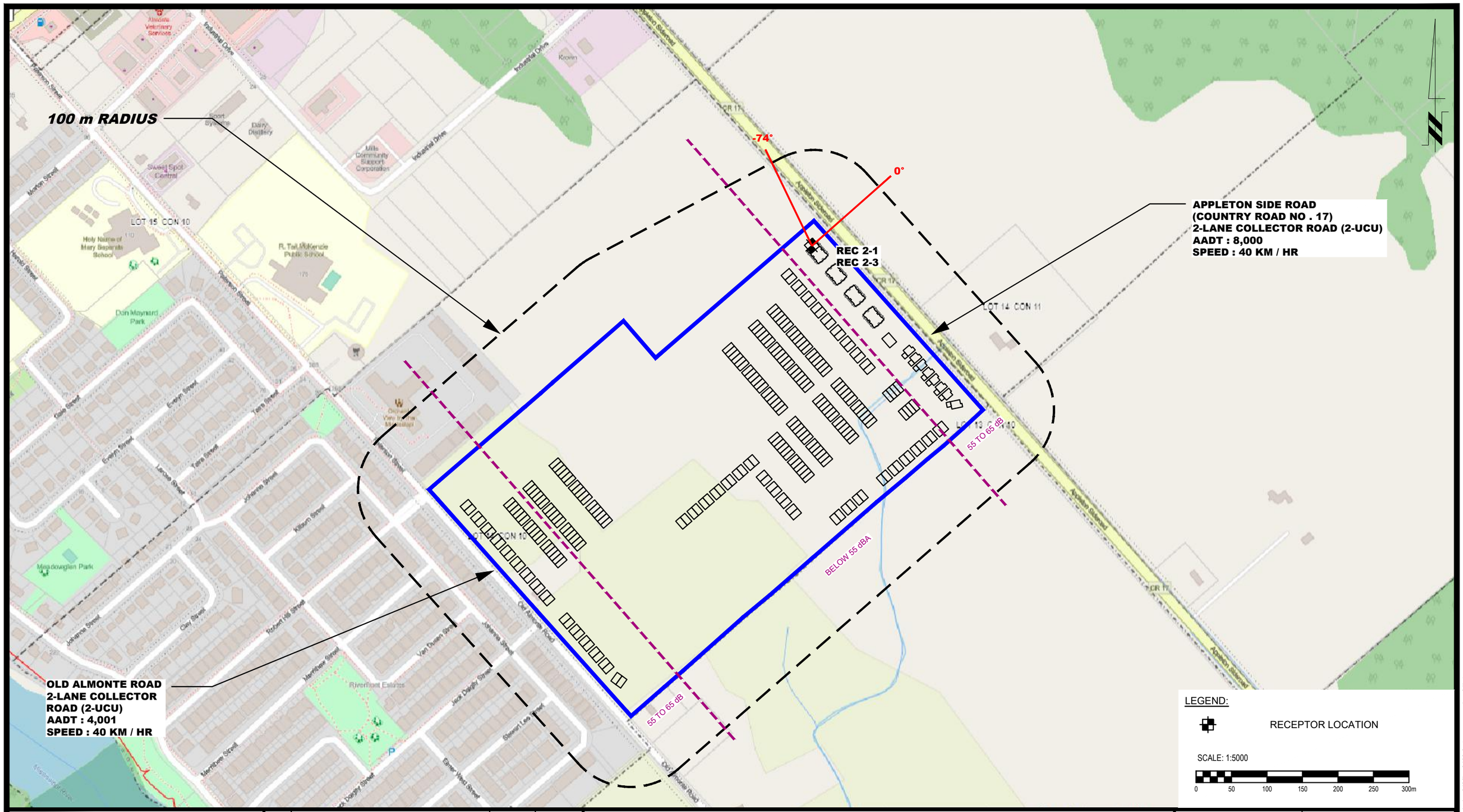

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PROPOSED RESIDENTIAL DEVELOPMENT
MILL VALLEY ESTATES

ALMONTE, ONTARIO

Title:

SITE GEOMETRY - REC 2-1 AND REC 2-3

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Drawn by: YA	Report No.: PG6496-1
Checked by: YT	Dwg. No.: PG6496-3B
Approved by: SB	Revision No.: 1

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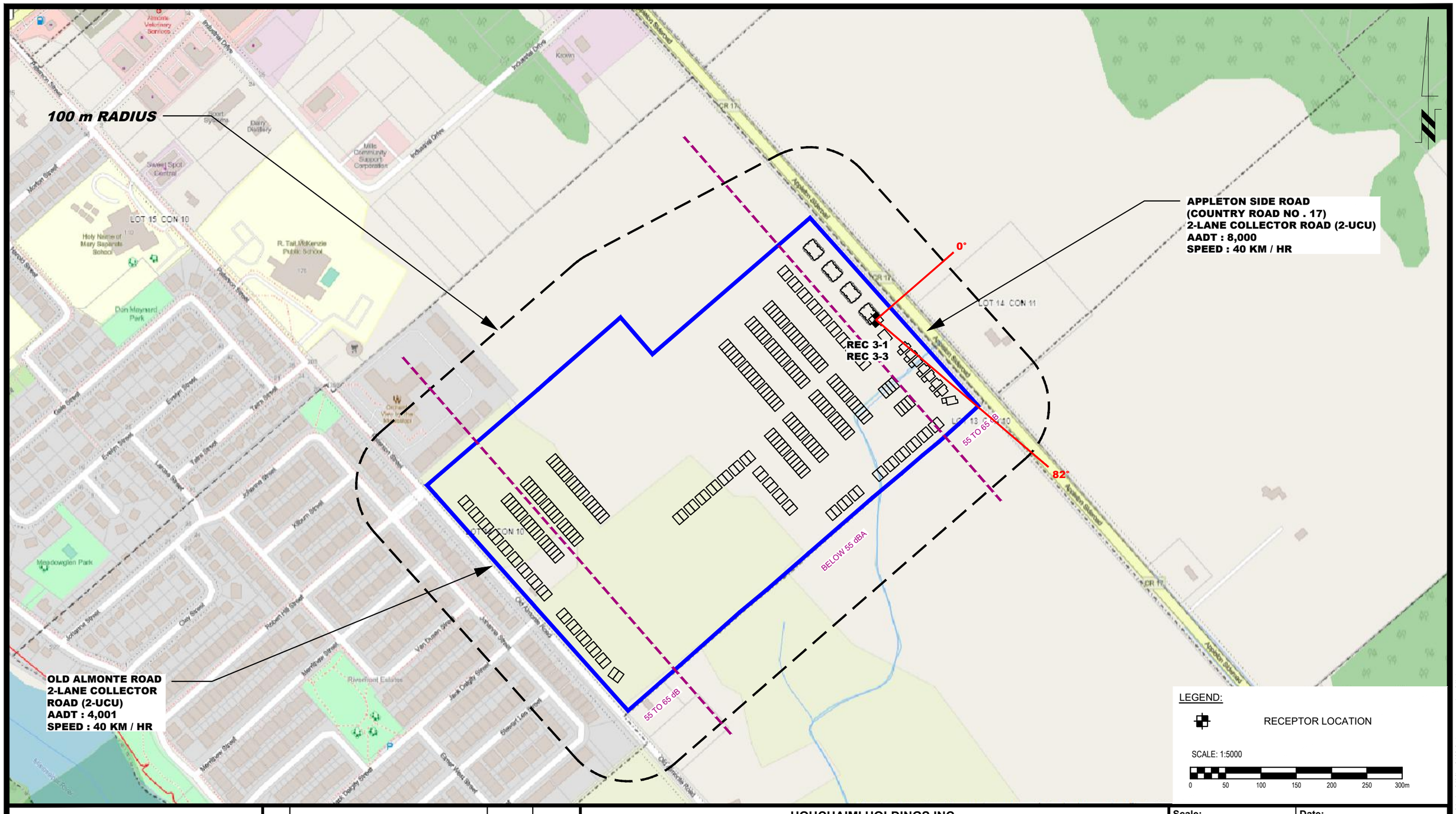

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NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
MILL VALLEY ESTATES

ALMONTE, ONTARIO

Title:

SITE GEOMETRY - REC 3-1 AND REC 3-3

Scale: 1:5000	Date: 11/2022
Drawn by: YA	Report No.: PG6496-1
Checked by: YT	Dwg. No.: PG6496-3C
Approved by: SB	Revision No.: 1

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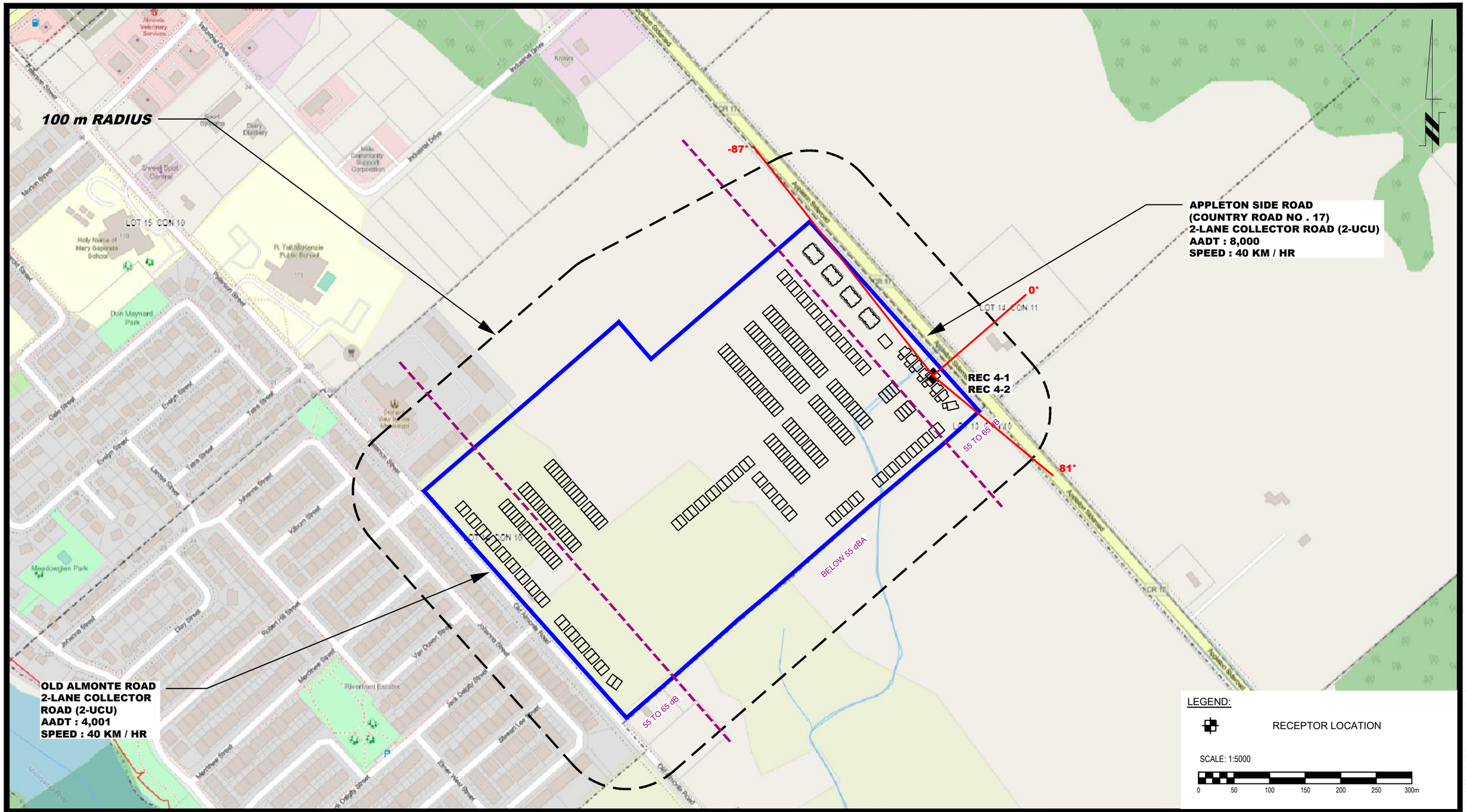

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PROPOSED RESIDENTIAL DEVELOPMENT
MILL VALLEY ESTATES

ALMONTE, ONTARIO

Title:

SITE GEOMETRY - REC 4-1 AND REC 4-2

Scale: 1:5000	Date: 11/2022
Drawn by: YA	Report No.: PG6496-1
Checked by: YT	Dwg. No.: PG6496-3D
Approved by: SB	Revision No.: 1

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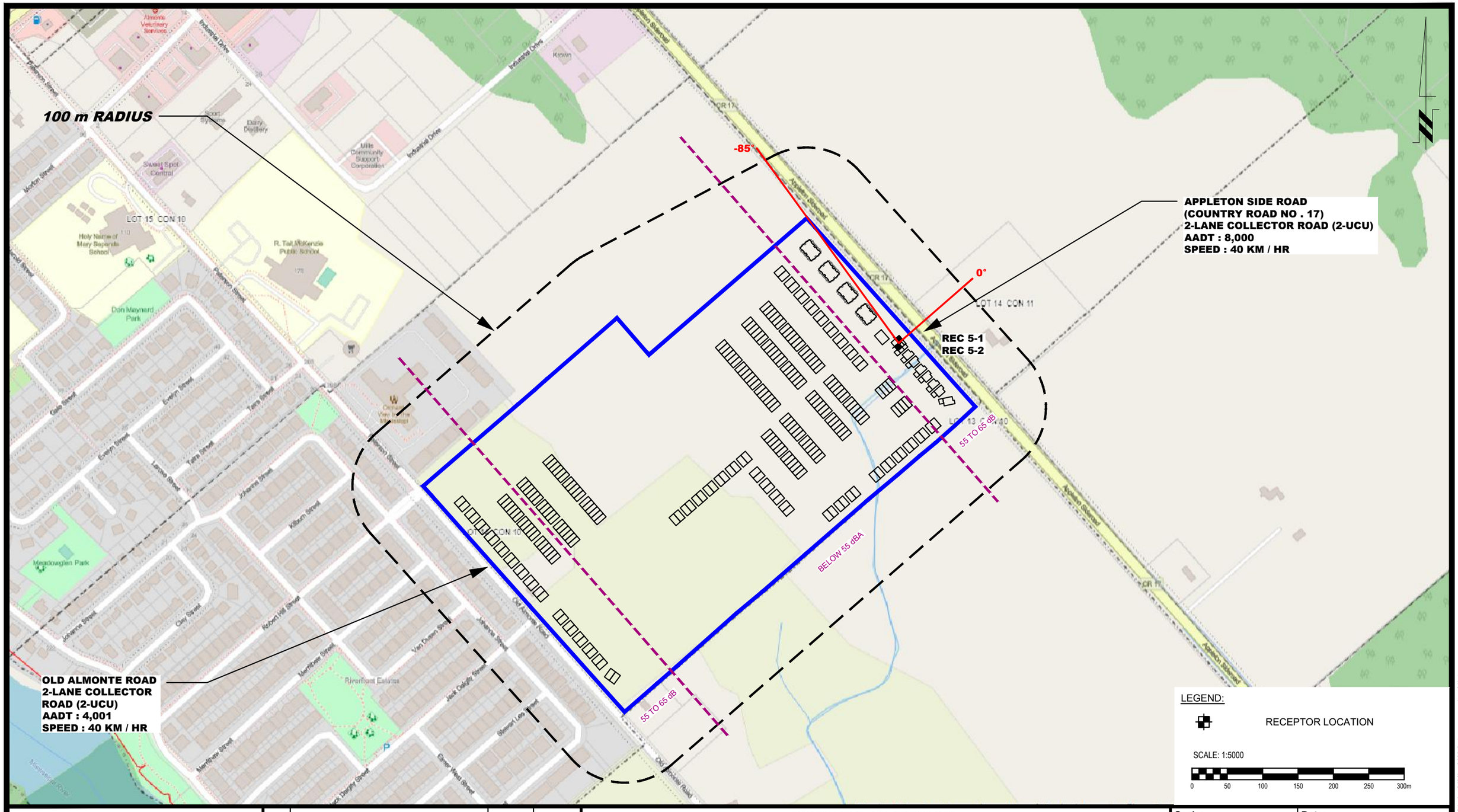

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PROPOSED RESIDENTIAL DEVELOPMENT
MILL VALLEY ESTATES

ALMONTE, ONTARIO

Title:

SITE GEOMETRY - REC 5-1 AND REC 5-2

Scale: 1:5000	Date: 11/2022
Drawn by: YA	Report No.: PG6496-1
Checked by: YT	Dwg. No.: PG6496-3E
Approved by: SB	Revision No.:

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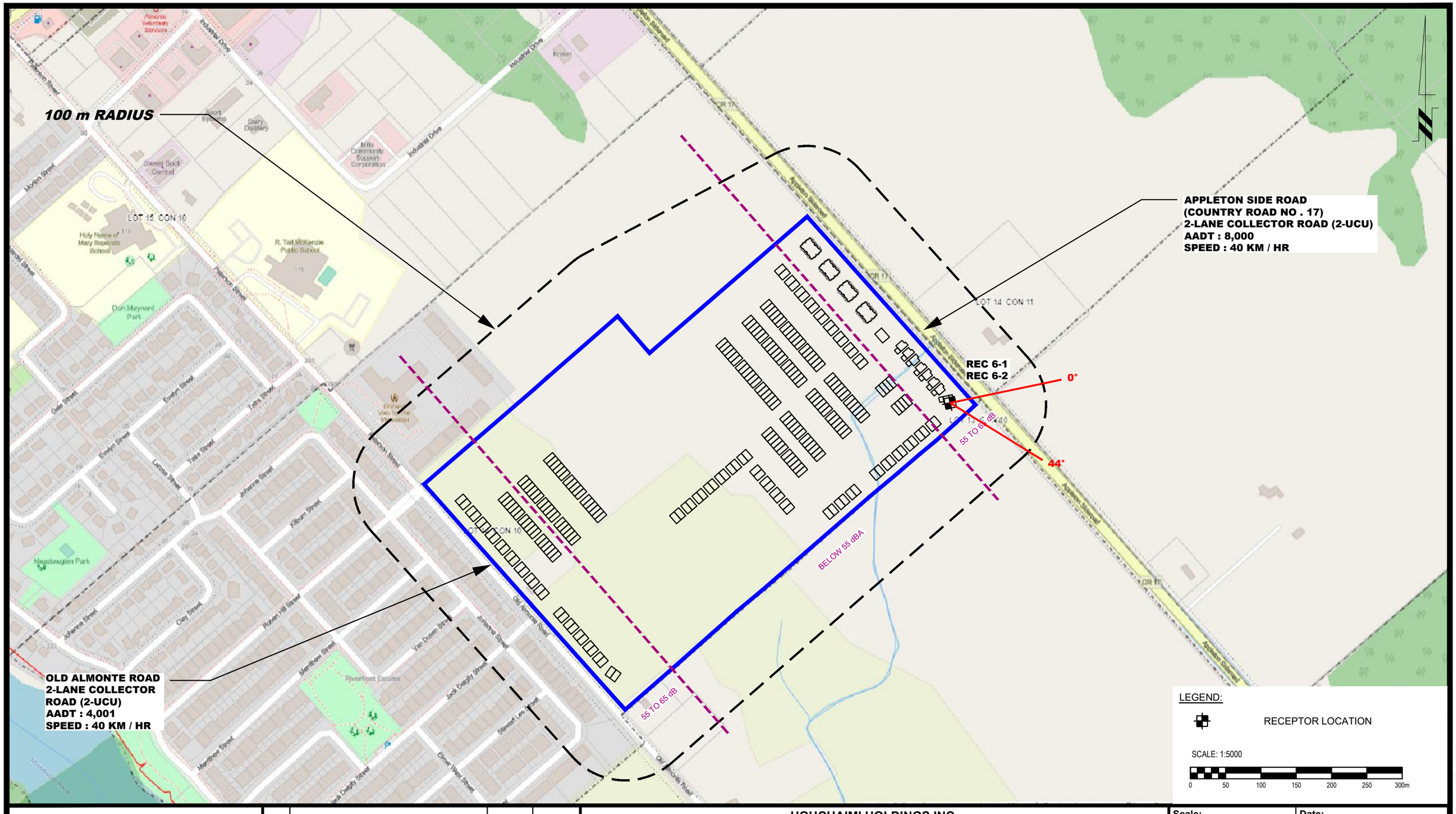

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NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
MILL VALLEY ESTATES

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Title:

SITE GEOMETRY - REC 6-1 AND REC 6-2

Scale: 1:5000	Date: 11/2022
Drawn by: YA	Report No.: PG6496-1
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Approved by: SB	Revision No.:

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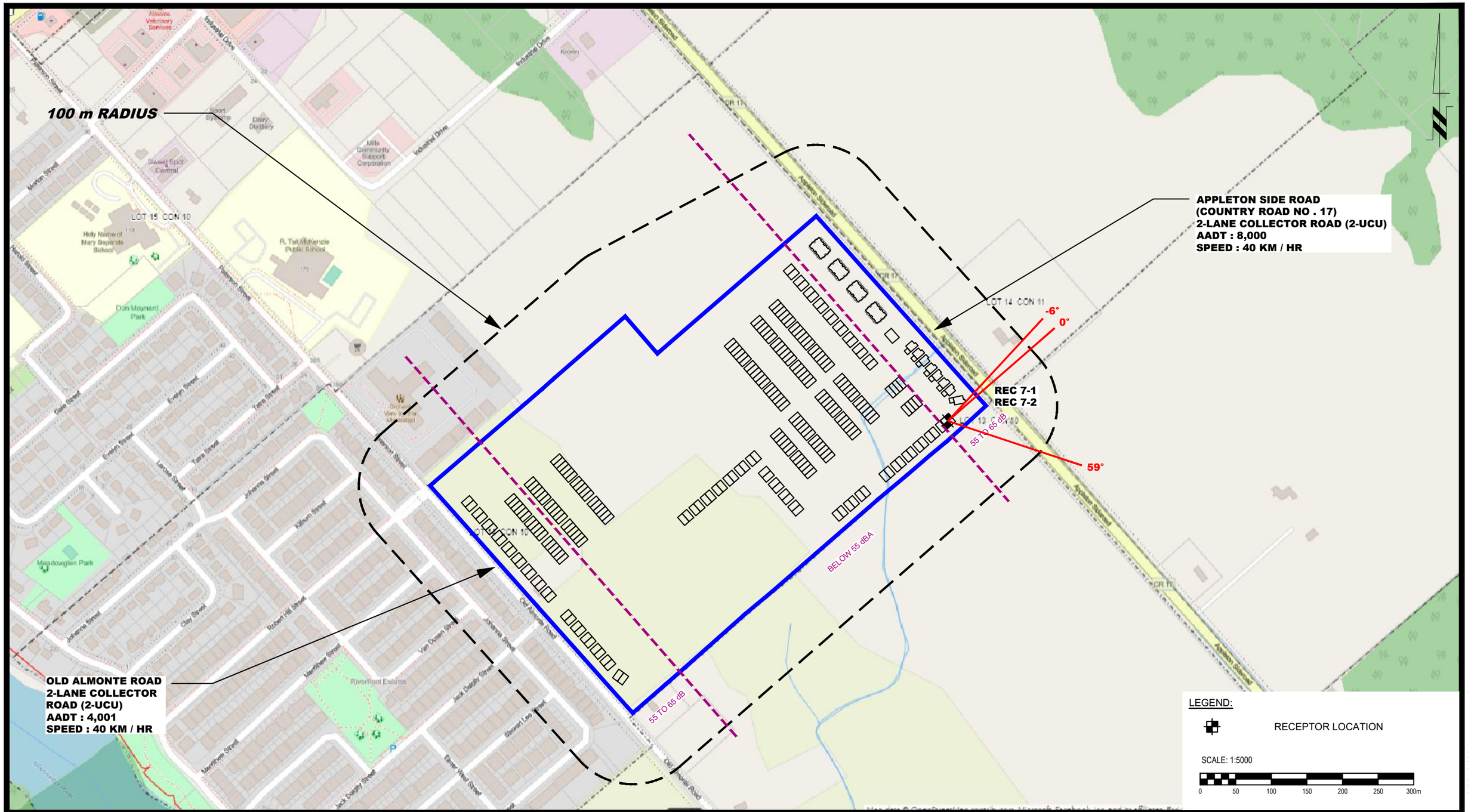

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PROPOSED RESIDENTIAL DEVELOPMENT
MILL VALLEY ESTATES

ALMONTE, ONTARIO

Title:

SITE GEOMETRY - REC 7-1 AND REC 7-2

Scale: 1:5000	Date: 11/2022
Drawn by: YA	Report No.: PG6496-1
Checked by: YT	Dwg. No.: PG6496-3G
Approved by: SB	Revision No.:

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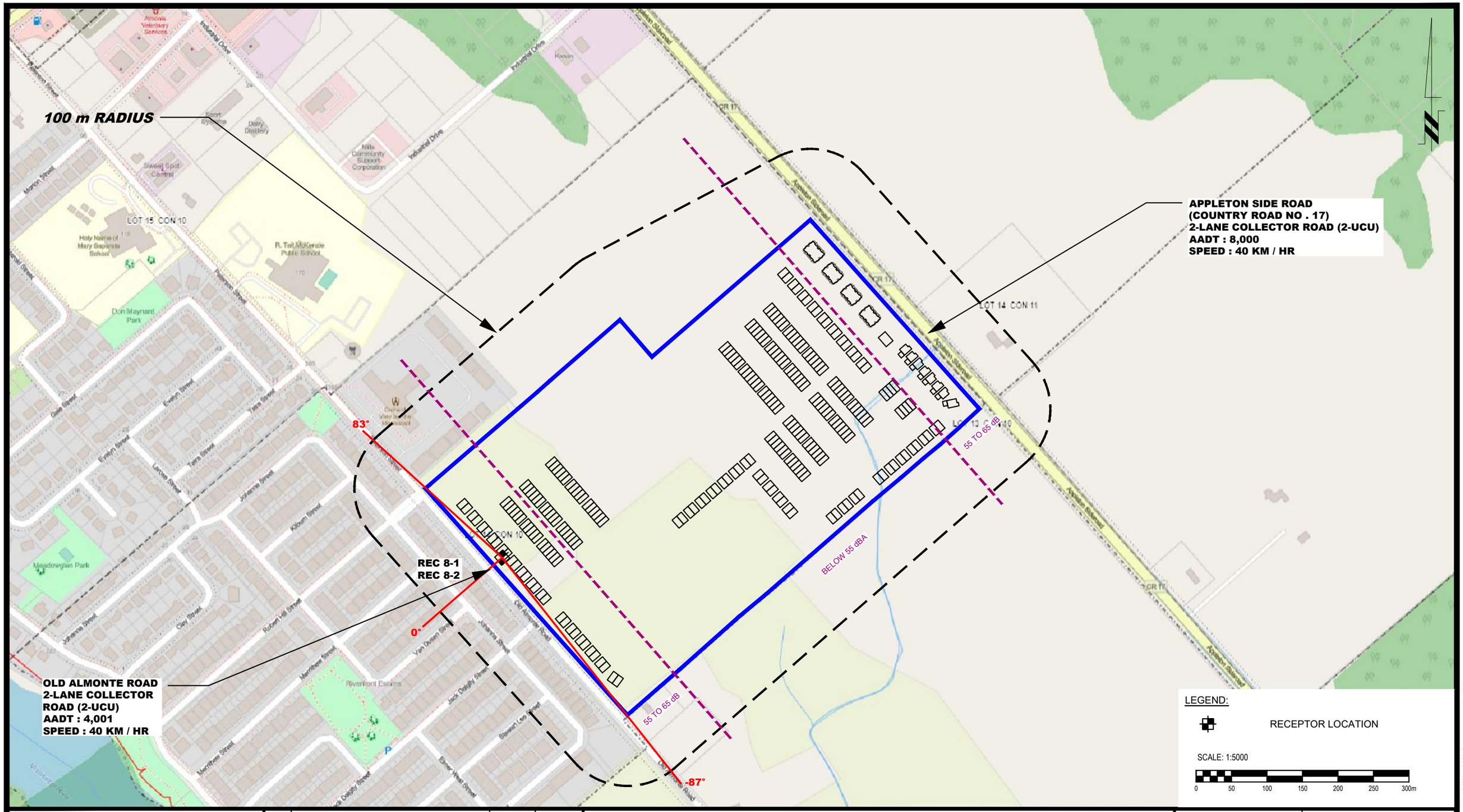

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NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
MILL VALLEY ESTATES

ALMONTE, ONTARIO

Title:

SITE GEOMETRY - REC 8-1 AND REC 8-2

Scale: 1:5000	Date: 11/2022
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Checked by: YT	Dwg. No.: PG6496-3H
Approved by: SB	Revision No.:

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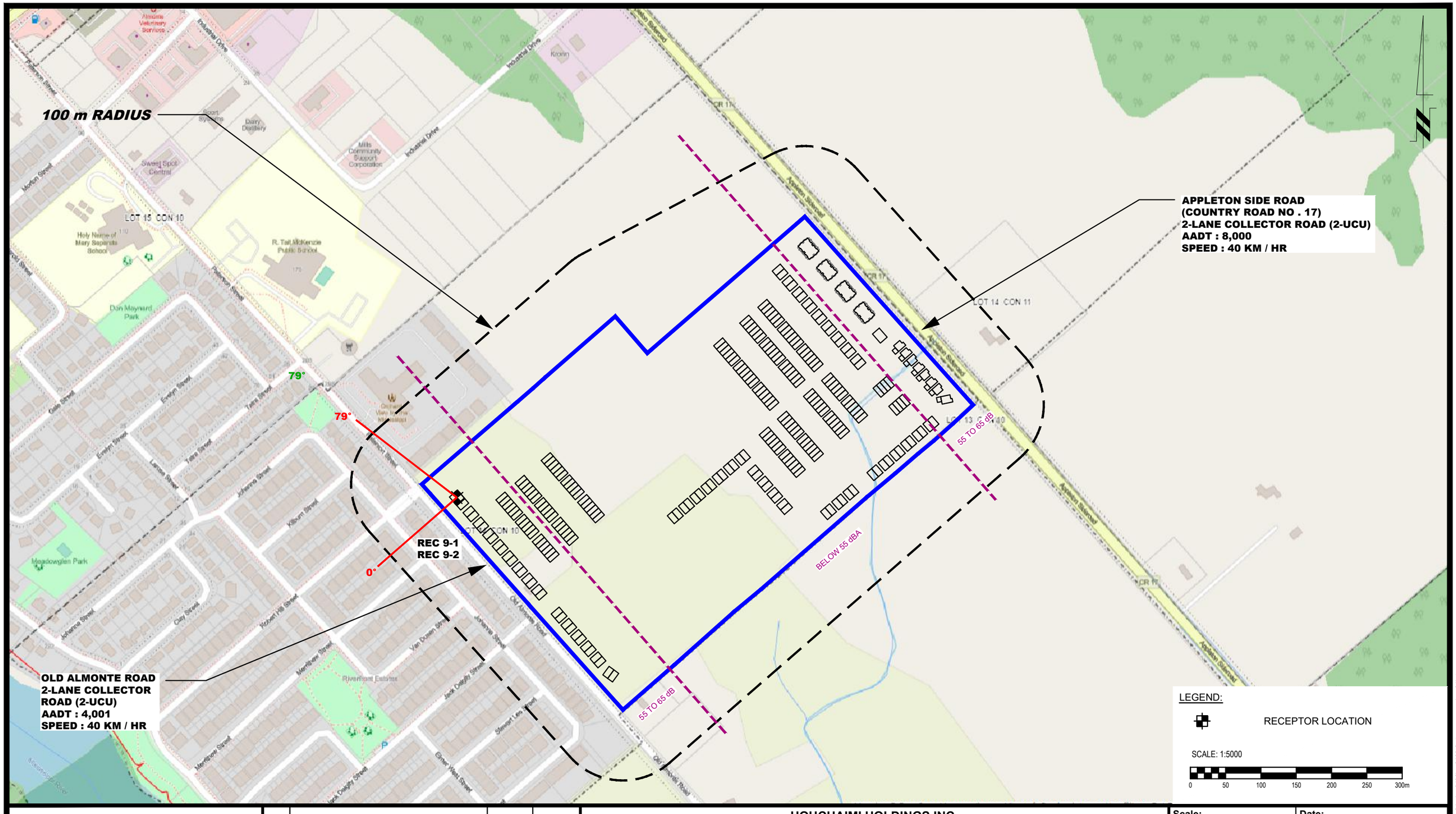

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NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
MILL VALLEY ESTATES

ALMONTE, ONTARIO

Title:

SITE GEOMETRY - REC 9-1 AND REC 9-2

Scale: 1:5000	Date: 11/2022
Drawn by: YA	Report No.: PG6496-1
Checked by: YT	Dwg. No.: PG6496-3I
Approved by: SB	Revision No.:

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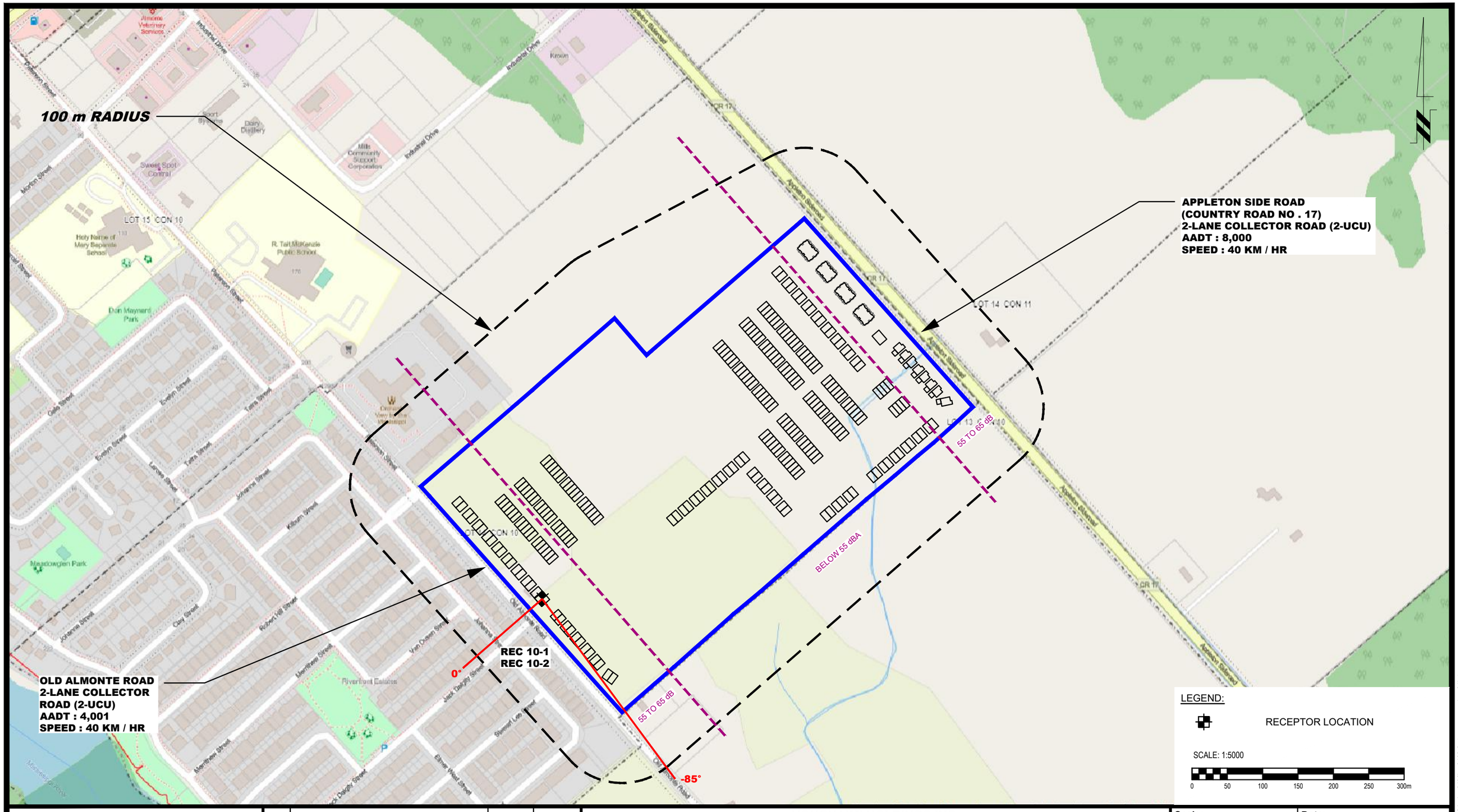

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HOUCHAIMI HOLDINGS INC.

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
MILL VALLEY ESTATES

ALMONTE, ONTARIO

Title:

SITE GEOMETRY - REC 10-1 AND REC 10-2

Scale: 1:5000	Date: 11/2022
Drawn by: YA	Report No.: PG6496-1
Checked by: YT	Dwg. No.: PG6496-3J
Approved by: SB	Revision No.: 1

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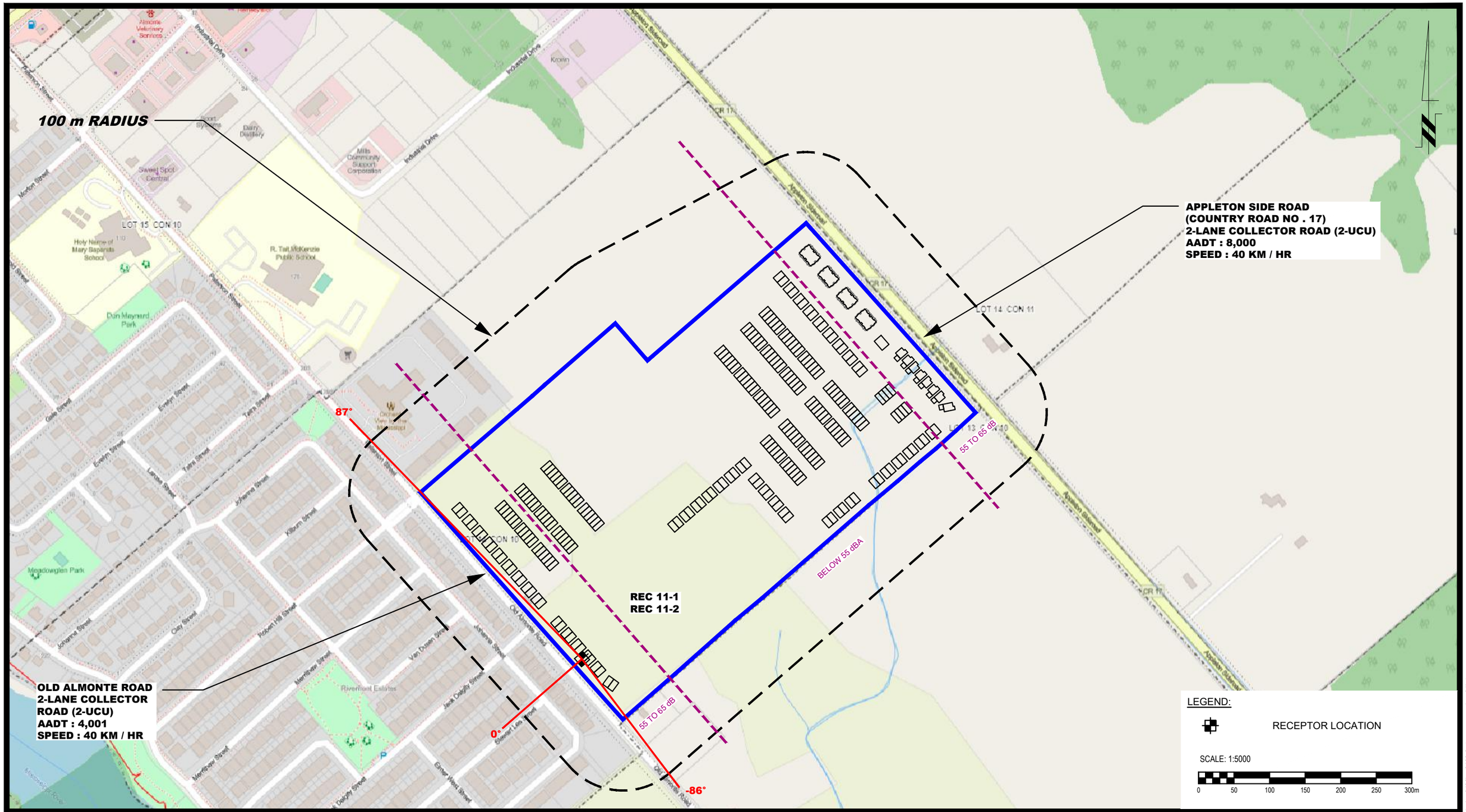

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1	UPDATED ROAD CLASSIFICATION INFORMATION	06/12/2022	YT

HOUCHAIMI HOLDINGS INC.

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
MILL VALLEY ESTATES

ALMONTE, ONTARIO

Title:

SITE GEOMETRY - REC 11-1 AND REC 11-2

Scale: 1:5000	Date: 11/2022
Drawn by: YA	Report No.: PG6496-1
Checked by: YT	Dwg. No.: PG6496-3K
Approved by: SB	Revision No.: 1

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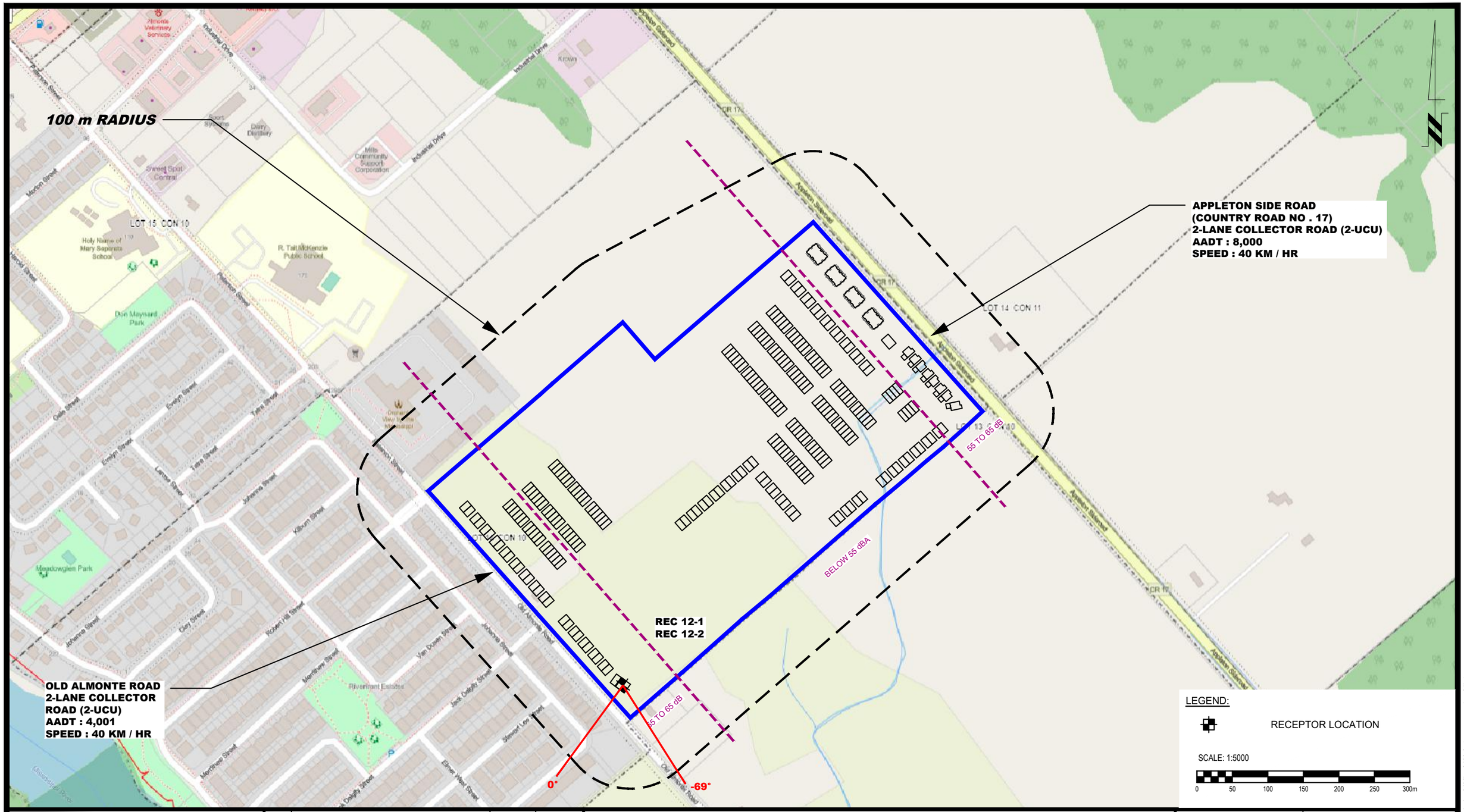

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NO.	REVISIONS	DATE	INITIAL
1	UPDATED ROAD CLASSIFICATION INFORMATION	06/12/2022	YT

HOUCHAIMI HOLDINGS INC.

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
MILL VALLEY ESTATES

ALMONTE, ONTARIO

Title:

SITE GEOMETRY - REC 12-1 AND REC 12-2

Scale: 1:5000	Date: 11/2022
Drawn by: YA	Report No.: PG6496-1
Checked by: YT	Dwg. No.: PG6496-3L
Approved by: SB	Revision No.: 1

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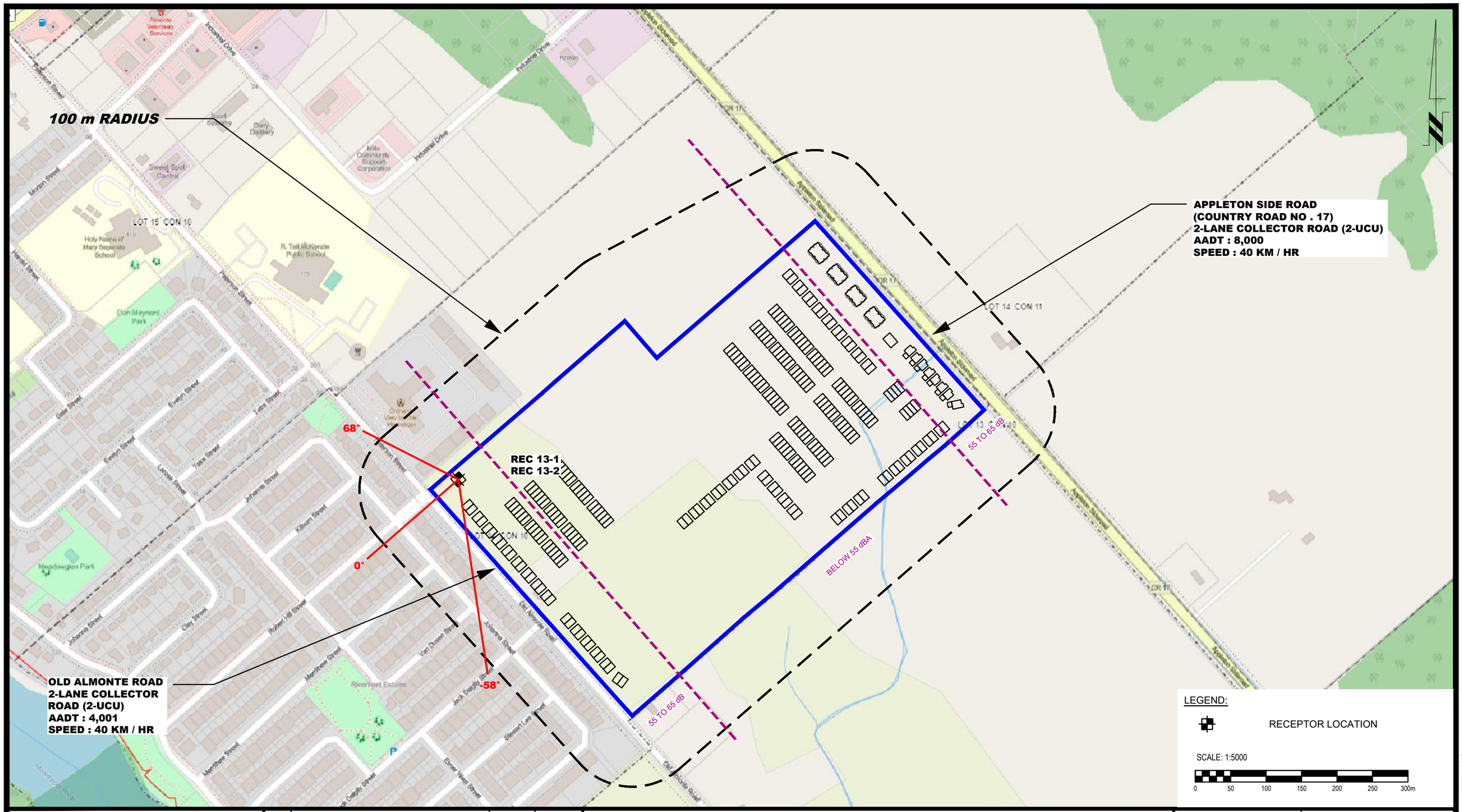

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NO.	REVISIONS	DATE	INITIAL
1	UPDATED ROAD CLASSIFICATION INFORMATION	06/12/2022	YT

HOUCHAIMI HOLDINGS INC.

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
MILL VALLEY ESTATES

ALMONTE, ONTARIO

Title:

SITE GEOMETRY - REC 13-1 AND REC 13-2

Scale: 1:5000	Date: 11/2022
Drawn by: YA	Report No.: PG6496-1
Checked by: YT	Dwg. No.: PG6496-3M
Approved by: SB	Revision No.: 1

11x17

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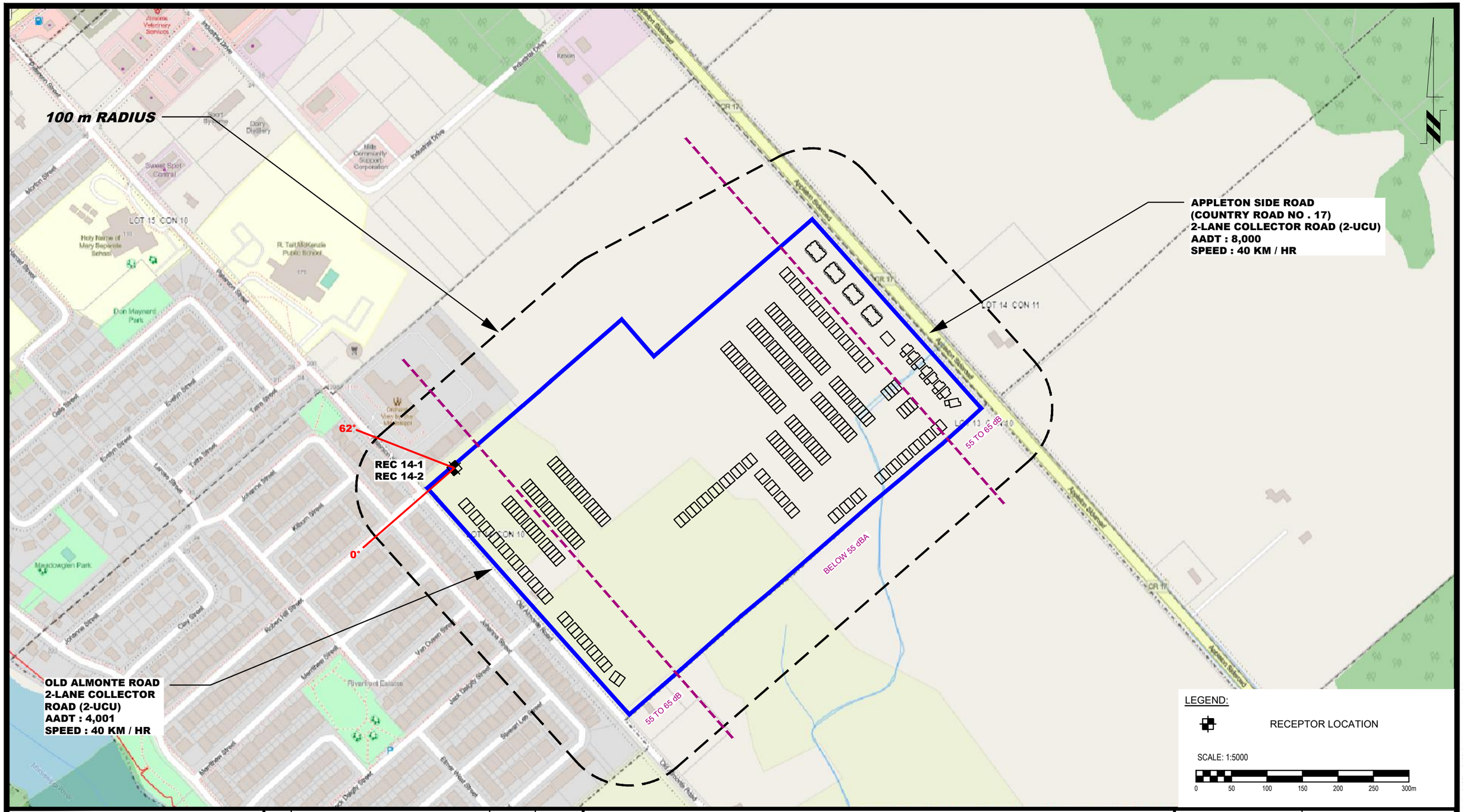

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NO.	REVISIONS	DATE	INITIAL
1	UPDATED ROAD CLASSIFICATION INFORMATION	06/12/2022	YT

HOUCHAIMI HOLDINGS INC.

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
MILL VALLEY ESTATES

ALMONTE, ONTARIO

Title:

SITE GEOMETRY - REC 14-1 AND REC 14-2

Scale: 1:5000	Date: 11/2022
Drawn by: YA	Report No.: PG6496-1
Checked by: YT	Dwg. No.: PG6496-3N
Approved by: SB	Revision No.: 1

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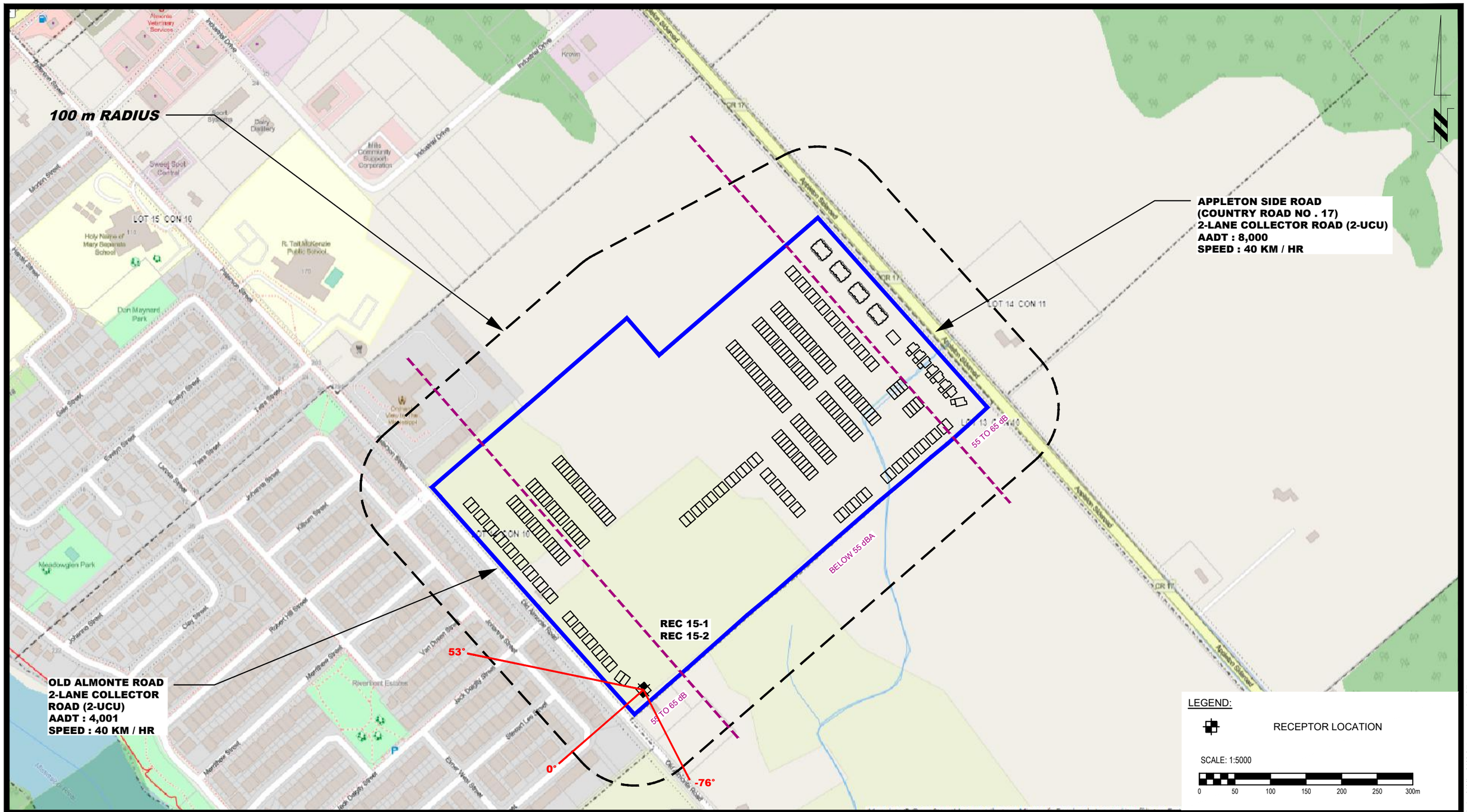

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1	UPDATED ROAD CLASSIFICATION INFORMATION	06/12/2022	YT

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NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
MILL VALLEY ESTATES

ALMONTE, ONTARIO

Title:

SITE GEOMETRY - REC 15-1 AND REC 15-2

Scale: 1:5000	Date: 11/2022
Drawn by: YA	Report No.: PG6496-1
Checked by: YT	Dwg. No.: PG6496-3O
Approved by: SB	Revision No.: 1

11x17

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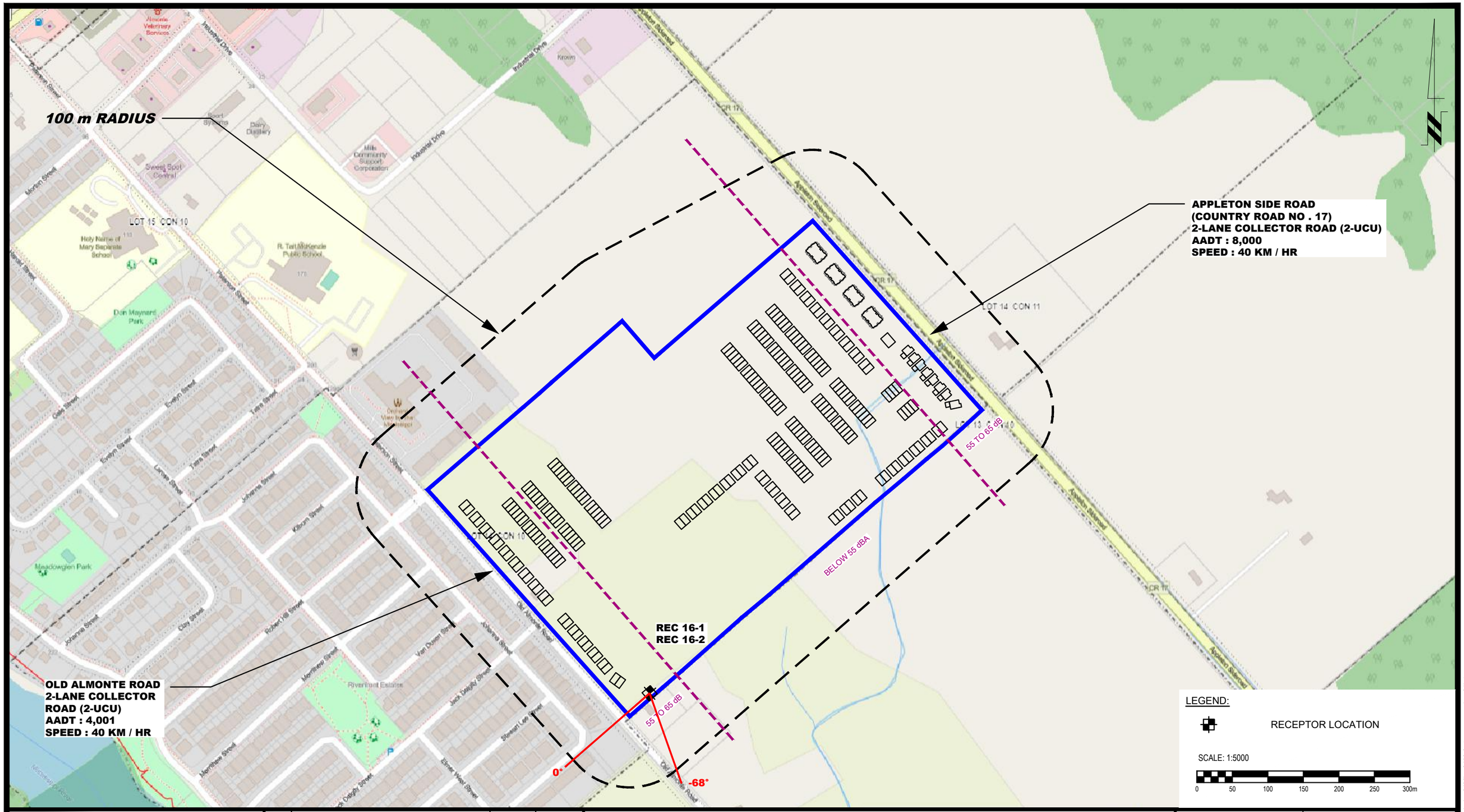

PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL
1	UPDATED ROAD CLASSIFICATION INFORMATION	06/12/2022	YT

HOUCHAIMI HOLDINGS INC.

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
MILL VALLEY ESTATES

ALMONTE, ONTARIO

Title:

SITE GEOMETRY - REC 16-1 AND REC 16-2

Scale: 1:5000	Date: 11/2022
Drawn by: YA	Report No.: PG6496-1
Checked by: YT	Dwg. No.: PG6496-3P
Approved by: SB	Revision No.: 1

11x17

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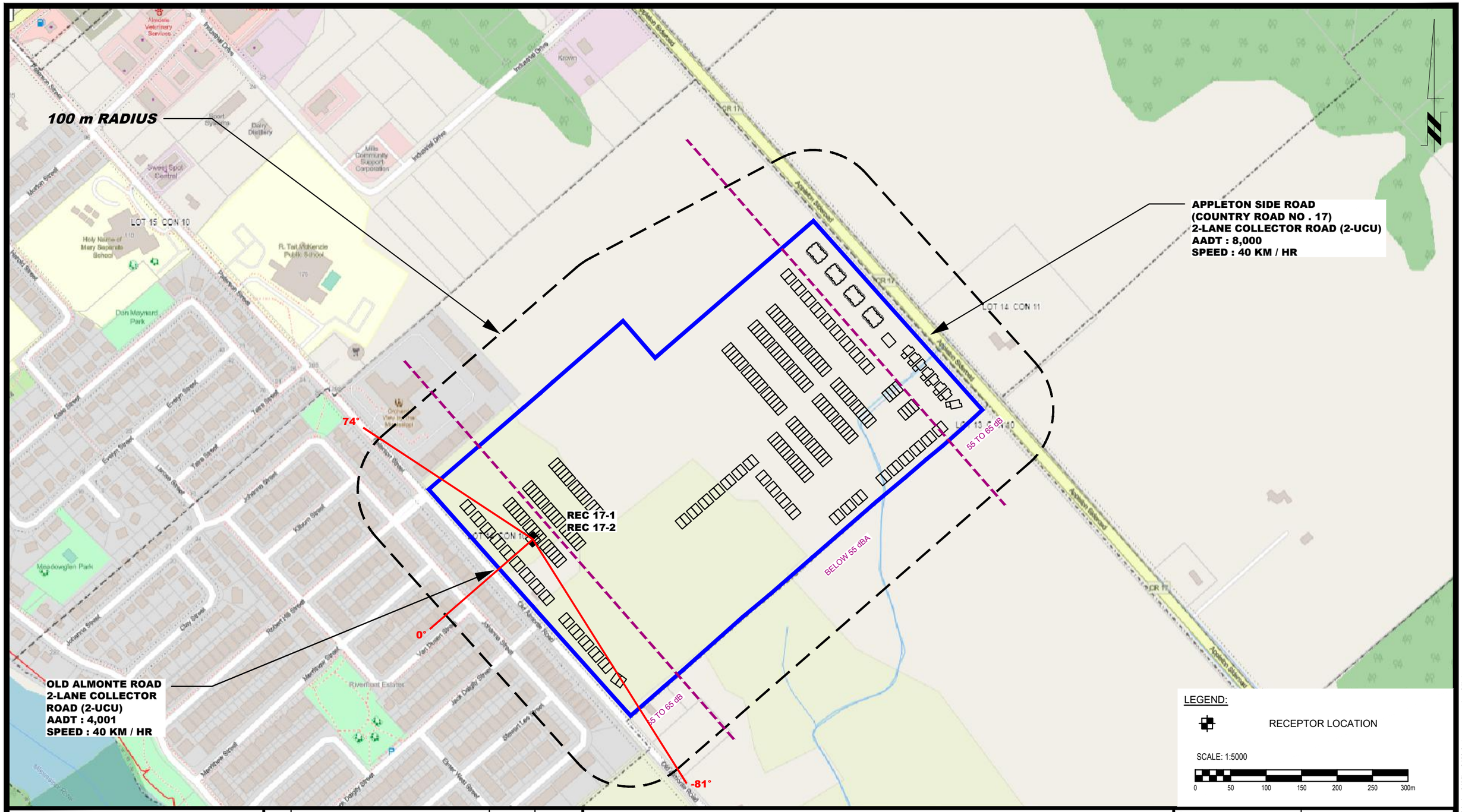

PATERSON GROUP
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OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL
1	UPDATED ROAD CLASSIFICATION INFORMATION	06/12/2022	YT

HOUCHAIMI HOLDINGS INC.

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
MILL VALLEY ESTATES

ALMONTE, ONTARIO

Title:

SITE GEOMETRY - REC 17-1 AND REC 17-2

Scale: 1:5000	Date: 11/2022
Drawn by: YA	Report No.: PG6496-1
Checked by: YT	Dwg. No.: PG6496-3Q
Approved by: SB	Revision No.: 1

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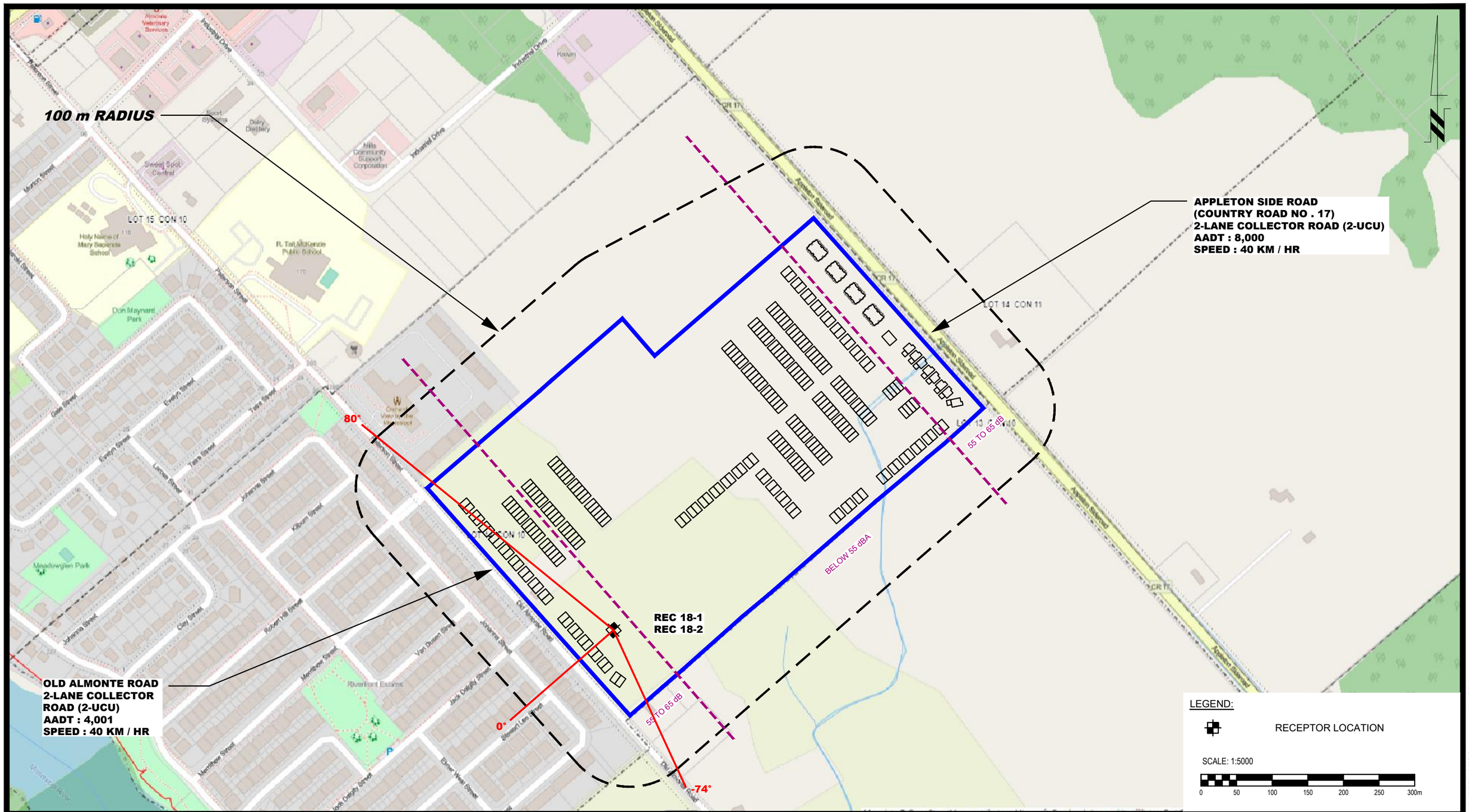

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OTTAWA, ON
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TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL
1	UPDATED ROAD CLASSIFICATION INFORMATION	06/12/2022	YT

HOUCHAIMI HOLDINGS INC.

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
MILL VALLEY ESTATES

ALMONTE, ONTARIO

Title:

SITE GEOMETRY - REC 18-1 AND REC 18-2

Scale: 1:5000	Date: 11/2022
Drawn by: YA	Report No.: PG6496-1
Checked by: YT	Dwg. No.: PG6496-3R
Approved by: SB	Revision No.: 1

11x17

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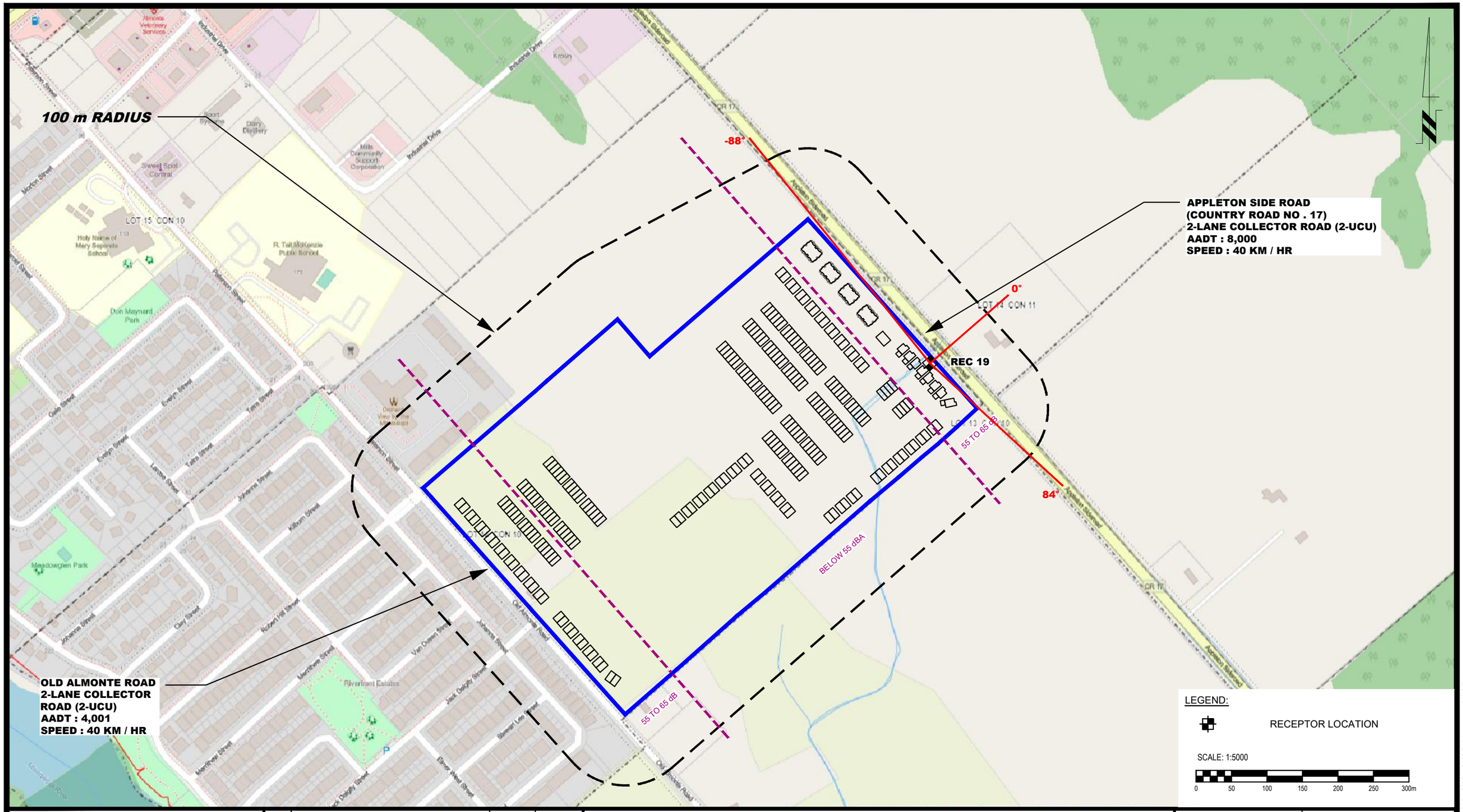

PATERSON GROUP
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OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL
1	UPDATED ROAD CLASSIFICATION INFORMATION	06/12/2022	YT

HOUCHAIMI HOLDINGS INC.

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
MILL VALLEY ESTATES

ALMONTE, ONTARIO

Title:

SITE GEOMETRY - REC 19

Scale: 1:5000	Date: 11/2022
Drawn by: YA	Report No.: PG6496-1
Checked by: YT	Dwg. No.: PG6496-3S
Approved by: SB	Revision No.: 1

11x17

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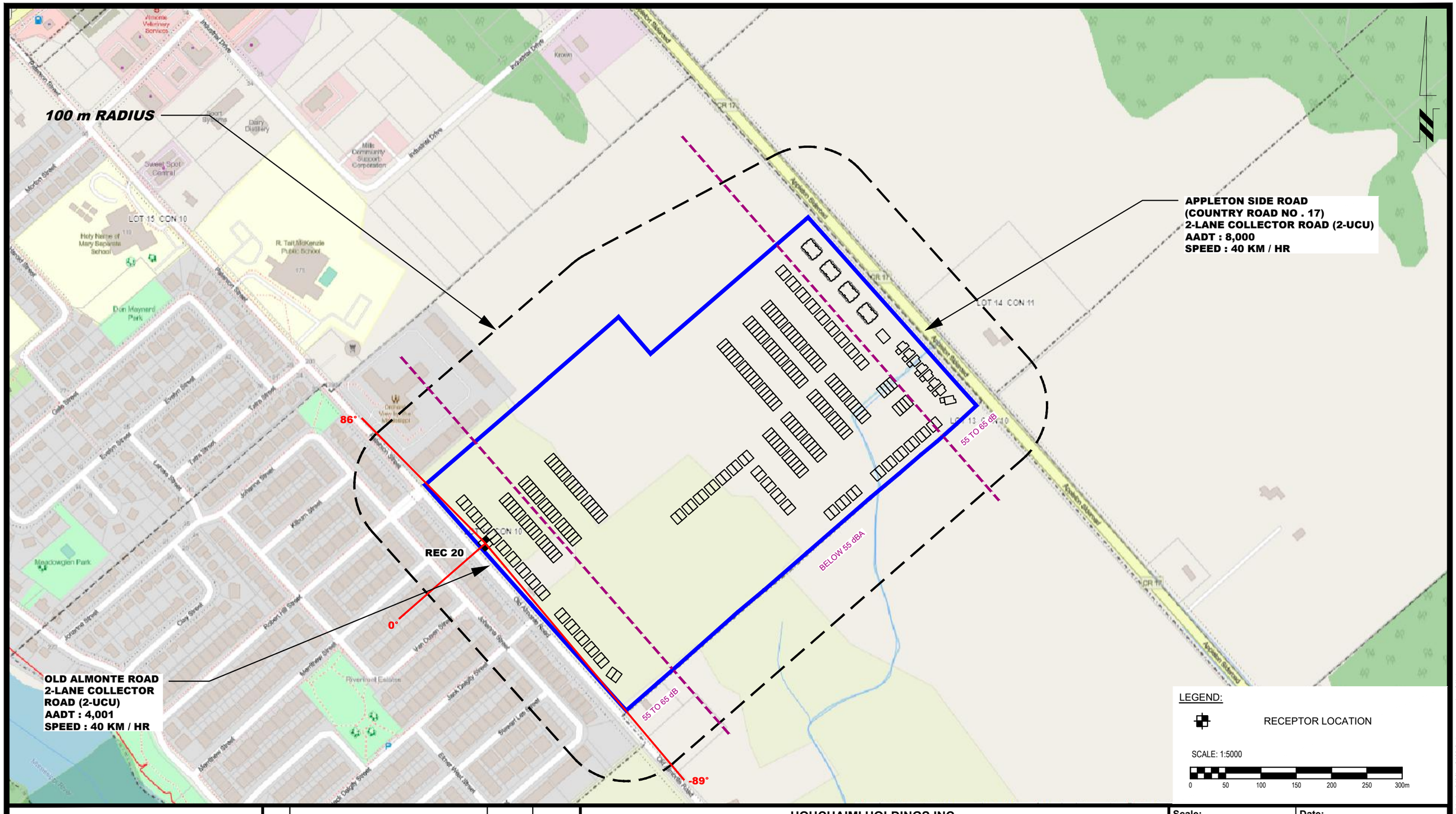

PATERSON GROUP
9 AURIGA DRIVE
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K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL
1	UPDATED ROAD CLASSIFICATION INFORMATION	06/12/2022	YT

HOUCHAIMI HOLDINGS INC.

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
MILL VALLEY ESTATES

ALMONTE, ONTARIO

Title:

SITE GEOMETRY - REC 20

Scale: 1:5000	Date: 11/2022
Drawn by: YA	Report No.: PG6496-1
Checked by: YT	Dwg. No.: PG6496-3T
Approved by: SB	Revision No.: 1

11x17

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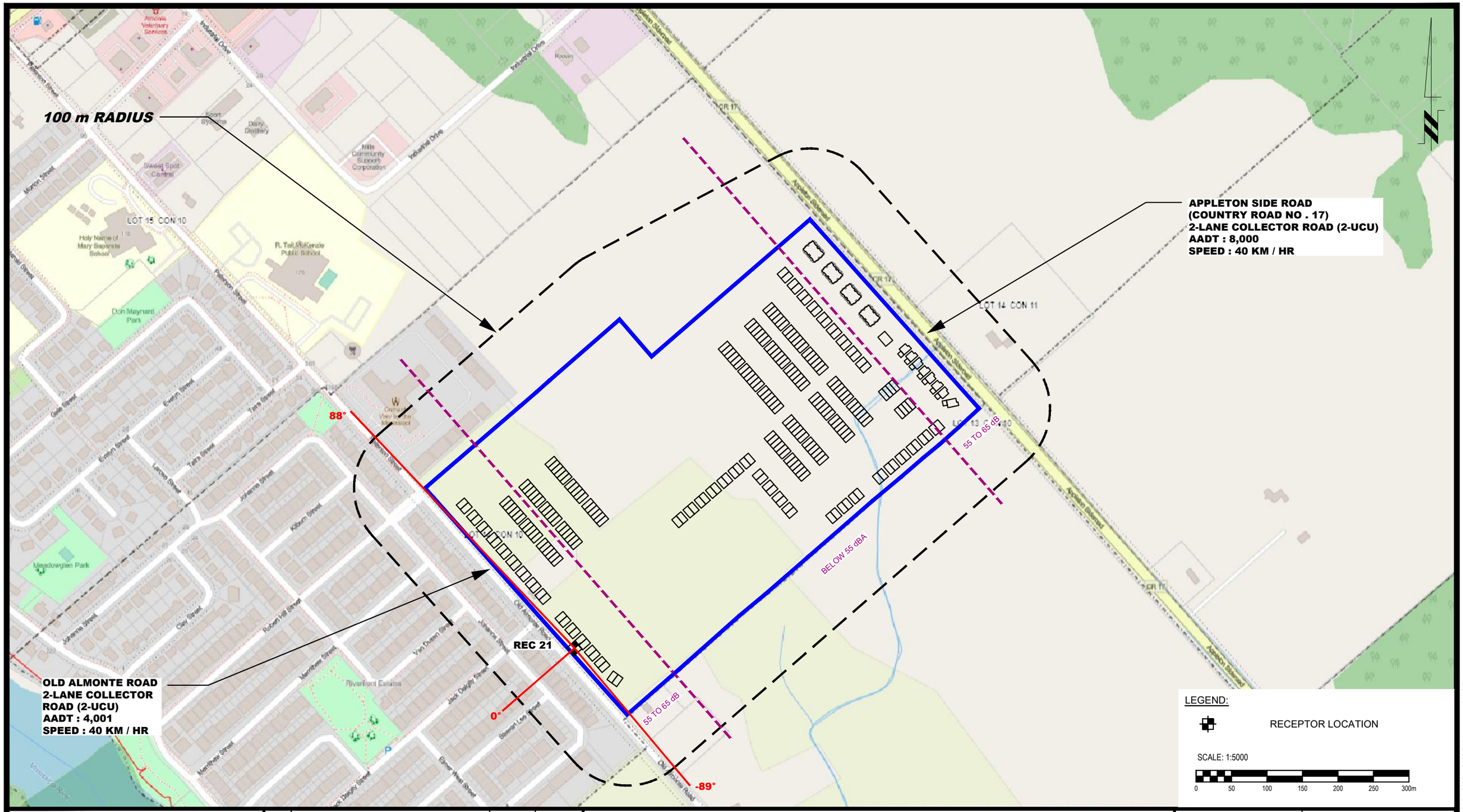

PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL
1	UPDATED ROAD CLASSIFICATION INFORMATION	06/12/2022	YT

HOUCHAIMI HOLDINGS INC.

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
MILL VALLEY ESTATES

ALMONTE, ONTARIO

Title:

SITE GEOMETRY - REC 21

Scale: 1:5000	Date: 11/2022
Drawn by: YA	Report No.: PG6496-1
Checked by: YT	Dwg. No.: PG6496-3U
Approved by: SB	Revision No.: 1

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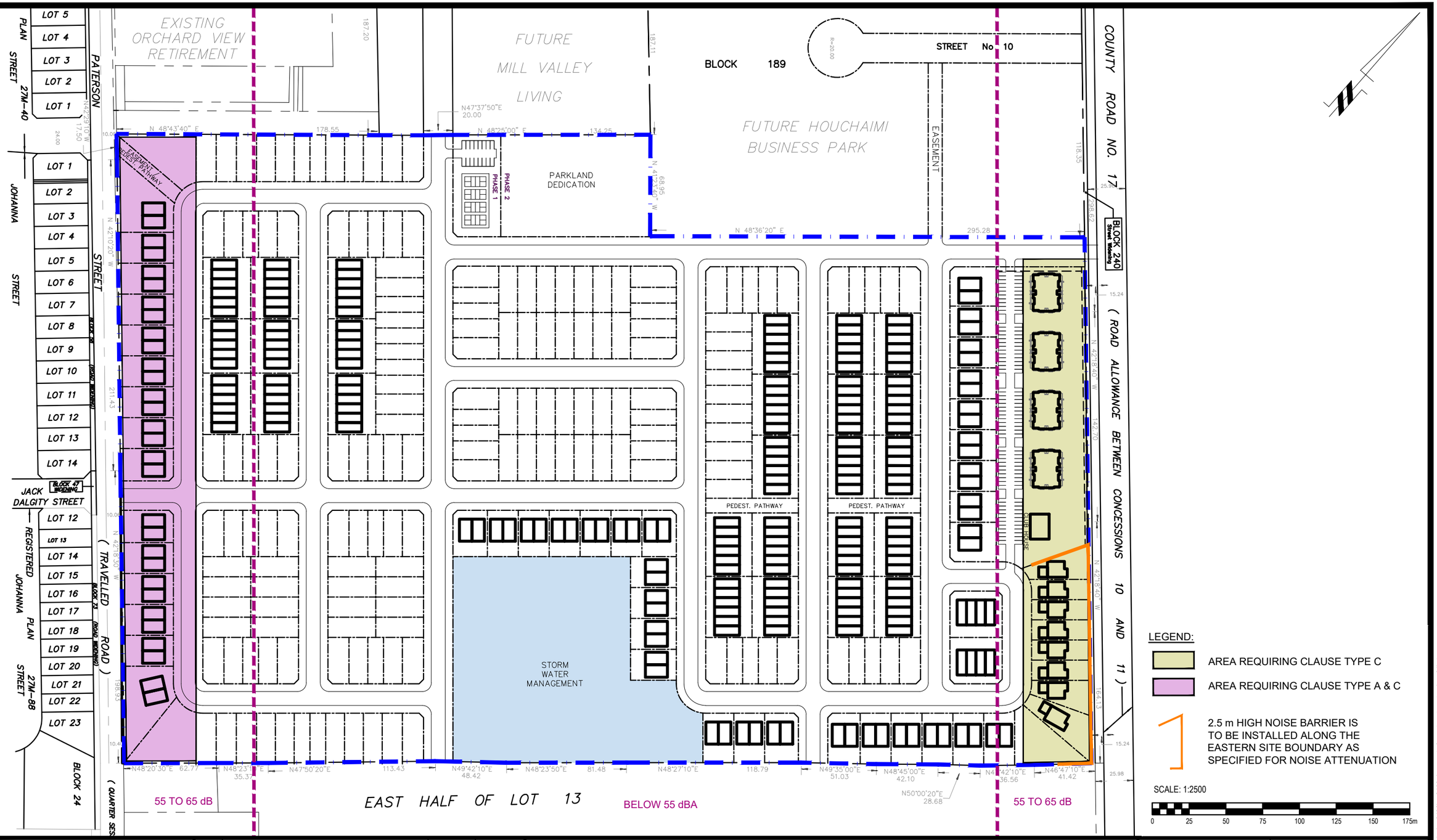
11x17



PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL
1	UPODATED ROAD CLASSIFICATION INFORMATION	06/12/2022	YT

HOUCHAIMI HOLDINGS INC.

NOISE ATTENUATION STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
MILL VALLEY ESTATES

ALMONTE, ONTARIO

Title:

NOISE ATTENUATION FEATURES

Scale: 1:2500	Date: 11/2022
Drawn by: YA	Report No.: PG6496-1
Checked by: YT	Dwg. No.: PG6496-4
Approved by: SB	Revision No.: 1

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11x17

APPENDIX 2

STAMSON RESULTS

STAMSON 5.0 NORMAL REPORT Date: 18-11-2022 14:25:05
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec11.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 1-1

Road data, segment # 1: AppletonSide (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 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): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: AppletonSide (day/night)

Angle1 Angle2 : -83.00 deg 85.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.00 / 25.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: AppletonSide (day)

Source height = 1.50 m

ROAD (0.00 + 58.76 + 0.00) = 58.76 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-83	85	0.66	63.96	0.00	-3.68	-1.51	0.00	0.00	0.00	58.76

Segment Leq : 58.76 dBA

Total Leq All Segments: 58.76 dBA

↟
Results segment # 1: AppletonSide (night)

Source height = 1.50 m

ROAD (0.00 + 51.17 + 0.00) = 51.17 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-83	85	0.66	56.36	0.00	-3.68	-1.51	0.00	0.00	0.00	51.17

Segment Leq : 51.17 dBA

Total Leq All Segments: 51.17 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 58.76
(NIGHT): 51.17
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 18-11-2022 14:26:54
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec13.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 1-3

Road data, segment # 1: AppletonSide (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 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): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: AppletonSide (day/night)

Angle1 Angle2 : -83.00 deg 85.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.00 / 25.00 m
Receiver height : 8.50 / 8.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: AppletonSide (day)

Source height = 1.50 m

ROAD (0.00 + 59.56 + 0.00) = 59.56 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-83	85	0.45	63.96	0.00	-3.22	-1.18	0.00	0.00	0.00	59.56

Segment Leq : 59.56 dBA

Total Leq All Segments: 59.56 dBA

↟
Results segment # 1: AppletonSide (night)

Source height = 1.50 m

ROAD (0.00 + 51.97 + 0.00) = 51.97 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-83	85	0.45	56.36	0.00	-3.22	-1.18	0.00	0.00	0.00	51.97

Segment Leq : 51.97 dBA

Total Leq All Segments: 51.97 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 59.56
(NIGHT): 51.97
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 18-11-2022 14:30:38
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec21.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 2-1

Road data, segment # 1: AppletonSide (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 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): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: AppletonSide (day/night)

Angle1 Angle2 : -74.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 35.00 / 35.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: AppletonSide (day)

Source height = 1.50 m

ROAD (0.00 + 53.09 + 0.00) = 53.09 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-74	0	0.66	63.96	0.00	-6.11	-4.76	0.00	0.00	0.00	53.09

Segment Leq : 53.09 dBA

Total Leq All Segments: 53.09 dBA

↟
Results segment # 1: AppletonSide (night)

Source height = 1.50 m

ROAD (0.00 + 45.50 + 0.00) = 45.50 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-74	0	0.66	56.36	0.00	-6.11	-4.76	0.00	0.00	0.00	45.50

Segment Leq : 45.50 dBA

Total Leq All Segments: 45.50 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 53.09
(NIGHT): 45.50
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 18-11-2022 14:31:26
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec23.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 2-3

Road data, segment # 1: AppletonSide (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 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): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: AppletonSide (day/night)

Angle1 Angle2 : -74.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 35.00 / 35.00 m
Receiver height : 8.50 / 8.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: AppletonSide (day)

Source height = 1.50 m

ROAD (0.00 + 54.13 + 0.00) = 54.13 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-74	0	0.45	63.96	0.00	-5.34	-4.49	0.00	0.00	0.00	54.13

Segment Leq : 54.13 dBA

Total Leq All Segments: 54.13 dBA

↟
Results segment # 1: AppletonSide (night)

Source height = 1.50 m

ROAD (0.00 + 46.53 + 0.00) = 46.53 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-74	0	0.45	56.36	0.00	-5.34	-4.49	0.00	0.00	0.00	46.53

Segment Leq : 46.53 dBA

Total Leq All Segments: 46.53 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 54.13
(NIGHT): 46.53
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 18-11-2022 14:48:07
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec31.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 3-1

Road data, segment # 1: AppletonSide (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 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): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: AppletonSide (day/night)

Angle1 Angle2 : 0.00 deg 82.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 35.00 / 35.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: AppletonSide (day)

Source height = 1.50 m

ROAD (0.00 + 53.29 + 0.00) = 53.29 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	82	0.66	63.96	0.00	-6.11	-4.56	0.00	0.00	0.00	53.29

Segment Leq : 53.29 dBA

Total Leq All Segments: 53.29 dBA

↟
Results segment # 1: AppletonSide (night)

Source height = 1.50 m

ROAD (0.00 + 45.70 + 0.00) = 45.70 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	82	0.66	56.36	0.00	-6.11	-4.56	0.00	0.00	0.00	45.70

Segment Leq : 45.70 dBA

Total Leq All Segments: 45.70 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 53.29
(NIGHT): 45.70

↟
↟

STAMSON 5.0 NORMAL REPORT Date: 18-11-2022 14:47:06
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec33.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 3-3

Road data, segment # 1: AppletonSide (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 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): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: AppletonSide (day/night)

Angle1 Angle2 : 0.00 deg 82.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 35.00 / 35.00 m
Receiver height : 8.50 / 8.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: AppletonSide (day)

Source height = 1.50 m

ROAD (0.00 + 54.38 + 0.00) = 54.38 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	82	0.45	63.96	0.00	-5.34	-4.23	0.00	0.00	0.00	54.38

Segment Leq : 54.38 dBA

Total Leq All Segments: 54.38 dBA

↟
Results segment # 1: AppletonSide (night)

Source height = 1.50 m

ROAD (0.00 + 46.79 + 0.00) = 46.79 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	82	0.45	56.36	0.00	-5.34	-4.23	0.00	0.00	0.00	46.79

Segment Leq : 46.79 dBA

Total Leq All Segments: 46.79 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 54.38
(NIGHT): 46.79
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 18-11-2022 14:51:16
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec41.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 4-1

Road data, segment # 1: AppletonSide (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 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): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: AppletonSide (day/night)

Angle1 Angle2 : -87.00 deg 81.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.00 / 25.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: AppletonSide (day)

Source height = 1.50 m

ROAD (0.00 + 58.75 + 0.00) = 58.75 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-87	81	0.66	63.96	0.00	-3.68	-1.52	0.00	0.00	0.00	58.75

Segment Leq : 58.75 dBA

Total Leq All Segments: 58.75 dBA

↟
Results segment # 1: AppletonSide (night)

Source height = 1.50 m

ROAD (0.00 + 51.16 + 0.00) = 51.16 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-87	81	0.66	56.36	0.00	-3.68	-1.52	0.00	0.00	0.00	51.16

Segment Leq : 51.16 dBA

Total Leq All Segments: 51.16 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 58.75
(NIGHT): 51.16
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 18-11-2022 14:54:27
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec42.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 4-2

Road data, segment # 1: AppletonSide (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 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): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: AppletonSide (day/night)

Angle1 Angle2 : -87.00 deg 81.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.00 / 25.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: AppletonSide (day)

Source height = 1.50 m

ROAD (0.00 + 59.09 + 0.00) = 59.09 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-87	81	0.57	63.96	0.00	-3.48	-1.38	0.00	0.00	0.00	59.09

Segment Leq : 59.09 dBA

Total Leq All Segments: 59.09 dBA

↟
Results segment # 1: AppletonSide (night)

Source height = 1.50 m

ROAD (0.00 + 51.50 + 0.00) = 51.50 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-87	81	0.57	56.36	0.00	-3.48	-1.38	0.00	0.00	0.00	51.50

Segment Leq : 51.50 dBA

Total Leq All Segments: 51.50 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 59.09
(NIGHT): 51.50
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 18-11-2022 15:01:45
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec51.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 5-1

Road data, segment # 1: AppletonSide (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 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): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: AppletonSide (day/night)

Angle1 Angle2 : -85.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 30.00 / 30.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑
Results segment # 1: AppletonSide (day)

Source height = 1.50 m

ROAD (0.00 + 54.45 + 0.00) = 54.45 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-85	0	0.66	63.96	0.00	-5.00	-4.51	0.00	0.00	0.00	54.45

Segment Leq : 54.45 dBA

Total Leq All Segments: 54.45 dBA

↟
Results segment # 1: AppletonSide (night)

Source height = 1.50 m

ROAD (0.00 + 46.86 + 0.00) = 46.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-85	0	0.66	56.36	0.00	-5.00	-4.51	0.00	0.00	0.00	46.86

Segment Leq : 46.86 dBA

Total Leq All Segments: 46.86 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 54.45
(NIGHT): 46.86
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 18-11-2022 15:03:55
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec52.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 5-2

Road data, segment # 1: AppletonSide (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 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): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: AppletonSide (day/night)

Angle1 Angle2 : -85.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 30.00 / 30.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: AppletonSide (day)

Source height = 1.50 m

ROAD (0.00 + 54.86 + 0.00) = 54.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-85	0	0.57	63.96	0.00	-4.73	-4.37	0.00	0.00	0.00	54.86

Segment Leq : 54.86 dBA

Total Leq All Segments: 54.86 dBA

↟
Results segment # 1: AppletonSide (night)

Source height = 1.50 m

ROAD (0.00 + 47.27 + 0.00) = 47.27 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-85	0	0.57	56.36	0.00	-4.73	-4.37	0.00	0.00	0.00	47.27

Segment Leq : 47.27 dBA

Total Leq All Segments: 47.27 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 54.86
(NIGHT): 47.27
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 18-11-2022 15:17:32
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec61.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 6-1

Road data, segment # 1: AppletonSide (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 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): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: AppletonSide (day/night)

Angle1 Angle2 : 0.00 deg 44.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 30.00 / 30.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: AppletonSide (day)

Source height = 1.50 m

ROAD (0.00 + 52.55 + 0.00) = 52.55 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	44	0.66	63.96	0.00	-5.00	-6.41	0.00	0.00	0.00	52.55

Segment Leq : 52.55 dBA

Total Leq All Segments: 52.55 dBA

↟
Results segment # 1: AppletonSide (night)

Source height = 1.50 m

ROAD (0.00 + 44.96 + 0.00) = 44.96 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	44	0.66	56.36	0.00	-5.00	-6.41	0.00	0.00	0.00	44.96

Segment Leq : 44.96 dBA

Total Leq All Segments: 44.96 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 52.55
(NIGHT): 44.96
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 18-11-2022 15:18:07
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec62.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 6-2

Road data, segment # 1: AppletonSide (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 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): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: AppletonSide (day/night)

Angle1 Angle2 : 0.00 deg 44.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 30.00 / 30.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑
Results segment # 1: AppletonSide (day)

Source height = 1.50 m

ROAD (0.00 + 52.86 + 0.00) = 52.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	44	0.57	63.96	0.00	-4.73	-6.37	0.00	0.00	0.00	52.86

Segment Leq : 52.86 dBA

Total Leq All Segments: 52.86 dBA

↟
Results segment # 1: AppletonSide (night)

Source height = 1.50 m

ROAD (0.00 + 45.26 + 0.00) = 45.26 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	44	0.57	56.36	0.00	-4.73	-6.37	0.00	0.00	0.00	45.26

Segment Leq : 45.26 dBA

Total Leq All Segments: 45.26 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 52.86
(NIGHT): 45.26
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 18-11-2022 15:37:36
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec71.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 7-1

Road data, segment # 1: AppletonSide (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 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): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: AppletonSide (day/night)

Angle1 Angle2 : -6.00 deg 59.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 60.00 / 60.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑
Results segment # 1: AppletonSide (day)

Source height = 1.50 m

ROAD (0.00 + 49.05 + 0.00) = 49.05 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-6	59	0.66	63.96	0.00	-9.99	-4.91	0.00	0.00	0.00	49.05

Segment Leq : 49.05 dBA

Total Leq All Segments: 49.05 dBA

↟
Results segment # 1: AppletonSide (night)

Source height = 1.50 m

ROAD (0.00 + 41.46 + 0.00) = 41.46 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-6	59	0.66	56.36	0.00	-9.99	-4.91	0.00	0.00	0.00	41.46

Segment Leq : 41.46 dBA

Total Leq All Segments: 41.46 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 49.05
(NIGHT): 41.46
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 18-11-2022 15:38:55
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec72.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 7-2

Road data, segment # 1: AppletonSide (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 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): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: AppletonSide (day/night)

Angle1 Angle2 : -6.00 deg 59.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 60.00 / 60.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: AppletonSide (day)

Source height = 1.50 m

ROAD (0.00 + 49.65 + 0.00) = 49.65 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-6	59	0.57	63.96	0.00	-9.45	-4.85	0.00	0.00	0.00	49.65

Segment Leq : 49.65 dBA

Total Leq All Segments: 49.65 dBA

↟
Results segment # 1: AppletonSide (night)

Source height = 1.50 m

ROAD (0.00 + 42.06 + 0.00) = 42.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-6	59	0.57	56.36	0.00	-9.45	-4.85	0.00	0.00	0.00	42.06

Segment Leq : 42.06 dBA

Total Leq All Segments: 42.06 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 49.65
(NIGHT): 42.06
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-12-2022 16:05:59
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec81.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 8-1

Road data, segment # 1: Old Almonte (day/night)

Car traffic volume : 3239/282 veh/TimePeriod *
Medium truck volume : 258/22 veh/TimePeriod *
Heavy truck volume : 184/16 veh/TimePeriod *
Posted speed limit : 40 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): 4001
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Old Almonte (day/night)

Angle1 Angle2 : -87.00 deg 83.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.00 / 25.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Old Almonte (day)

Source height = 1.50 m

ROAD (0.00 + 55.76 + 0.00) = 55.76 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-87	83	0.66	60.95	0.00	-3.68	-1.50	0.00	0.00	0.00	55.76

Segment Leq : 55.76 dBA

Total Leq All Segments: 55.76 dBA

↟
Results segment # 1: Old Almonte (night)

Source height = 1.50 m

ROAD (0.00 + 48.15 + 0.00) = 48.15 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-87	83	0.66	53.34	0.00	-3.68	-1.50	0.00	0.00	0.00	48.15

Segment Leq : 48.15 dBA

Total Leq All Segments: 48.15 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 55.76
(NIGHT): 48.15

↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-12-2022 16:07:43
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec82.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 8-2

Road data, segment # 1: Old Almonte (day/night)

Car traffic volume : 3239/282 veh/TimePeriod *
Medium truck volume : 258/22 veh/TimePeriod *
Heavy truck volume : 184/16 veh/TimePeriod *
Posted speed limit : 40 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): 4001
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Old Almonte (day/night)

Angle1 Angle2 : -87.00 deg 83.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.00 / 25.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑
Results segment # 1: Old Almonte (day)

Source height = 1.50 m

ROAD (0.00 + 56.10 + 0.00) = 56.10 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-87	83	0.57	60.95	0.00	-3.48	-1.36	0.00	0.00	0.00	56.10

Segment Leq : 56.10 dBA

Total Leq All Segments: 56.10 dBA

↟
Results segment # 1: Old Almonte (night)

Source height = 1.50 m

ROAD (0.00 + 48.49 + 0.00) = 48.49 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-87	83	0.57	53.34	0.00	-3.48	-1.36	0.00	0.00	0.00	48.49

Segment Leq : 48.49 dBA

Total Leq All Segments: 48.49 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 56.10
(NIGHT): 48.49

↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-12-2022 16:10:40
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec91.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 9-1

Road data, segment # 1: Old Almonte (day/night)

Car traffic volume : 3239/282 veh/TimePeriod *
Medium truck volume : 258/22 veh/TimePeriod *
Heavy truck volume : 184/16 veh/TimePeriod *
Posted speed limit : 40 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): 4001
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Old Almonte (day/night)

Angle1 Angle2 : 0.00 deg 79.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 30.00 / 30.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Old Almonte (day)

Source height = 1.50 m

ROAD (0.00 + 51.33 + 0.00) = 51.33 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	79	0.66	60.95	0.00	-5.00	-4.62	0.00	0.00	0.00	51.33

Segment Leq : 51.33 dBA

Total Leq All Segments: 51.33 dBA

↟
Results segment # 1: Old Almonte (night)

Source height = 1.50 m

ROAD (0.00 + 43.72 + 0.00) = 43.72 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	79	0.66	53.34	0.00	-5.00	-4.62	0.00	0.00	0.00	43.72

Segment Leq : 43.72 dBA

Total Leq All Segments: 43.72 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 51.33
(NIGHT): 43.72
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-12-2022 16:12:29
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec92.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 9-2

Road data, segment # 1: Old Almonte (day/night)

Car traffic volume : 3239/282 veh/TimePeriod *
Medium truck volume : 258/22 veh/TimePeriod *
Heavy truck volume : 184/16 veh/TimePeriod *
Posted speed limit : 40 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): 4001
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Old Almonte (day/night)

Angle1 Angle2 : 0.00 deg 79.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 30.00 / 30.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Old Almonte (day)

Source height = 1.50 m

ROAD (0.00 + 51.72 + 0.00) = 51.72 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	79	0.57	60.95	0.00	-4.73	-4.50	0.00	0.00	0.00	51.72

Segment Leq : 51.72 dBA

Total Leq All Segments: 51.72 dBA

↟
Results segment # 1: Old Almonte (night)

Source height = 1.50 m

ROAD (0.00 + 44.11 + 0.00) = 44.11 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	79	0.57	53.34	0.00	-4.73	-4.50	0.00	0.00	0.00	44.11

Segment Leq : 44.11 dBA

Total Leq All Segments: 44.11 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 51.72
(NIGHT): 44.11
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-12-2022 16:13:56
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec101.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 10-1

Road data, segment # 1: Old Almonte (day/night)

Car traffic volume : 3239/282 veh/TimePeriod *
Medium truck volume : 258/22 veh/TimePeriod *
Heavy truck volume : 184/16 veh/TimePeriod *
Posted speed limit : 40 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): 4001
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Old Almonte (day/night)

Angle1 Angle2 : -85.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 30.00 / 30.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Old Almonte (day)

Source height = 1.50 m

ROAD (0.00 + 51.44 + 0.00) = 51.44 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-85	0	0.66	60.95	0.00	-5.00	-4.51	0.00	0.00	0.00	51.44

Segment Leq : 51.44 dBA

Total Leq All Segments: 51.44 dBA

↟
Results segment # 1: Old Almonte (night)

Source height = 1.50 m

ROAD (0.00 + 43.83 + 0.00) = 43.83 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-85	0	0.66	53.34	0.00	-5.00	-4.51	0.00	0.00	0.00	43.83

Segment Leq : 43.83 dBA

Total Leq All Segments: 43.83 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 51.44
(NIGHT): 43.83
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-12-2022 16:15:41
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec102.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 10-2

Road data, segment # 1: Old Almonte (day/night)

Car traffic volume : 3239/282 veh/TimePeriod *
Medium truck volume : 258/22 veh/TimePeriod *
Heavy truck volume : 184/16 veh/TimePeriod *
Posted speed limit : 40 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): 4001
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Old Almonte (day/night)

Angle1 Angle2 : -85.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 30.00 / 30.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Old Almonte (day)

Source height = 1.50 m

ROAD (0.00 + 51.85 + 0.00) = 51.85 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-85	0	0.57	60.95	0.00	-4.73	-4.37	0.00	0.00	0.00	51.85

Segment Leq : 51.85 dBA

Total Leq All Segments: 51.85 dBA

↟
Results segment # 1: Old Almonte (night)

Source height = 1.50 m

ROAD (0.00 + 44.24 + 0.00) = 44.24 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-85	0	0.57	53.34	0.00	-4.73	-4.37	0.00	0.00	0.00	44.24

Segment Leq : 44.24 dBA

Total Leq All Segments: 44.24 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 51.85
(NIGHT): 44.24
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-12-2022 16:17:24
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec111.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 11-1

Road data, segment # 1: Old Almonte (day/night)

Car traffic volume : 3239/282 veh/TimePeriod *
Medium truck volume : 258/22 veh/TimePeriod *
Heavy truck volume : 184/16 veh/TimePeriod *
Posted speed limit : 40 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): 4001
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Old Almonte (day/night)

Angle1 Angle2 : -86.00 deg 87.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.00 / 25.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Old Almonte (day)

Source height = 1.50 m

ROAD (0.00 + 55.78 + 0.00) = 55.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-86	87	0.66	60.95	0.00	-3.68	-1.48	0.00	0.00	0.00	55.78

Segment Leq : 55.78 dBA

Total Leq All Segments: 55.78 dBA

↟
Results segment # 1: Old Almonte (night)

Source height = 1.50 m

ROAD (0.00 + 48.17 + 0.00) = 48.17 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-86	87	0.66	53.34	0.00	-3.68	-1.48	0.00	0.00	0.00	48.17

Segment Leq : 48.17 dBA

Total Leq All Segments: 48.17 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 55.78
(NIGHT): 48.17
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-12-2022 16:19:01
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec112.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 11-2

Road data, segment # 1: Old Almonte (day/night)

Car traffic volume : 3239/282 veh/TimePeriod *
Medium truck volume : 258/22 veh/TimePeriod *
Heavy truck volume : 184/16 veh/TimePeriod *
Posted speed limit : 40 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): 4001
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Old Almonte (day/night)

Angle1 Angle2 : -86.00 deg 87.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 25.00 / 25.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Old Almonte (day)

Source height = 1.50 m

ROAD (0.00 + 56.13 + 0.00) = 56.13 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-86	87	0.57	60.95	0.00	-3.48	-1.33	0.00	0.00	0.00	56.13

Segment Leq : 56.13 dBA

Total Leq All Segments: 56.13 dBA

↟
Results segment # 1: Old Almonte (night)

Source height = 1.50 m

ROAD (0.00 + 48.52 + 0.00) = 48.52 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-86	87	0.57	53.34	0.00	-3.48	-1.33	0.00	0.00	0.00	48.52

Segment Leq : 48.52 dBA

Total Leq All Segments: 48.52 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 56.13
(NIGHT): 48.52
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-12-2022 16:21:12
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec121.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 12-1

Road data, segment # 1: Old Almonte (day/night)

Car traffic volume : 3239/282 veh/TimePeriod *
Medium truck volume : 258/22 veh/TimePeriod *
Heavy truck volume : 184/16 veh/TimePeriod *
Posted speed limit : 40 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): 4001
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Old Almonte (day/night)

Angle1 Angle2 : -69.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 30.00 / 30.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Old Almonte (day)

Source height = 1.50 m

ROAD (0.00 + 51.02 + 0.00) = 51.02 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-69	0	0.66	60.95	0.00	-5.00	-4.93	0.00	0.00	0.00	51.02

Segment Leq : 51.02 dBA

Total Leq All Segments: 51.02 dBA

↟
Results segment # 1: Old Almonte (night)

Source height = 1.50 m

ROAD (0.00 + 43.41 + 0.00) = 43.41 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-69	0	0.66	53.34	0.00	-5.00	-4.93	0.00	0.00	0.00	43.41

Segment Leq : 43.41 dBA

Total Leq All Segments: 43.41 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 51.02
(NIGHT): 43.41
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-12-2022 16:22:43
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec122.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 12-2

Road data, segment # 1: Old Almonte (day/night)

Car traffic volume : 3239/282 veh/TimePeriod *
Medium truck volume : 258/22 veh/TimePeriod *
Heavy truck volume : 184/16 veh/TimePeriod *
Posted speed limit : 40 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): 4001
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Old Almonte (day/night)

Angle1 Angle2 : -69.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 30.00 / 30.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Old Almonte (day)

Source height = 1.50 m

ROAD (0.00 + 51.39 + 0.00) = 51.39 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-69	0	0.57	60.95	0.00	-4.73	-4.83	0.00	0.00	0.00	51.39

Segment Leq : 51.39 dBA

Total Leq All Segments: 51.39 dBA

↟
Results segment # 1: Old Almonte (night)

Source height = 1.50 m

ROAD (0.00 + 43.78 + 0.00) = 43.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-69	0	0.57	53.34	0.00	-4.73	-4.83	0.00	0.00	0.00	43.78

Segment Leq : 43.78 dBA

Total Leq All Segments: 43.78 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 51.39
(NIGHT): 43.78
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-12-2022 16:24:32
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec131.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 13-1

Road data, segment # 1: Old Almonte (day/night)

Car traffic volume : 3239/282 veh/TimePeriod *
Medium truck volume : 258/22 veh/TimePeriod *
Heavy truck volume : 184/16 veh/TimePeriod *
Posted speed limit : 40 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): 4001
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Old Almonte (day/night)

Angle1 Angle2 : -58.00 deg 68.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive 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: Old Almonte (day)

Source height = 1.50 m

ROAD (0.00 + 51.69 + 0.00) = 51.69 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-58	68	0.66	60.95	0.00	-7.07	-2.19	0.00	0.00	0.00	51.69

Segment Leq : 51.69 dBA

Total Leq All Segments: 51.69 dBA

↟
Results segment # 1: Old Almonte (night)

Source height = 1.50 m

ROAD (0.00 + 44.08 + 0.00) = 44.08 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-58	68	0.66	53.34	0.00	-7.07	-2.19	0.00	0.00	0.00	44.08

Segment Leq : 44.08 dBA

Total Leq All Segments: 44.08 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 51.69
(NIGHT): 44.08
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-12-2022 16:26:17
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec132.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 13-2

Road data, segment # 1: Old Almonte (day/night)

Car traffic volume : 3239/282 veh/TimePeriod *
Medium truck volume : 258/22 veh/TimePeriod *
Heavy truck volume : 184/16 veh/TimePeriod *
Posted speed limit : 40 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): 4001
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Old Almonte (day/night)

Angle1 Angle2 : -58.00 deg 68.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 40.00 / 40.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Old Almonte (day)

Source height = 1.50 m

ROAD (0.00 + 52.15 + 0.00) = 52.15 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-58	68	0.57	60.95	0.00	-6.69	-2.11	0.00	0.00	0.00	52.15

Segment Leq : 52.15 dBA

Total Leq All Segments: 52.15 dBA

↟
Results segment # 1: Old Almonte (night)

Source height = 1.50 m

ROAD (0.00 + 44.54 + 0.00) = 44.54 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-58	68	0.57	53.34	0.00	-6.69	-2.11	0.00	0.00	0.00	44.54

Segment Leq : 44.54 dBA

Total Leq All Segments: 44.54 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 52.15
(NIGHT): 44.54
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-12-2022 16:27:59
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec141.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 14-1

Road data, segment # 1: Old Almonte (day/night)

Car traffic volume : 3239/282 veh/TimePeriod *
Medium truck volume : 258/22 veh/TimePeriod *
Heavy truck volume : 184/16 veh/TimePeriod *
Posted speed limit : 40 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): 4001
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Old Almonte (day/night)

Angle1 Angle2 : 0.00 deg 62.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive 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

Results segment # 1: Old Almonte (day)

Source height = 1.50 m

ROAD (0.00 + 47.79 + 0.00) = 47.79 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	62	0.66	60.95	0.00	-7.92	-5.23	0.00	0.00	0.00	47.79

Segment Leq : 47.79 dBA

Total Leq All Segments: 47.79 dBA

↟
Results segment # 1: Old Almonte (night)

Source height = 1.50 m

ROAD (0.00 + 40.18 + 0.00) = 40.18 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	62	0.66	53.34	0.00	-7.92	-5.23	0.00	0.00	0.00	40.18

Segment Leq : 40.18 dBA

Total Leq All Segments: 40.18 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 47.79
(NIGHT): 40.18
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-12-2022 16:29:12
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec142.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 14-2

Road data, segment # 1: Old Almonte (day/night)

Car traffic volume : 3239/282 veh/TimePeriod *
Medium truck volume : 258/22 veh/TimePeriod *
Heavy truck volume : 184/16 veh/TimePeriod *
Posted speed limit : 40 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): 4001
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Old Almonte (day/night)

Angle1 Angle2 : 0.00 deg 62.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 45.00 / 45.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Old Almonte (day)

Source height = 1.50 m

ROAD (0.00 + 48.30 + 0.00) = 48.30 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	62	0.57	60.95	0.00	-7.49	-5.15	0.00	0.00	0.00	48.30

Segment Leq : 48.30 dBA

Total Leq All Segments: 48.30 dBA

↟
Results segment # 1: Old Almonte (night)

Source height = 1.50 m

ROAD (0.00 + 40.69 + 0.00) = 40.69 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	62	0.57	53.34	0.00	-7.49	-5.15	0.00	0.00	0.00	40.69

Segment Leq : 40.69 dBA

Total Leq All Segments: 40.69 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 48.30
(NIGHT): 40.69
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-12-2022 16:30:41
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec151.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 15-1

Road data, segment # 1: Old Almonte (day/night)

Car traffic volume : 3239/282 veh/TimePeriod *
Medium truck volume : 258/22 veh/TimePeriod *
Heavy truck volume : 184/16 veh/TimePeriod *
Posted speed limit : 40 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): 4001
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Old Almonte (day/night)

Angle1 Angle2 : -76.00 deg 53.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive 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: Old Almonte (day)

Source height = 1.50 m

ROAD (0.00 + 51.70 + 0.00) = 51.70 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-76	53	0.66	60.95	0.00	-7.07	-2.18	0.00	0.00	0.00	51.70

Segment Leq : 51.70 dBA

Total Leq All Segments: 51.70 dBA

↟
Results segment # 1: Old Almonte (night)

Source height = 1.50 m

ROAD (0.00 + 44.09 + 0.00) = 44.09 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-76	53	0.66	53.34	0.00	-7.07	-2.18	0.00	0.00	0.00	44.09

Segment Leq : 44.09 dBA

Total Leq All Segments: 44.09 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 51.70
(NIGHT): 44.09
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-12-2022 16:31:27
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec152.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 15-2

Road data, segment # 1: Old Almonte (day/night)

Car traffic volume : 3239/282 veh/TimePeriod *
Medium truck volume : 258/22 veh/TimePeriod *
Heavy truck volume : 184/16 veh/TimePeriod *
Posted speed limit : 40 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): 4001
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Old Almonte (day/night)

Angle1 Angle2 : -76.00 deg 53.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 40.00 / 40.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Old Almonte (day)

Source height = 1.50 m

ROAD (0.00 + 52.17 + 0.00) = 52.17 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-76	53	0.57	60.95	0.00	-6.69	-2.09	0.00	0.00	0.00	52.17

Segment Leq : 52.17 dBA

Total Leq All Segments: 52.17 dBA

↟
Results segment # 1: Old Almonte (night)

Source height = 1.50 m

ROAD (0.00 + 44.56 + 0.00) = 44.56 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-76	53	0.57	53.34	0.00	-6.69	-2.09	0.00	0.00	0.00	44.56

Segment Leq : 44.56 dBA

Total Leq All Segments: 44.56 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 52.17
(NIGHT): 44.56
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-12-2022 16:33:02
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec161.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 16-1

Road data, segment # 1: Old Almonte (day/night)

Car traffic volume : 3239/282 veh/TimePeriod *
Medium truck volume : 258/22 veh/TimePeriod *
Heavy truck volume : 184/16 veh/TimePeriod *
Posted speed limit : 40 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): 4001
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Old Almonte (day/night)

Angle1 Angle2 : -68.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive 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

Results segment # 1: Old Almonte (day)

Source height = 1.50 m

ROAD (0.00 + 48.06 + 0.00) = 48.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-68	0	0.66	60.95	0.00	-7.92	-4.97	0.00	0.00	0.00	48.06

Segment Leq : 48.06 dBA

Total Leq All Segments: 48.06 dBA

↟
Results segment # 1: Old Almonte (night)

Source height = 1.50 m

ROAD (0.00 + 40.45 + 0.00) = 40.45 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-68	0	0.66	53.34	0.00	-7.92	-4.97	0.00	0.00	0.00	40.45

Segment Leq : 40.45 dBA

Total Leq All Segments: 40.45 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 48.06
(NIGHT): 40.45
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-12-2022 16:33:49
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec162.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 16-2

Road data, segment # 1: Old Almonte (day/night)

Car traffic volume : 3239/282 veh/TimePeriod *
Medium truck volume : 258/22 veh/TimePeriod *
Heavy truck volume : 184/16 veh/TimePeriod *
Posted speed limit : 40 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): 4001
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Old Almonte (day/night)

Angle1 Angle2 : -68.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 45.00 / 45.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Old Almonte (day)

Source height = 1.50 m

ROAD (0.00 + 48.58 + 0.00) = 48.58 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-68	0	0.57	60.95	0.00	-7.49	-4.87	0.00	0.00	0.00	48.58

Segment Leq : 48.58 dBA

Total Leq All Segments: 48.58 dBA

↟
Results segment # 1: Old Almonte (night)

Source height = 1.50 m

ROAD (0.00 + 40.97 + 0.00) = 40.97 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-68	0	0.57	53.34	0.00	-7.49	-4.87	0.00	0.00	0.00	40.97

Segment Leq : 40.97 dBA

Total Leq All Segments: 40.97 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 48.58
(NIGHT): 40.97
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-12-2022 16:38:22
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec171.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 17-1

Road data, segment # 1: Old Almonte (day/night)

Car traffic volume : 3239/282 veh/TimePeriod *
Medium truck volume : 258/22 veh/TimePeriod *
Heavy truck volume : 184/16 veh/TimePeriod *
Posted speed limit : 40 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): 4001
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Old Almonte (day/night)

Angle1 Angle2 : -81.00 deg 74.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 20 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 60.00 / 60.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Old Almonte (day)

Source height = 1.50 m

ROAD (0.00 + 48.40 + 0.00) = 48.40 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-81	74	0.66	60.95	0.00	-9.99	-1.65	0.00	-0.90	0.00	48.40

Segment Leq : 48.40 dBA

Total Leq All Segments: 48.40 dBA

↟
Results segment # 1: Old Almonte (night)

Source height = 1.50 m

ROAD (0.00 + 40.79 + 0.00) = 40.79 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-81	74	0.66	53.34	0.00	-9.99	-1.65	0.00	-0.90	0.00	40.79

Segment Leq : 40.79 dBA

Total Leq All Segments: 40.79 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 48.40
(NIGHT): 40.79

↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-12-2022 16:39:48
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec172.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 17-2

Road data, segment # 1: Old Almonte (day/night)

Car traffic volume : 3239/282 veh/TimePeriod *
Medium truck volume : 258/22 veh/TimePeriod *
Heavy truck volume : 184/16 veh/TimePeriod *
Posted speed limit : 40 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): 4001
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Old Almonte (day/night)

Angle1 Angle2 : -81.00 deg 74.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 20 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 60.00 / 60.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Old Almonte (day)

Source height = 1.50 m

ROAD (0.00 + 49.06 + 0.00) = 49.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-81	74	0.57	60.95	0.00	-9.45	-1.53	0.00	-0.90	0.00	49.06

Segment Leq : 49.06 dBA

Total Leq All Segments: 49.06 dBA

↟
Results segment # 1: Old Almonte (night)

Source height = 1.50 m

ROAD (0.00 + 41.45 + 0.00) = 41.45 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-81	74	0.57	53.34	0.00	-9.45	-1.53	0.00	-0.90	0.00	41.45

Segment Leq : 41.45 dBA

Total Leq All Segments: 41.45 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 49.06
(NIGHT): 41.45
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-12-2022 16:41:34
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec181.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 18-1

Road data, segment # 1: Old Almonte (day/night)

Car traffic volume : 3239/282 veh/TimePeriod *
Medium truck volume : 258/22 veh/TimePeriod *
Heavy truck volume : 184/16 veh/TimePeriod *
Posted speed limit : 40 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): 4001
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Old Almonte (day/night)

Angle1 Angle2 : -74.00 deg 80.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 20 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 60.00 / 60.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Old Almonte (day)

Source height = 1.50 m

ROAD (0.00 + 48.39 + 0.00) = 48.39 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-74	80	0.66	60.95	0.00	-9.99	-1.67	0.00	-0.90	0.00	48.39

Segment Leq : 48.39 dBA

Total Leq All Segments: 48.39 dBA

↟
Results segment # 1: Old Almonte (night)

Source height = 1.50 m

ROAD (0.00 + 40.78 + 0.00) = 40.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-74	80	0.66	53.34	0.00	-9.99	-1.67	0.00	-0.90	0.00	40.78

Segment Leq : 40.78 dBA

Total Leq All Segments: 40.78 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 48.39
(NIGHT): 40.78

↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-12-2022 16:42:43
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec182.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 18-2

Road data, segment # 1: Old Almonte (day/night)

Car traffic volume : 3239/282 veh/TimePeriod *
Medium truck volume : 258/22 veh/TimePeriod *
Heavy truck volume : 184/16 veh/TimePeriod *
Posted speed limit : 40 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): 4001
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Old Almonte (day/night)

Angle1 Angle2 : -74.00 deg 80.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 20 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 60.00 / 60.00 m
Receiver height : 4.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Old Almonte (day)

Source height = 1.50 m

ROAD (0.00 + 49.05 + 0.00) = 49.05 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-74	80	0.57	60.95	0.00	-9.45	-1.55	0.00	-0.90	0.00	49.05

Segment Leq : 49.05 dBA

Total Leq All Segments: 49.05 dBA

↟
Results segment # 1: Old Almonte (night)

Source height = 1.50 m

ROAD (0.00 + 41.44 + 0.00) = 41.44 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-74	80	0.57	53.34	0.00	-9.45	-1.55	0.00	-0.90	0.00	41.44

Segment Leq : 41.44 dBA

Total Leq All Segments: 41.44 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 49.05
(NIGHT): 41.44
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-12-2022 15:57:40
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec19.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 19

Road data, segment # 1: AppletonSide (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 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): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: AppletonSide (day/night)

Angle1 Angle2 : -88.00 deg 84.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 / 15.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: AppletonSide (day)

Source height = 1.50 m

ROAD (0.00 + 62.47 + 0.00) = 62.47 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-88	84	0.66	63.96	0.00	0.00	-1.49	0.00	0.00	0.00	62.47

Segment Leq : 62.47 dBA

Total Leq All Segments: 62.47 dBA

↟
Results segment # 1: AppletonSide (night)

Source height = 1.50 m

ROAD (0.00 + 54.87 + 0.00) = 54.87 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-88	84	0.66	56.36	0.00	0.00	-1.49	0.00	0.00	0.00	54.87

Segment Leq : 54.87 dBA

Total Leq All Segments: 54.87 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 62.47
(NIGHT): 54.87
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-12-2022 15:59:13
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec19tr.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 19tr

Road data, segment # 1: AppletonSide (day/night)

Car traffic volume : 6477/563 veh/TimePeriod *
Medium truck volume : 515/45 veh/TimePeriod *
Heavy truck volume : 368/32 veh/TimePeriod *
Posted speed limit : 40 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): 8000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: AppletonSide (day/night)

Angle1 Angle2 : -88.00 deg 84.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 / 15.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -88.00 deg Angle2 : 84.00 deg
Barrier height : 2.50 m
Barrier receiver distance : 10.00 / 10.00 m
Source elevation : 135.00 m
Receiver elevation : 135.00 m
Barrier elevation : 135.00 m
Reference angle : 0.00

Results segment # 1: AppletonSide (day)

Source height = 1.50 m

Barrier height for grazing incidence

```
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        1.50 !        1.50 !       136.50

ROAD (0.00 + 54.29 + 0.00) = 54.29 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -88     84   0.51  63.96   0.00   0.00  -1.24   0.00   0.00  -8.42  54.29
-------------------------------------------------------------------------------

Segment Leq : 54.29 dBA

Total Leq All Segments: 54.29 dBA

↟
Results segment # 1: AppletonSide (night)
-----------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        1.50 !        1.50 !       136.50

ROAD (0.00 + 46.70 + 0.00) = 46.70 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -88     84   0.51  56.36   0.00   0.00  -1.24   0.00   0.00  -8.42  46.70
-------------------------------------------------------------------------------

Segment Leq : 46.70 dBA

Total Leq All Segments: 46.70 dBA

↟



TOTAL Leq FROM ALL SOURCES (DAY): 54.29
                          (NIGHT): 46.70
↟
↟
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STAMSON 5.0 NORMAL REPORT Date: 02-12-2022 16:58:30
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec20.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 20

Road data, segment # 1: Old Almonte (day/night)

Car traffic volume : 3239/282 veh/TimePeriod *
Medium truck volume : 258/22 veh/TimePeriod *
Heavy truck volume : 184/16 veh/TimePeriod *
Posted speed limit : 40 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): 4001
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Old Almonte (day/night)

Angle1 Angle2 : -89.00 deg 86.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 / 15.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Old Almonte (day)

Source height = 1.50 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
-89	86	0.66	60.95	0.00	0.00	-1.47	0.00	0.00	0.00	59.47

Segment Leq : 59.47 dBA

Total Leq All Segments: 59.47 dBA

↟
Results segment # 1: Old Almonte (night)

Source height = 1.50 m

ROAD (0.00 + 51.86 + 0.00) = 51.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-89	86	0.66	53.34	0.00	0.00	-1.47	0.00	0.00	0.00	51.86

Segment Leq : 51.86 dBA

Total Leq All Segments: 51.86 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 59.47
(NIGHT): 51.86
↟
↟

STAMSON 5.0 NORMAL REPORT Date: 02-12-2022 17:01:03
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: rec21.te Time Period: Day/Night 16/8 hours
Description: Receptor Point 21

Road data, segment # 1: Old Almonte (day/night)

Car traffic volume : 3239/282 veh/TimePeriod *
Medium truck volume : 258/22 veh/TimePeriod *
Heavy truck volume : 184/16 veh/TimePeriod *
Posted speed limit : 40 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): 4001
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Old Almonte (day/night)

Angle1 Angle2 : -89.00 deg 88.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 15.00 / 15.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Old Almonte (day)

Source height = 1.50 m

ROAD (0.00 + 59.48 + 0.00) = 59.48 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-89	88	0.66	60.95	0.00	0.00	-1.46	0.00	0.00	0.00	59.48

Segment Leq : 59.48 dBA

Total Leq All Segments: 59.48 dBA

↟
Results segment # 1: Old Almonte (night)

Source height = 1.50 m

ROAD (0.00 + 51.87 + 0.00) = 51.87 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-89	88	0.66	53.34	0.00	0.00	-1.46	0.00	0.00	0.00	51.87

Segment Leq : 51.87 dBA

Total Leq All Segments: 51.87 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 59.48
(NIGHT): 51.87

↟
↟

APPENDIX 3

REPORTS BY OTHERS

Mill Valley Estates

Transportation Impact Assessment

Prepared for:

Houchaimi Holdings Inc.

Prepared by:

CGH TRANSPORTATION

6 Plaza Court
Nepean, ON K2H 7W1

November 2022

PN: 2022-142

Table of Contents

List of Figures

Table of Tables

List of Appendices

1 Introduction

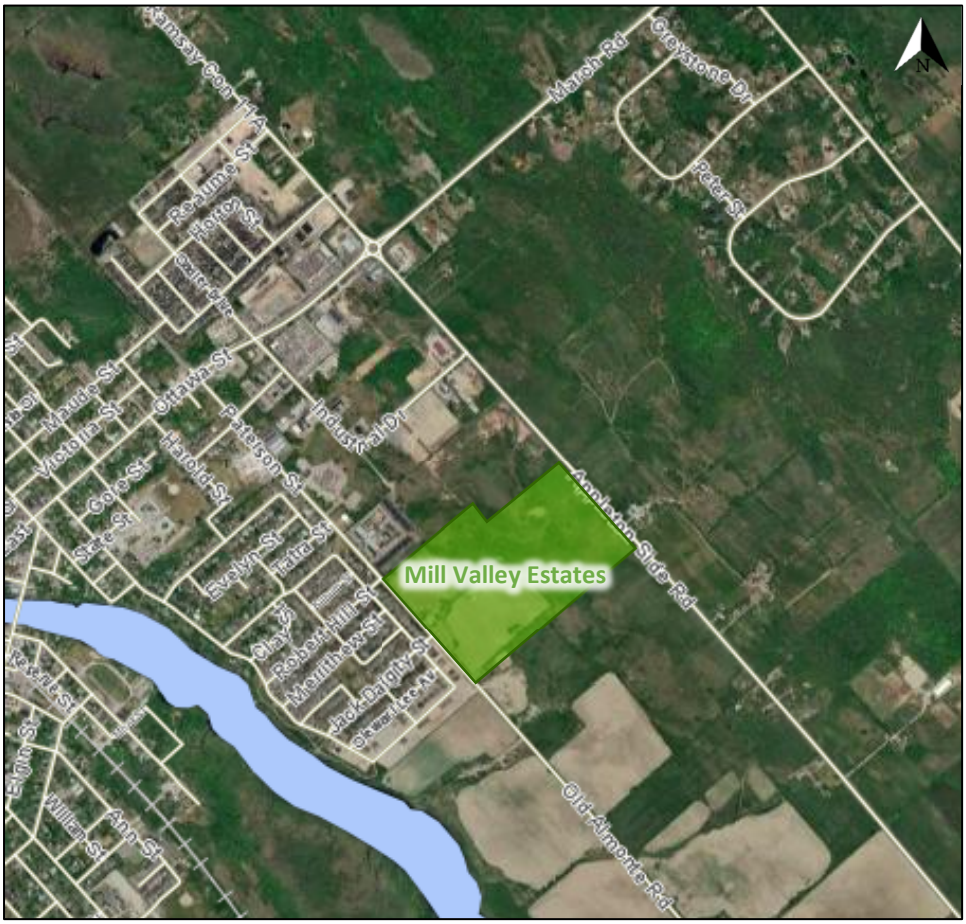
This Transportation Impact Assessment has been prepared to support the draft plan subdivision for the proposed development of Mill Valley Estates in the Ward of Almonte in the Municipality of Mississippi Mills, Ontario. The subject site is bounded by Paterson Road, County Road 17, the existing Orchard View Retirement and future Mill Valley Living, and rural lands to the south and is currently zoned as Development (D) Zone. The residential subdivision is proposed to include a total of 48 apartment units, 104 detached homes, 158 semi-detached homes, and 185 townhomes.

The proposed development will connect to the intersection of Jack Dalgity Street at Paterson Street via a new local road on the east leg and to Appleton Side Road (County Road 17) via a new local road.

The proposed development is anticipated to have a full build-out and occupancy year of 2027. The analysis will therefore include 2022 existing, 2027 future background, 2032 future background, 2027 future total, and 2032 future total conditions. The requirements for this TIA have been confirmed with staff from both Lanark County and the Municipality of Mississippi Mills via a pre-consultation meeting held virtually on July 20, 2022.

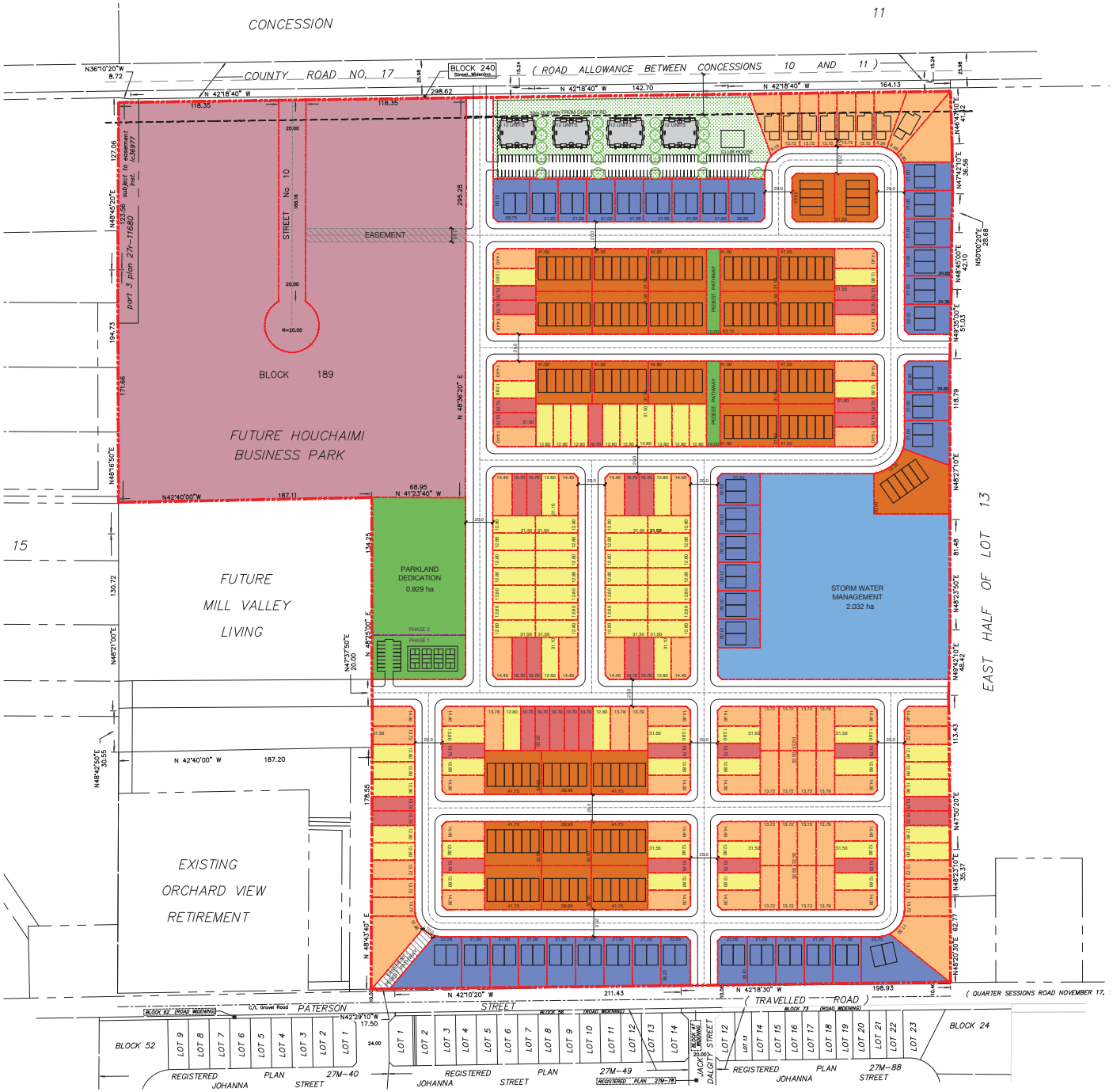
Figure 1 illustrates the Study Area Context. Figure 2 illustrates the concept plan.

Figure 1: Area Context Plan



Source: http://cgis.com/cpal/Default.aspx?CLIENT=MMILLS&MAPTYPE=Zoning Accessed: November 16, 2022

Figure 2: Concept Plan



SITE INFORMATION

ZONING — Development (D)*
*to be rezoned as per planing rationale.

SITE AREA

Total Site Area:	33.599ha
Net Site Area:	15.936ha

DENSITY

Maximum:	25units/ha
Low Density Target:	60%
Medium Density Target:	40%

DEVELOPMENT STATISTICS

Single Detached (35ft):	34
Single Detached (42ft):	73
Single Detached (45ft):	72
Semi Detached:	78
Townhouses:	166
Apartments:	48

SUMMARY OF UNITS
Houses: 423
Apartments: 48

Total: 471

DENSITIES

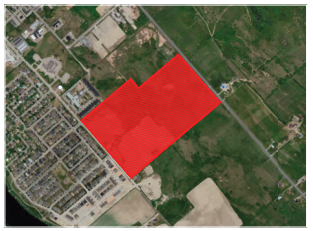
Maximum:	25 units/net ha
Provided:	29.5 units/net ha
Low Density (singles + semi-detached):	257 units (55%)
Medium Density (townhouses + apart.):	214 units (45%)

PARKLAND DEDICATION

Required:	
75,629m^2 x 2% + 260,358m^2 x 5%:	14,350m^2
Provided:	929m^2

STREETS' TOTAL LENGTH
Total length (center line): ~3,750m

MILL VALLEY ESTATES
Subdivision Plan



LEGEND

- SINGLE DETACHED (35FT / 10.65M)
- SINGLE DETACHED HOUSES (42FT / 12.8M)
- SINGLE DETACHED HOUSES (45FT / 13.72M)
- SEMI DETACHED HOUSES
- TOWNHOUSES
- APARTMENT BUILDING
- BUSINESS PARK
- PARKLAND DEDICATION
- AMENITY SPACE
- RESIDENTIAL - COMMUNITY FACILITY ZONE (OP)
- PROPERTY BOUNDARY
- SETBACKS

0 37.5 75 150

No.	REVISION	DATE	BY
7	REVISIONS	2022.11.10	TS
6	REVISIONS	2022.10.20	TS
5	REVISIONS	2022.10.18	TS
4	REVISIONS	2021.10.07	RJ
2	REVISIONS	2021.09.28	TS
2	REVISIONS	2021.06.21	TS
1	SUBDIVISION PLAN	2021.06.13	TS
0	BASE PLAN	2022.06.06	RP

CLIENT

MILL VALLEY ESTATES

FOTENN Planning + Design
396 Cooper Street, Suite 300, Ottawa ON K2P 2H7
613.730.5709 www.fotenn.com

DESIGNED	TS
REVIEWED	RP
DATE	2022.06.06

P1

1.1 Existing Conditions

1.1.1 Area Road Network

Ottawa Street: Ottawa Street is a Municipality of Mississippi Mills arterial road with a two-lane urban cross-section west of Menzie Street/Paterson Street and a four-lane urban cross-section east of Menzie Street/Paterson Street. The posted speed limit is 50 km/h within the study area. Sidewalks are present on both sides of the road west of Industrial Drive. Bike lanes are present on both sides of the road west of Menzie Street/Paterson Street and a mixed-use path (MUP) is present on both sides of the road between Industrial Drive and 175 metres to the east where a half-signal permits a MUP crossing, from which point a MUP continues on the north side of the road to the east. The Municipality of Mississippi Mills Transportation Master Plan reserves a minimum 30.0 metre right of way for arterial roadways.

Mach Road (County Road 49): March Road is a County of Lanark arterial road with a two-lane rural cross-section with gravel shoulders on both sides of the road. About 275 metres east of Appleton Side Road (Country Road 17), the posted speed limit transitions from 50 km/h to 70 km/h. A measured right-of-way taken from the Municipality of Mississippi Mills Mapping Application of 30.0 metres is noted.

Appleton Side Road (Country Road 17): Appleton Side Road (Country Road 17) is a County of Lanark collector road. It has a two-lane rural cross-section with paved shoulders north of Industrial Drive where the posted speed limit is 50 km/h and gravel shoulders to the south where the posted speed limit is 80 km/h. The measured right-of-way taken from the Municipality of Mississippi Mills Mapping Application of 26.5 metres is noted.

Paterson Street: Paterson Street is a Municipality of Mississippi Mills collector road with a two-lane urban cross-section with sidewalks on both sides of the road. The posted speed limit is 40 km/h north of Jack Dalgity Street and 50 km/h to the south. The Municipality of Mississippi Mills Transportation Master Plan reserves a minimum 24.0 metre right of way for collector roadways.

Industrial Drive: Industrial Drive is a Municipality of Mississippi Mills collector road with a two-lane rural cross-section. Based on the Municipality of Mississippi Mills Transportation Master Plan, a speed limit of 50 km/h is assumed for urban collector roadways. An asphalt sidewalk is present on the west side of the road between Ottawa Street and Stoneridge Plaza south access. The Municipality of Mississippi Mills Transportation Master Plan reserves a minimum 24.0 metre right of way for collector roadways.

Ramsay Concession 11A: Ramsay Concession 11A is a Municipality of Mississippi Mills local road with a two-lane rural cross-section including paved shoulders within the study area. No posted speed limit is present; however, the Municipality of Mississippi Mills Transportation Master Plan indicates a speed limit of 50 km/h can be assumed for urban local roadways. The Municipality of Mississippi Mills Transportation Master Plan reserves a minimum 20.0 metre right of way for local roadways.

Menzie Street: Menzie Street is a Municipality of Mississippi Mills collector road with a two-lane urban cross-section with a sidewalk on the west side of the road. Based on the Municipality of Mississippi Mills Transportation Master Plan, a speed limit of 50 km/h is assumed for urban collector roadways. The Municipality of Mississippi Mills Transportation Master Plan reserves a minimum 24.0 metre right of way for collector roadways.

Jack Dalgity Street: Jack Dalgity Street is a Municipality of Mississippi Mills local road with a two-lane urban cross-section with a sidewalk on the north side of the road. Based on the Municipality of Mississippi Mills Transportation Master Plan, a speed limit of 50 km/h is assumed for urban local roadways. The Municipality of Mississippi Mills Transportation Master Plan reserves a minimum 20.0 metre right of way for local roadways.

1.1.2 Existing Intersections

The existing key intersections have been summarized below, and aerial images and photos from a site visit are provided for illustrative purposes in Appendix A:

Ottawa Street/March Road (County Road 49) at Appleton Side Road (County Road 17)/Ramsay Concession 11A	The intersection of Ottawa Street/March Road (County Road 49) and Appleton Side Road (County Road 17)/Ramsay Concession 11A is a four-legged roundabout intersection. The northbound and southbound approaches each consists of a shared all-movement lane. The eastbound and westbound approaches each consists of a shared left-turn/through lane and a shared through/right-turn lane. Pedestrian crossovers are provided on each leg. No turn restrictions were noted.
Ottawa Street and Paterson Street /Menzie Street	The intersection of Ottawa Street and Paterson Street/Menzie Street is a signalized intersection. The northbound, southbound, and eastbound approaches each consists of a shared all-movement lane. The westbound approach consists of a left-turn lane, a through lane, and an auxiliary right-turn lane. No turning restrictions were noted at this intersection.
Industrial Drive and Appleton Side Road (County Road 17)	The intersection of Industrial Drive and Appleton Side Road (County Road 17) is an unsignalized T-intersection, stop-controlled on the minor approach of Industrial Drive. Each approach consists of a shared all-movement lane. No turning restrictions were noted at this intersection.
Jack Dalgity Street and Paterson Street	The intersection of Jack Dalgity Street and Paterson Street is an unsignalized T-intersection, stop-controlled on the minor approach of Jack Dalgity Street. Each approach consists of a shared all-movement lane. No turning restrictions were noted at this intersection.

1.1.3 Existing Driveways

Within 400 metres of the proposed site accesses, two accesses to a retirement home with surrounding townhomes, two driveways to single detached homes are present on Paterson Street, one driveway to a single detached home is present on Appleton Side Road, and field accesses are present on both Paterson Street and Appleton Side Road. None are anticipated to generate significant traffic volumes.

1.1.4 Cycling and Pedestrian Facilities

Sidewalks are present on the north side of Jack Dalgity Street, on the west side of Industrial Drive between Ottawa Street and Stoneridge Plaza south access and of Menzie Street, and on both sides of Paterson Road. A pedestrian crossing is provided on Appleton Side Road (County Road 17) about 245 metres south of Ottawa Street connecting to the Appleton Trail.

Bike lanes are present on both sides of Ottawa Street west of Menzie Street/Paterson Street, and a mixed-use path is present on both sides of Ottawa Street between Industrial Drive and 175 metres to the east where a half-signal permits a MUP crossing, and a MUP continues on the north side of the road to the east.

The Trans Canada Trail partly comprises the paved shoulders on Appleton Side Road (County Road 17) and the MUPs on Ottawa Street through the study area. The Lanark Link of the Trail is cited to be popular for cycling, per

its description at tctrail.ca, and is stated to permit walking/hiking and road cycling. Figure 3 shows the trail located within the study area.

Figure 3: Trans Canada Trail

Source: https://tctrail.ca/explore-the-map/Accessed: November 16, 2022

1.1.5 Existing Transit

There is no existing transit service along the boundary road that would serve the proposed development.

1.1.6 Existing Peak Hour Travel Demand

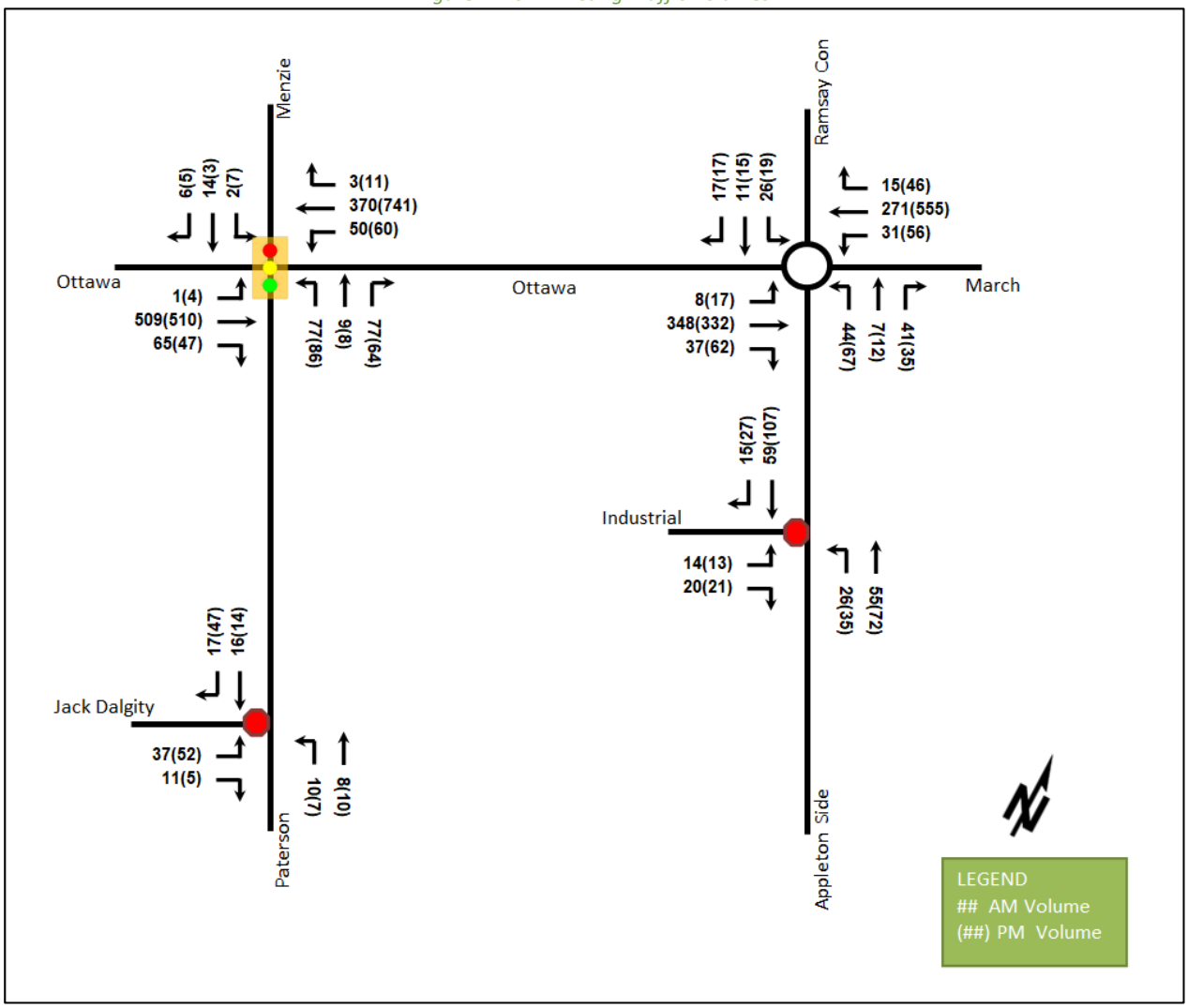
Existing turning movement counts for the weekday AM and PM Peak were provided by The Traffic Specialist. Table 1 summarizes the count locations, count dates, identified peak hour hours, and data sources.

Table 1: Turning Movement Count Data Dates

Location	Count Date	AM Peak Hour (PM Peak Hour)	Data Source
Ottawa St/March Rd (CR 49) at Appleton Side Rd (CR 17)/Ramsay Con 11A	Wednesday, November 02, 2022	8:45 – 9:45 (16:00 – 17:00)	The Traffic Specialist
Ottawa St at Paterson St/Menzie St	Wednesday, November 02, 2022	9:00 – 10:00 (15:45 – 16:45)	
Industrial Dr at Appleton Side Rd (CR 17)	Wednesday, November 02, 2022	8:45 – 9:45 (16:15 – 17:15)	
Jack Dalgity St at Paterson Street	Wednesday, November 02, 2022	8:30 – 9:30 (15:45 – 16:45)	

Figure 4 illustrates the 2022 existing horizon traffic volumes. Detailed turning movement count data and AADT counts can be found in Appendix B. Estimated AADTs from the existing volumes were confirmed to be commensurate with the AADT on the segments from the County Road traffic volume database.

Figure 4: 2022 Existing Traffic Volumes



Pedestrian and cyclist volumes included in study area intersection counts are illustrated in Figure 5 and Figure 6, respectively.

Figure 5: Existing Pedestrian Volumes

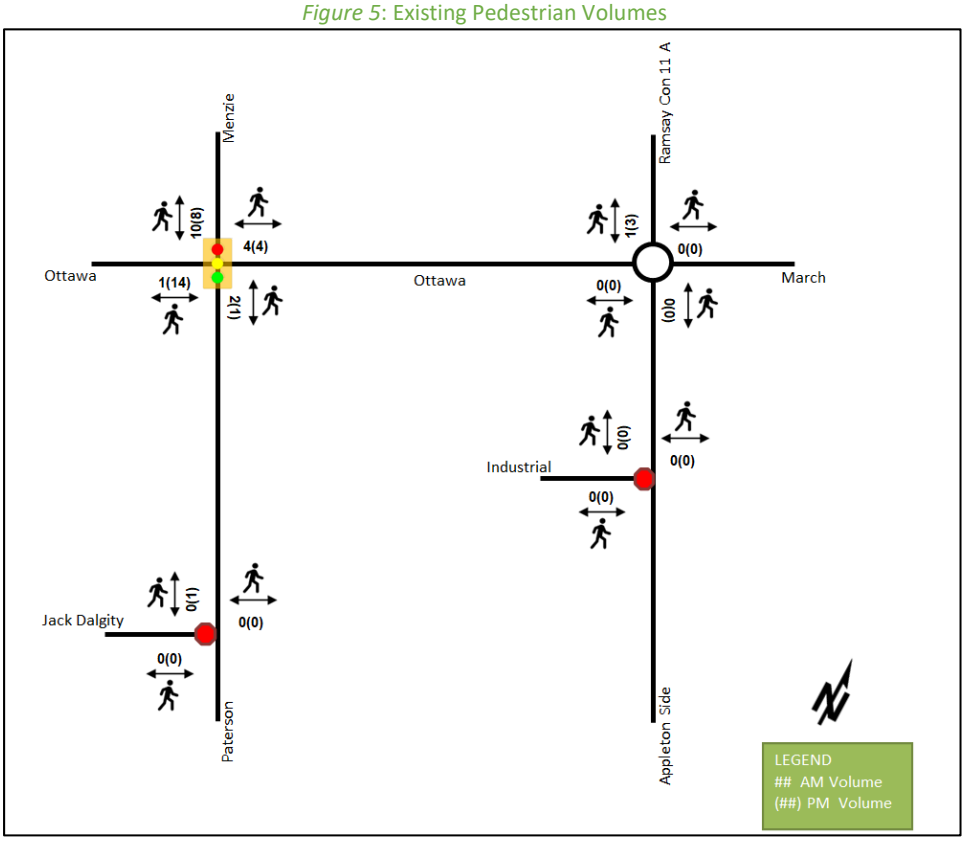
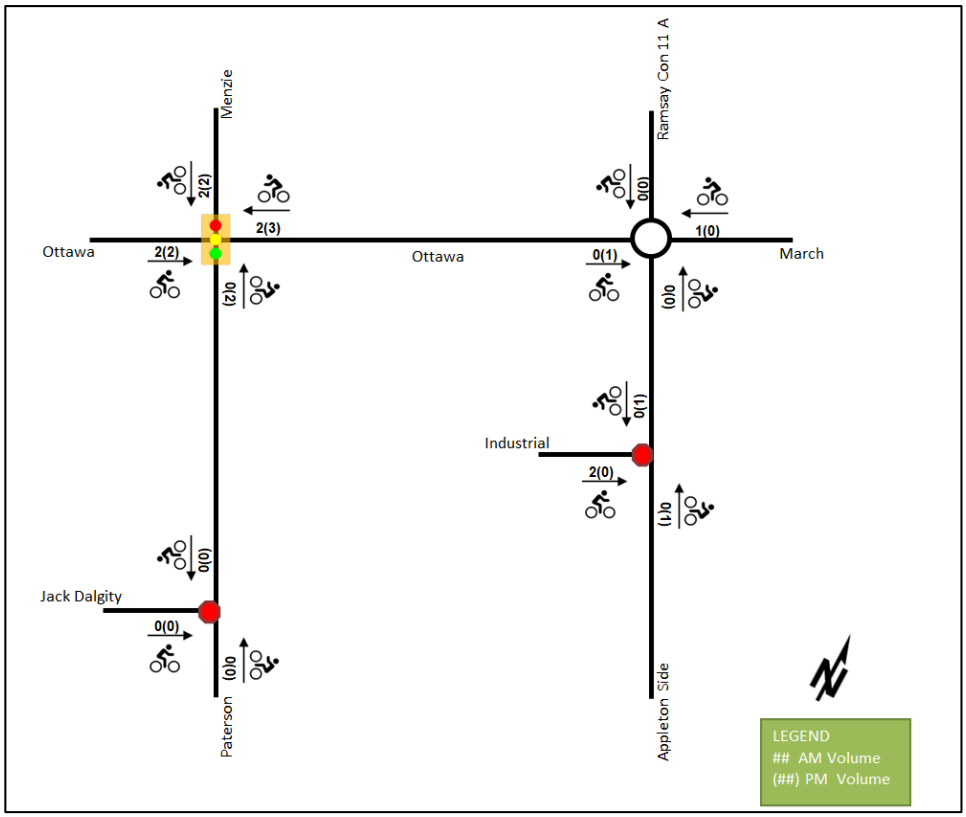


Figure 6: Existing Cyclist Volumes



2 Future Background Conditions

2.1 Planned Conditions

2.1.1 Changes to the Area Transportation Network

The Municipality of Mississippi Mills Active Transportation Plan indicates Paterson Street as a future primary cycling urban route, Ottawa Street, March Road (County Road 49), and Appleton Side Road (County Road 17) as future spine routes. While no specific timing information has been indicated for these improvements and they may be assumed to occur beyond the future analysis horizon, no changes in traffic patterns or network capacity are anticipated to be resultant from these improvements.

No other changes to the area transportation network are anticipated.

2.1.2 Other Study Area Developments

At the time of this report, no other development applications were available for the adjacent properties.

2.1.3 Background Growth

To generate 2027 and 2032 future background traffic volumes, a 1.5 % compound annual growth rate was assumed to be applied to the existing 2022 traffic counts. This growth rate has been applied to Appleton Side Road, Ottawa Street, March Road, and Paterson Street's mainline volumes and to the major turning movements at intersections.

2.1.4 Future Background Traffic Volumes

Applying the background growth rate discussed in Section 2.1.3 above to the 2022 existing traffic volumes, the future background traffic volumes were projected.

Figure 7 and Figure 8 illustrate the 2027 and 2032 future background traffic volumes, respectively. All intersection lane configurations have been carried forward from the 2022 existing conditions as there are no anticipated changes for the 2027 and 2032 future horizons.

Figure 7: 2027 Future Background Traffic Volumes

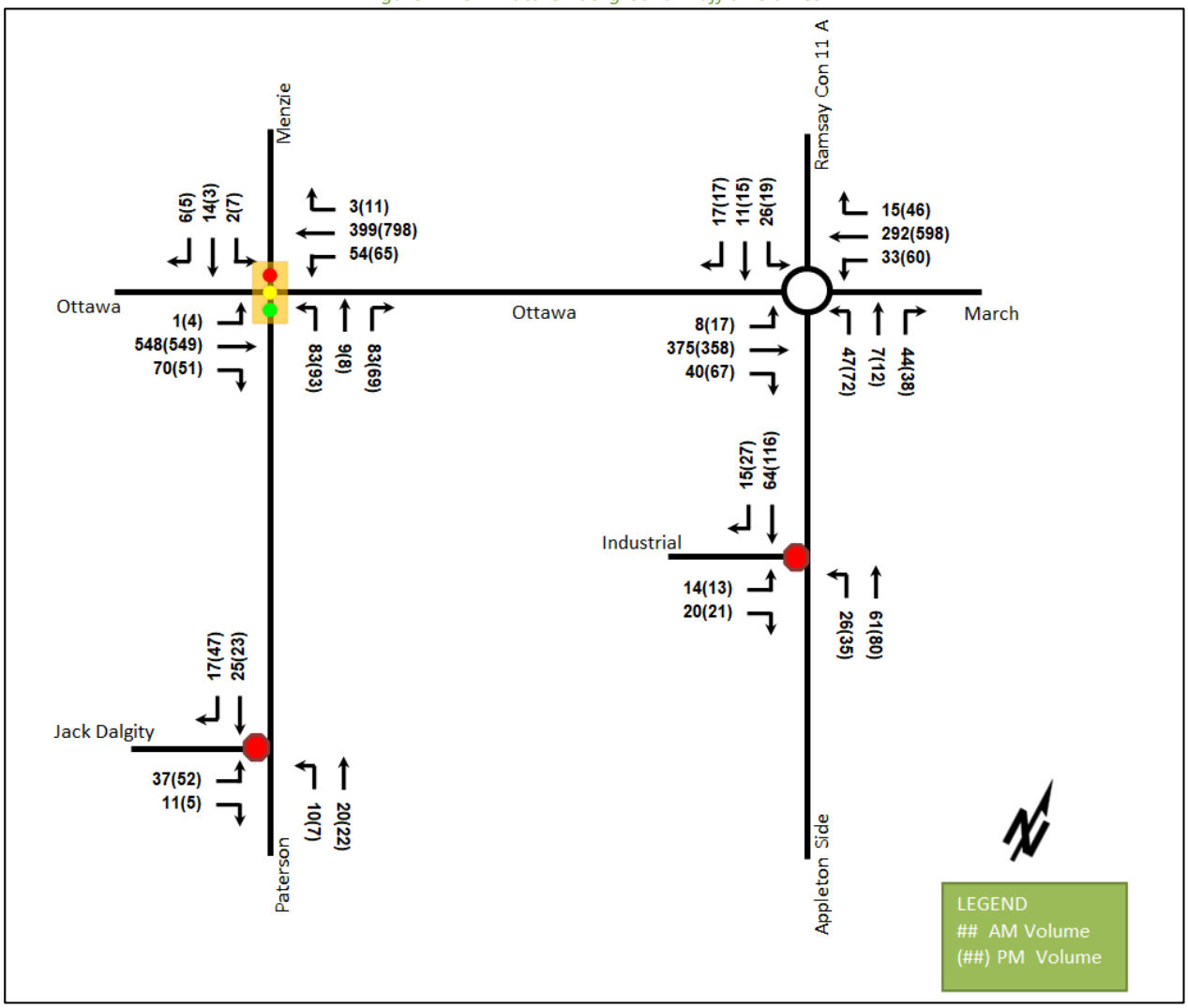
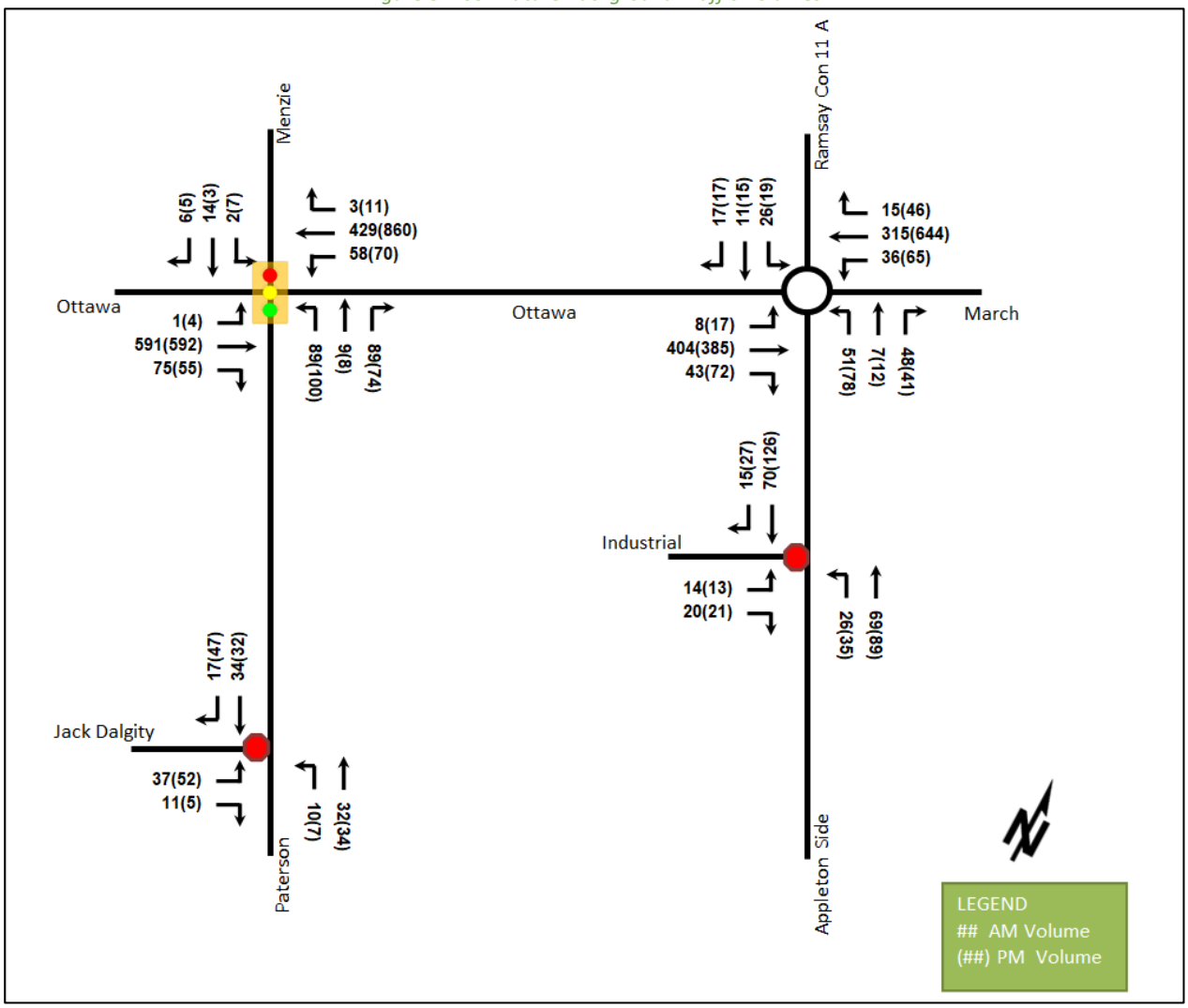


Figure 8: 2032 Future Background Traffic Volumes



3 Demand Forecasting

3.1 Site Trip Generation

The proposed development will include 104 single family detached units, 158 single-family attached units, 185 low-rise multifamily housing units, and 48 mid-rise multifamily housing units. The *ITE Trip Generation Manual 11th Edition* has been reviewed to determine the appropriate trip generation rate equations for the proposed land uses and are summarized in Table 2.

Table 2: ITE Trip Generation Rate

Land Use	Data Source	Trip Rates	
		AM Peak	PM Peak
Single Family Detached	LUC 210	T = 0.91(X) + 0.12	T = 0.94(X) + 0.27
Single Family Attached	LUC 215	T = 0.52(X) - 5.70	T = 0.6(X) - 3.93
Multifamily Housing (Low-Rise)	LUC 220	T = 0.31 (X) +22.85	T = 0.43(X) +20.55
Multifamily Housing (Mid-Rise)	LUC 221	T = 0.44(X) - 11.61	T = 0.39(X) +0.34
Notes: T = Average Vehicle Trip Ends, X = Number of Dwelling Units			

Using the above vehicle trip rate equations, the total vehicle trip generation during the weekday AM peak hour and weekday PM peak hour are summarized in Table 3. Given that the proposed development consists of only residential uses and this analysis is for full occupancy of the subject development, all trips are considered primary, and no synergy effects or pass-by trips have been considered.

Table 3: Vehicle Site Trip Generation

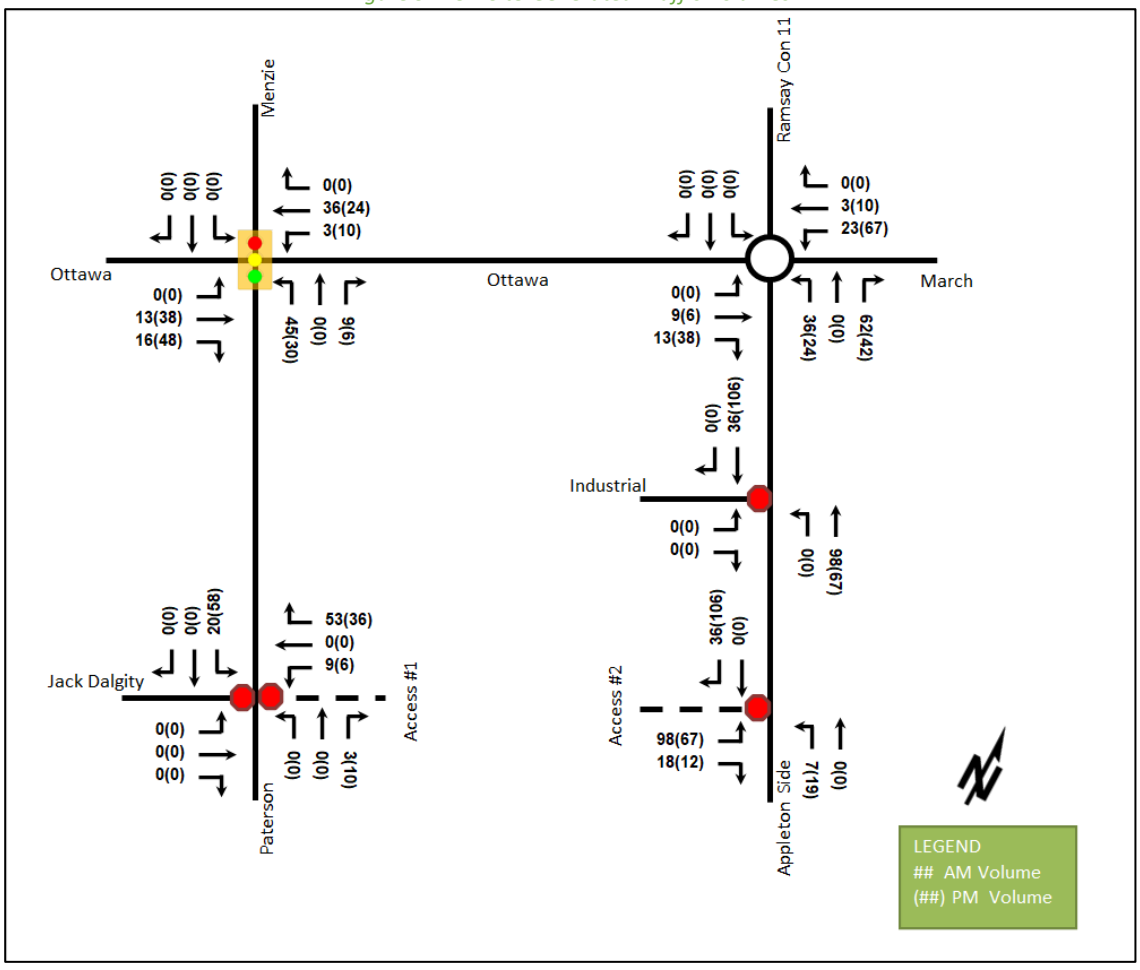
Land Use	Units	AM Peak (veh/hr)			PM Peak (veh/hr)		
		In	Out	Total	In	Out	Total
Single Family Detached	104	20	57	77	65	38	103
Single Family Attached	158	24	52	76	52	39	91
Multifamily Housing (Low-Rise)	185	19	61	80	63	37	100
Multifamily Housing (Mid-Rise)	48	2	8	10	12	7	19
	Total	**65**	**178**	**243**	**192**	**121**	**313**

As shown above, a total of 243 AM and 313 PM new peak hour two-way vehicle trips are projected as a result of proposed development.

3.2 Vehicle Traffic Distribution and Assignment

Traffic distribution was based on the existing volume splits at Study Area intersections and a knowledge of the area travel. Based on these factors, new site-generated trips were assigned to Study Area intersections, which is illustrated in Figure 9. Section 5.2 provides further information regarding proposed access configurations.

Figure 9: New Site-Generated Traffic Volumes



3.3 Future Total Travel Demands

The 2027 and 2032 site-generated traffic has been combined with the 2027 and 2032 future background traffic volumes to estimate the 2027 and 2032 future total traffic volumes. Figure 10 and Figure 11 illustrate the 2027 and 2032 future total traffic volumes, respectively. Access configuration details are presented in Section 5.2.

Figure 10: 2027 Future Total Traffic

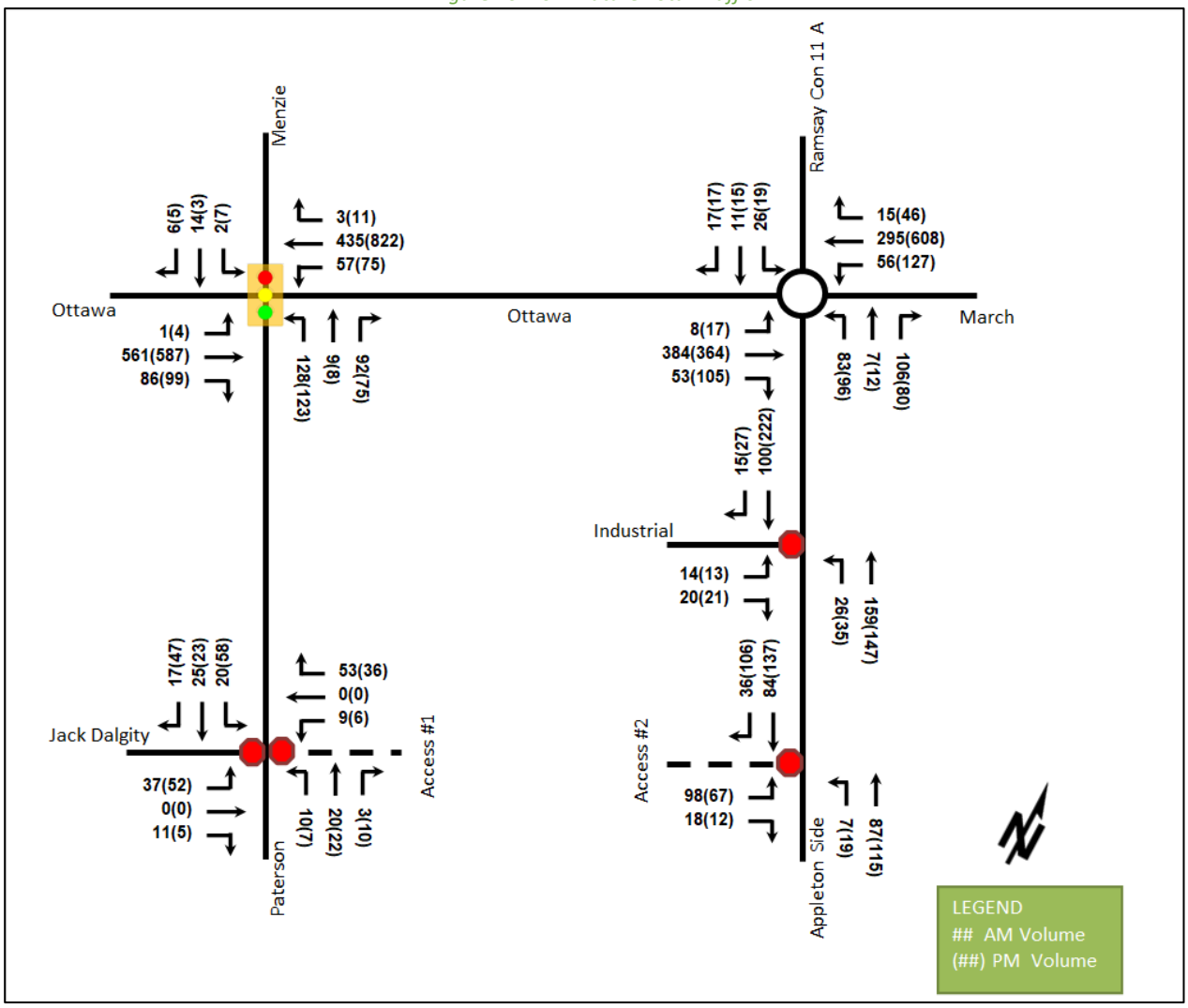
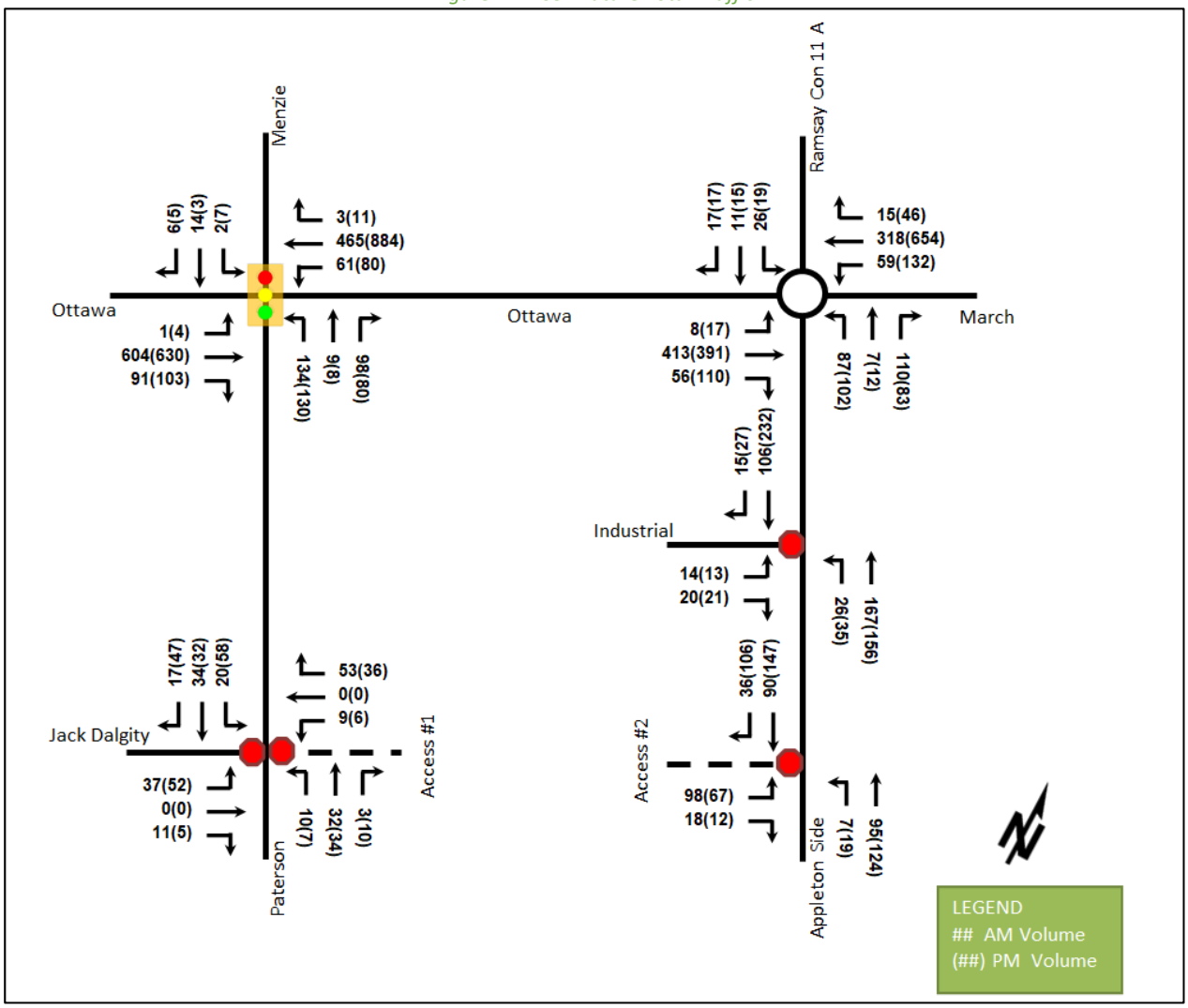


Figure 11: 2032 Future Total Traffic



4 Operational Analysis

To understand the operational characteristics of the Study Area intersections, a Synchro model has been created using Synchro Version 11 and Sidra Version 9 has been used to model the study area roundabouts.

Since the signal timing plan of the intersection of Ottawa Street and Paterson Street/Menzie Street is not available at this time, a cycle length of 90 seconds has been assumed for both AM and PM peak hours at all horizons and optimized splits have been applied.

Heavy Vehicle percentages (HV%) have been calculated for each movement based on the existing turning movement counts for the Study Area intersections and have been applied to both the existing and future analysis horizons. A minimum HV% of 2% was used in Synchro to ensure a conservative analysis.

Cyclist and pedestrian volumes were provided for all intersections with turning movement count information collected in 2022 and have been applied to the existing and future conditions analysis.

Peak Hour Factors (PHF) have been entered for each intersection based on the turning movement counts provided. The Peak Hour Factors used for each intersection are shown below in Table 4. The peak hour factor for the site access on Appleton Side Road will be taken from the adjacent intersection at Industrial Drive.

Table 4: Peak Hour Factors

Intersection	Peak Hour Factor	
	AM	PM
Ottawa St/March Rd (CR 49) at Appleton Side Rd (CR 17)/Ramsay Con 11A	0.91	0.97
Ottawa St at Paterson St/Menzie St	0.93	0.95
Industrial Dr at Appleton Side Rd (CR 17)	0.86	0.96
Jack Dalgity St at Paterson St	0.71	0.94

All other parameters have been coded using accepted best practices and default parameters, where applicable.

LOS has been determined using the HCM definitions for LOS at signalized and unsignalized intersections which are summarized in Table 5 below.

Table 5: Level of Service Criteria for Signalized/Unsignalized Intersections

LOS	Signalized Intersection Delay (s)	Unsignalized Intersection Delay (s)
A	≤10	≤10
B	>10 and ≤20	>10 and ≤15
C	>20 and ≤35	>15 and ≤25
D	>35 and ≤55	>25 and ≤35
E	>55 and ≤80	>35 and ≤50
F	>80	>50

Critical movements and critical intersections have been defined as individual movements with LOS F or a V/C ratio of 1.00 or greater, and intersections with an overall LOS F. Critical movements and critical intersections will be indicated in red within operational result tables below and may require mitigation measures.

4.1 2022 Existing Operational Analysis

Table 6 summarizes the operational analysis for the 2022 existing conditions during both the AM and PM peak hours. If present, critical movements, as defined above, have been identified in red. Synchro worksheets for the 2022 existing traffic conditions are included in Appendix C.

Table 6: 2022 Existing Intersections Operational Analysis

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Ottawa St/March Rd (CR 49) and Appleton Side Rd (CR 17)/Ramsay Con 11A ***Roundabout***	EB	A	0.14	2.4	5.3	A	0.14	2.6	5.3
	WB	A	0.11	2.8	4.4	A	0.22	2.9	9.6
	NB	A	0.10	6.1	2.7	A	0.12	6.6	3.2
	SB	A	0.06	5.9	1.5	A	0.06	6.2	1.6
	Overall	**A**	**0.14**	**3.2**	**5.3**	**A**	**0.22**	**3.3**	**9.6**
Ottawa St and Paterson St/Menzie St ***Signalized***	EB	B	0.55	10.5	98.1	C	0.71	25.0	122.4
	WBL	A	0.11	7.1	9.3	A	0.17	9.1	9.4
	WBT	A	0.36	8.0	53.8	C	0.77	20.6	144.2
	WBR	A	0.00	0.0	0.0	A	0.01	0.5	0.5
	NB	C	0.64	32.4	35.8	C	0.42	24.2	35.8
	SB	C	0.08	21.0	7.6	B	0.04	19.6	5.8
	Overall	**B**	**0.56**	**12.8**	**-**	**C**	**0.70**	**22.0**	**-**

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Industrial Dr and Appleton Side Rd (CR 17) ***Unsignalized***	EB	A	0.05	9.4	0.8	A	0.04	9.6	0.8
	NB	A	0.02	7.5	0.8	A	0.03	7.6	0.8
	SB	-	-	-	-	-	-	-	-
	Overall	**A**	**0.05**	**9.4**	**0.8**	**A**	**-**	**2.2**	**-**
Jack Dalgity St and Paterson St ***Unsignalized***	EB	A	0.07	9.2	1.5	A	0.07	9.2	1.5
	NB	A	0.01	7.6	0.0	A	0.01	7.4	0.0
	SB	-	-	-	-	-	-	-	-
	Overall	**A**	**-**	**5.2**	**-**	**A**	**-**	**4.3**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Delay = average vehicle delay in seconds
# = volume for the 95th %ile cycle exceeds capacity

Generally, the Study Area intersections are shown to operate with good overall LOS and low delays and no additional operational constraints (V/C ratio greater than 0.90 or LOS E or worse) are noted.

4.2 Future Background Conditions

4.2.1 Future Background Traffic Control Warrants

Using Ontario Traffic Manual (OTM) Book 12 Justification 7 methodology for examining traffic control signal warrants, the unsignalized Study Area intersections have been analyzed. In the future background horizons signalization is not warranted at any currently unsignalized Study Area intersections. Traffic control warrant sheets have been included in Appendix D.

4.2.2 2027 Future Background Conditions

The 2027 future background intersection volumes have been analyzed to allow for a comparison of the future volumes with and without the proposed development.

Table 7 summarizes the operational analysis for the 2027 future background conditions in both the AM and PM peak hours. Critical movements, as defined above, have been identified in red where applicable. The intersections have been analyzed based on the identified signal control and intersection configurations in Section 4.2.1. Synchro and Sidra worksheets for the 2027 future background traffic conditions are included in Appendix E.

Table 7: 2027 Future Background Conditions Operational Analysis

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Ottawa St/March Rd (CR 49) and Appleton Side Rd (CR 17)/Ramsay Con 11A ***Roundabout***	EB	A	0.15	2.4	5.8	A	0.15	2.7	5.7
	WB	A	0.12	2.8	4.7	A	0.24	2.9	10.5
	NB	A	0.10	6.2	3.0	A	0.13	6.7	3.5
	SB	A	0.06	6.0	1.5	A	0.06	6.3	1.7
	Overall	**A**	**0.15**	**3.2**	**5.8**	**A**	**0.24**	**3.3**	**10.5**
Ottawa St and Paterson St/Menzie St ***Signalized***	EB	B	0.60	11.6	111.3	C	0.77	27.8	#150.6
	WBL	A	0.13	7.4	10.0	A	0.19	9.4	10.1
	WBT	A	0.39	8.5	59.1	C	0.83	24.2	#174.7
	WBR	A	0.00	0.0	0.0	A	0.01	0.5	0.5
	NB	C	0.67	33.9	38.4	C	0.45	25.2	38.7
	SB	C	0.08	20.9	7.6	B	0.04	19.6	5.8
	Overall	**B**	**0.60**	**13.6**	**-**	**C**	**0.75**	**24.8**	**-**

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Industrial Dr and Appleton Side Rd (CR 17) ***Unsignalized***	EB	A	0.05	9.4	0.8	A	0.04	9.7	0.8
	NB	A	0.02	7.5	0.8	A	0.03	7.6	0.8
	SB	-	-	-	-	-	-	-	-
	Overall	**A**	**-**	**2.6**	**-**	**A**	**-**	**2.0**	**-**
Jack Dalgity St and Paterson St ***Unsignalized***	EB	A	0.08	9.4	1.5	A	0.07	9.3	1.5
	NB	A	0.01	7.6	0.0	A	0.01	7.4	0.0
	SB	-	-	-	-	-	-	-	-
	Overall	**A**	**-**	**4.4**	**-**	**A**	**-**	**3.7**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Delay = average vehicle delay in seconds
# = volume for the 95th %ile cycle exceeds capacity

The intersection operations for the 2027 future background horizon in the study area generally operate similarly to the existing conditions. No additional operational constraints (V/C ratio greater than 0.90 or LOS E or worse) are noted.

The intersection of Ottawa Street at Paterson Street/Menzie Street may exhibit extended queues on the eastbound and westbound through movement during the PM peak hour due to background growth.

4.2.3 2032 Future Background Conditions

The 2032 future background intersection volumes have been analyzed to allow for a comparison of the future volumes with and without the proposed development.

Table 8 summarizes the operational analysis for the 2032 future background conditions in both the AM and PM peak hours. Critical movements, as defined above, have been identified in red where applicable. The intersections have been analyzed based on the identified signal control and intersection configurations in Section 4.2.1. Synchro and Sidra worksheets for the 2032 future background traffic conditions are included in Appendix F.

Table 8: 2032 Future Background Conditions Operational Analysis

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Ottawa St/March Rd (CR 49) and Appleton Side Rd (CR 17)/Ramsay Con 11A ***Roundabout***	EB	A	0.16	2.5	6.3	A	0.16	2.7	6.3
	WB	A	0.13	2.8	5.2	A	0.26	3.0	11.6
	NB	A	0.12	6.3	3.3	A	0.14	6.8	3.9
	SB	A	0.06	6.1	1.6	A	0.06	6.4	1.7
	Overall	**A**	**0.16**	**3.2**	**6.3**	**A**	**0.26**	**3.4**	**11.6**
Ottawa St and Paterson St/Menzie St ***Signalized***	EB	B	0.65	13.1	127.2	C	0.83	31.6	#170.4
	WBL	A	0.14	7.9	10.8	A	0.22	9.7	10.7
	WBT	A	0.42	9.1	64.8	C	0.90	29.8	#214.4
	WBR	A	0.00	0.0	0.0	A	0.01	0.5	0.5
	NB	D	0.70	35.8	42.0	C	0.48	26.2	41.9
	SB	C	0.07	20.7	7.6	B	0.04	19.6	5.8
	Overall	**B**	**0.65**	**14.9**	**-**	**C**	**0.81**	**29.0**	**-**

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Industrial Dr and Appleton Side Rd (CR 17) ***Unsignalized***	EB	A	0.05	9.5	0.8	A	0.05	9.8	0.8
	NB	A	0.02	7.5	0.8	A	0.03	7.6	0.8
	SB	-	-	-	-	-	-	-	-
	Overall	**A**	**-**	**2.4**	**-**	**A**	**-**	**1.9**	**-**
Jack Dalgity St and Paterson St ***Unsignalized***	EB	A	0.08	9.5	2.3	A	0.07	9.4	1.5
	NB	A	0.01	7.7	0.0	A	0.01	7.4	0.0
	SB	-	-	-	-	-	-	-	-
	Overall	**A**	**-**	**3.8**	**-**	**A**	**-**	**3.3**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Delay = average vehicle delay in seconds
# = volume for the 95th %ile cycle exceeds capacity

The intersection operations for the 2032 future background horizon in the study area generally operate similarly to the existing and 2027 future background conditions. No additional operational constraints (V/C ratio greater than 0.90 or LOS E or worse) are noted.

4.3 Future Total Conditions

4.3.1 Future Total Traffic Control Warrants

Using Ontario Traffic Manual (OTM) Book 12 Justification 7 methodology for examining traffic control signal warrants the unsignalized Study Area intersections, as well as the intersection of Site Access #2 and Appleton Side Road (County Road 17) and have been analyzed. In the future total horizon signalization is not warranted at any of the currently unsignalized or future Study Area intersections. Traffic control warrant sheets have been included in Appendix D.

4.3.2 2027 Future Total Conditions

The proposed development's trip generation has been added to the 2027 future background traffic volumes to project the impact of the new traffic on the future road network.

Table 9 summarizes the operational analysis for the 2027 future total conditions in both the AM and PM peak hours. Critical movements, as defined above, have been identified in red where applicable. The intersections have been analyzed based on the identified signal control and intersection configurations in Section 4.3.1. Synchro and Sidra worksheets for the 2027 future total traffic conditions are included in Appendix G.

Table 9: 2027 Future Total Conditions Operational Analysis

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Ottawa St/March Rd (CR 49) and Appleton Side Rd (CR 17)/Ramsay Con 11A ***Roundabout***	EB	A	0.15	2.4	6.1	A	0.17	2.9	7.1
	WB	A	0.13	2.7	5.4	A	0.27	3.5	12.5
	NB	A	0.22	6.2	6.4	A	0.20	6.4	5.9
	SB	A	0.06	6.1	1.6	A	0.07	6.5	1.8
	Overall	**A**	**0.22**	**3.4**	**6.4**	**A**	**0.27**	**3.8**	**12.5**
Ottawa St and Paterson St/Menzie St ***Signalized***	EB	B	0.66	14.9	123.9	C	0.79	26.0	#187.2
	WBL	A	0.15	9.1	10.9	A	0.20	7.9	11.3
	WBT	B	0.45	10.7	68.2	B	0.77	17.9	#199.1
	WBR	A	0.00	0.0	0.0	A	0.01	0.5	0.5
	NB	D	0.79	44.3	56.7	D	0.74	41.6	49.4
	SB	B	0.06	19.8	7.6	C	0.05	20.6	5.8
	Overall	**B**	**0.69**	**18.2**	**-**	**C**	**0.82**	**23.2**	**-**

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Industrial Dr and Appleton Side Rd (CR 17) ***Unsignalized***	EB	B	0.05	10.1	1.5	B	0.05	10.7	1.5
	NB	A	0.02	7.6	0.8	A	0.03	7.8	0.8
	SB	-	-	-	-	-	-	-	-
	Overall	**A**	**-**	**1.6**	**-**	**A**	**-**	**1.4**	**-**
Jack Dalgity St/ Access #1 and Paterson St ***Unsignalized***	EB	B	0.09	10.2	2.3	B	0.09	10.9	2.3
	WB	A	0.07	8.9	1.5	A	0.05	8.9	0.8
	NB	A	0.01	7.6	0.0	A	0.01	7.4	0.0
	SB	A	0.01	7.3	0.0	A	0.04	7.4	0.8
	Overall	**A**	**-**	**5.9**	**-**	**A**	**-**	**5.6**	**-**
Access #2 and Appleton Side Rd (CR 17) ***Unsignalized***	EB	B	0.16	10.4	4.5	B	0.13	11.4	3.8
	NB	A	0.01	7.5	0.0	A	0.02	7.8	0.0
	SB	-	-	-	-	-	-	-	-
	Overall	**A**	**-**	**3.8**	**-**	**A**	**-**	**2.3**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Delay = average vehicle delay in seconds
# = volume for the 95th %ile cycle exceeds capacity

The intersection operations for the 2027 future total horizon in the study area generally operate similarly to the 2027 future background conditions and the site access intersections operate well. Since no additional operational constraints (V/C ratio greater than 0.90 or LOS E or worse) are noted, no mitigation is required.

4.3.3 2032 Future Total Conditions

The proposed development's trip generation has been added to the 2032 future background traffic volumes to project the impact of the new traffic on the future road network.

Table 10 summarizes the operational analysis for the 2032 future total conditions in both the AM and PM peak hours. Critical movements, as defined above, have been identified in red where applicable. The intersections have been analyzed based on the identified signal control and intersection configurations in Section 4.3.1. Synchro and Sidra worksheets for the 2032 future total traffic conditions are included in Appendix H.

Table 10: 2032 Future Total Conditions Operational Analysis

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Ottawa St/March Rd (CR 49) and Appleton Side Rd (CR 17)/Ramsay Con 11A ***Roundabout***	EB	A	0.17	2.6	6.7	A	0.19	3.0	7.7
	WB	A	0.14	3.3	6.0	A	0.29	3.5	13.7
	NB	A	0.23	6.3	7.0	A	0.21	6.6	6.4
	SB	A	0.06	6.3	1.7	A	0.07	6.7	1.8
	Overall	**A**	**0.23**	**3.7**	**7.0**	**A**	**0.29**	**3.8**	**13.7**
Ottawa St and Paterson St/Menzie St ***Signalized***	EB	B	0.72	17.1	142.7	C	0.85	30.7	#207.2
	WBL	A	0.18	9.8	12.0	A	0.23	8.4	11.8
	WBT	B	0.48	11.5	74.6	C	0.83	21.8	#224.2
	WBR	A	0.00	0.0	0.0	A	0.01	0.5	0.5
	NB	D	0.81	45.8	59.8	D	0.77	43.3	52.7
	SB	B	0.06	19.7	7.6	C	0.05	20.5	5.8
	Overall	**B**	**0.74**	**19.7**	**-**	**C**	**0.89**	**26.9**	**-**

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Industrial Dr and Appleton Side Rd (CR 17) ***Unsignalized***	EB	B	0.05	10.2	1.5	B	0.05	10.8	1.5
	NB	A	0.02	7.6	0.8	A	0.03	7.9	0.8
	SB	-	-	-	-	-	-	-	-
	Overall	**A**	**-**	**1.6**	**-**	**A**	**-**	**1.3**	**-**
Jack Dalgity St/ Access #1 and Paterson St ***Unsignalized***	EB	B	0.09	10.4	2.3	B	0.09	11.1	2.3
	WB	A	0.07	9.0	1.5	A	0.05	8.9	0.8
	NB	A	0.01	7.7	0.0	A	0.01	7.4	0.0
	SB	A	0.01	7.3	0.0	A	0.04	7.4	0.8
	Overall	**A**	**-**	**5.4**	**-**	**A**	**-**	**5.2**	**-**
Access #2 and Appleton Side Rd (CR 17) ***Unsignalized***	EB	B	0.16	10.6	4.5	B	0.14	11.6	3.8
	NB	A	0.01	7.5	0.0	A	0.02	7.8	0.0
	SB	-	-	-	-	-	-	-	-
	Overall	**A**	**-**	**3.7**	**-**	**A**	**-**	**2.2**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Delay = average vehicle delay in seconds
# = volume for the 95th %ile cycle exceeds capacity

The intersection operations for the 2032 future total horizon in the study area generally operate similarly to the 2032 future background conditions and the site access intersections operate well. Since no additional operational constraints (V/C ratio greater than 0.90 or LOS E or worse) are noted, no mitigation is required.

5 Plan of Subdivision Review

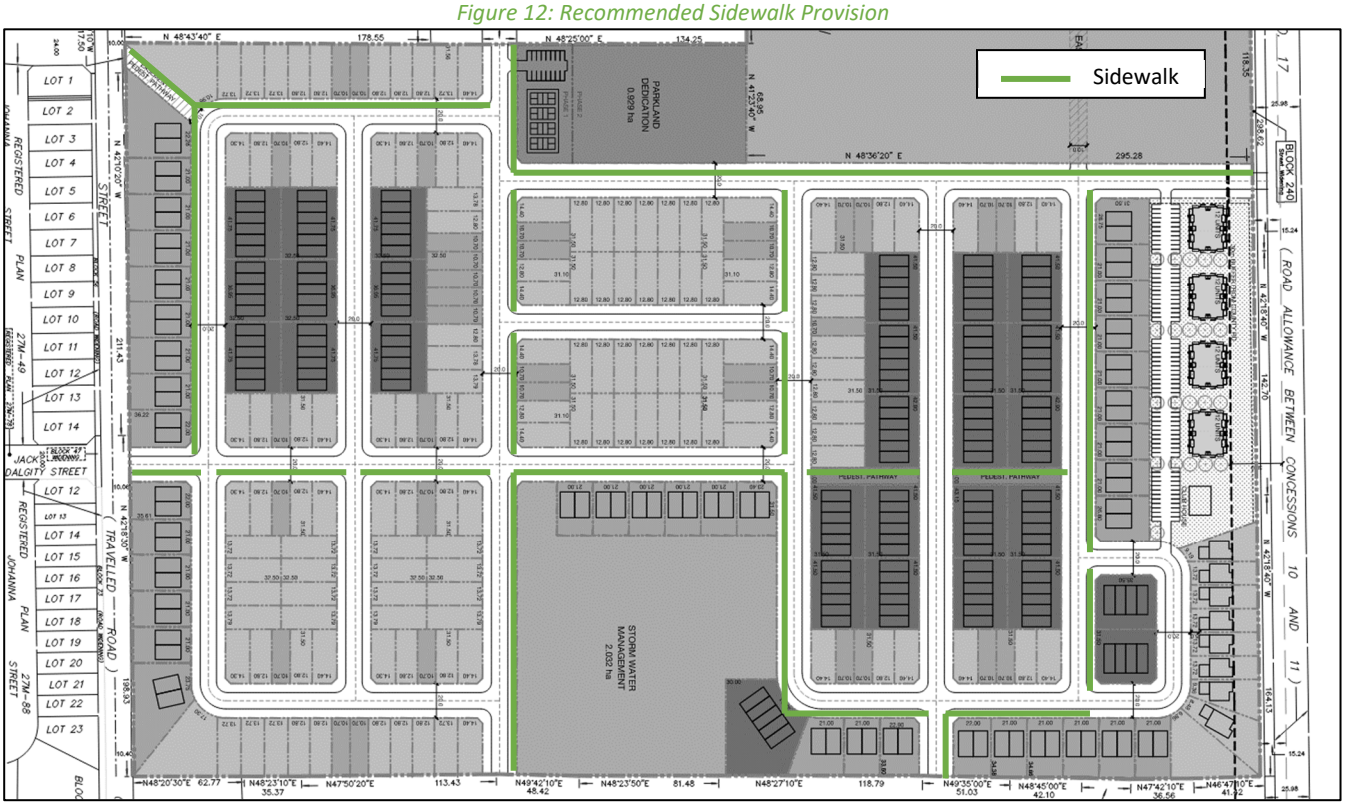
This section provides an overview of community access, street network, parking, and active mode facilities. The proposed Subdivision Concept Plan was previously illustrated in Figure 2.

5.1 Design for Sustainable Modes

The proposed development is a residential subdivision where each detached and townhouse dwelling will include a driveway and garage. Bicycle parking is assumed to be within the individual units.

Pedestrian facilities are recommended to be provided within the proposed development between the site accesses, along potential routes of high pedestrian travel demand, and fronting the major recreational draws of the parkland and stormwater management facility. The preliminary recommended sidewalk layout is illustrated in Figure 12.

Figure 12: Recommended Sidewalk Provision



5.2 New Streets Network

The new streets proposed as part of the plan of subdivision including 20.0-metre local roads, consistent with the Municipality's Transportation Master Plan. The local roads are proposed to be posted as 50 km/h at the gateways to the communities, and the internal roads are proposed as having unposted speed limits of 50 km/h.

Within the subdivision, no turn lanes are proposed for the internal intersections and will be controlled by minor stop control.

5.2.1 Access Intersection Design Elements

The proposed development will connect to the intersection of Jack Dalgity Street at Paterson Street via a new local road east leg and to Appleton Side Road (County Road 17) via a new local road intersection.

Turn lane warrants from the Transportation Association of Canada's Geometric Design Guides for Canadian Roads Section 9.17 were examined for Paterson Street and Appleton Side Road to the new community local roads. Neither access intersection was found to warrant a new left-turn lane on the existing road. The results of the turn lane warrants are provided in Appendix I.

No turn lanes are proposed for the new leg of the intersection of Jack Dalgity Street at Paterson Street or the new local road intersecting with Appleton Side Road. The operations are summarized in Section 4.3 for future conditions. No capacity issues were noted at the intersections of Jack Dalgity Street/Access #1 at Paterson Street and Access #2 at Appleton Side Road (County Road 17) with these assumptions.

As discussed above, a signal warrant analysis has been conducted for the 2032 future total horizon using the OTM Book 12 Justification 7 criteria. Using these criteria, a signal was not found to be warranted at the site access intersections. Appendix D includes the signal warrants for the access.

5.3 Parking Supply

The required parking is subject to Municipality of Mississippi Mills Zoning By-Law #11-83, 2020, which states for the low-rise apartment units, the minimum resident parking requirement is 1.2 spaces per unit, which equates to 58 spaces, and 0.2 visitor spaces per unit which equates to ten spaces. The inclusion of a garage and driveway of each detached and townhouse unit satisfies the parking for the freehold dwellings. The community is proposed to include 96 parking spaces for the low-rise apartment units, satisfying the combined minimum parking of 68 spaces.

6 Findings and Recommendations

a) The Mill Valley Estates development includes 48 apartment units, 104 detached homes, 158 semi-detached homes, and 185 townhomes.
b) The proposed development will connect to the intersection of Jack Dalgity Street at Paterson Street via a new local road on the east leg and to Appleton Side Road (County Road 17) via a new local road.
c) The full build-out horizon year of 2027 and the full build-out plus five years horizon year of 2032 have been analyzed.
d) No significant planned changes to the area transportation network and no surrounding background developments have been noted.
e) The proposed development is projected to a total of 243 AM and 313 PM new peak hour two-way vehicle trips during weekdays.
f) A 1.5% compound annual growth rate was selected to generate the 2027 and 2032 future background traffic volumes.
g) As no high v/c ratios or high delays were noted in the 2022 existing condition, no mitigation measures are recommended.
h) The 2027 and 2032 future background traffic volumes, including the background growth was analyzed. It was found that turning movements operate with reasonable LOS and delay and in a similar manner as existing conditions.
i) With the addition of site traffic volumes to the Study Area intersections, the V/C and delays at intersections within study area will be slightly increased. These changes do not create any failing movements.
j) Signal warrants are not met at the site access intersections.
k) The site access intersections operate well in both the 2027 and 2032 horizons with stop control on the minor approach.
l) Neither access intersection was found to warrant a new left-turn lane on the existing road.
m) Pedestrian facilities are recommended to be provided within the proposed development between the site accesses, along potential routes of high pedestrian travel demand, and fronting the major recreational draws of the parkland and stormwater management facility.
n) Within the subdivision, no turn lanes are proposed for the internal intersections and will be controlled by minor stop control.
o) The community is proposed to include 96 parking spaces for the low-rise apartment units, satisfying the combined minimum parking of 68 spaces, which is outlined in the Municipality of Mississippi Mills Zoning By-Law #11-83, 2020.

The Mill Valley Estates development will have a minor impact on the Study Area road network. The proposed access will operate with reasonable LOS and delay on the turning movements into and out of the site. Additionally,

through the provision of on-site facilities, this development will be supportive of active mode transportation. It is recommended that, from a transportation perspective, the proposed development application proceed.

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Appendix A

Aerial Images and Photos


Ramsay
Concession 11A
March Road
(County Road 49)
Ottawa Street
Appleton Side Road
(County Road 17)


Menzie Street
Ottawa Street
Paterson Street


Appleton Side Road
(County Road 17)
Industrial Drive


Paterson Street
Jack Dalgity Street

Appendix B

Traffic Data and AADT

ACCURATE TRUSTED TRAFFIC DATA

Turning Movement Count
Summary Report Including Peak Hours, AADT and Expansion Factors
All Vehicles Except Bicycles

Appleton Side Road/Ramsay Concession 11A & March Road/Ottawa Street — **Almonte, ON**

Survey Date: Tuesday, November 01, 2022 **Start Time:** 0700 **AADT Factor:** 1.0
Weather AM: Overcast 10º C **Survey Duration:** 8 Hrs. **Survey Hours:** 0700-1000, 1130-1330 & 1500-1800
Weather PM: Mostly Sunny 16º C **Surveyor(s):** T. Carmody

	Ottawa St.					March Rd.					Appleton Side Rd.					Ramsay Conc. 11A					
	Eastbound					Westbound					Northbound					Southbound					
Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
0700-0800	7	413	39	3	**462**	20	193	10	0	**223**	**685**	45	5	43	0	**93**	52	12	9	0	**73**	**166**	**851**
0800-0900	1	360	34	2	**397**	28	247	13	0	**288**	**685**	42	9	46	0	**97**	29	8	11	0	**48**	**145**	**830**
0900-1000	9	333	37	2	**381**	22	271	13	1	**307**	**688**	43	6	33	0	**82**	28	16	20	0	**64**	**146**	**834**
1130-1230	8	270	44	0	**322**	22	242	12	0	**276**	**598**	52	12	24	0	**88**	17	16	18	0	**51**	**139**	**737**
1230-1330	14	233	42	5	**294**	21	271	16	0	**308**	**602**	61	13	40	0	**114**	21	10	21	0	**52**	**166**	**768**
1500-1600	16	271	42	9	**338**	46	449	24	0	**519**	**857**	70	13	46	0	**129**	15	10	14	0	**39**	**168**	**1025**
1600-1700	11	332	62	6	**411**	56	555	46	0	**657**	**1068**	67	12	35	0	**114**	19	15	17	0	**51**	**165**	**1233**
1700-1800	12	267	41	5	**325**	39	441	45	0	**525**	**850**	90	13	36	0	**139**	17	13	14	0	**44**	**183**	**1033**
Totals	**78**	**2479**	**341**	**32**	**2930**	**254**	**2669**	**179**	**1**	**3103**	**6033**	**470**	**83**	**303**	**0**	**856**	**198**	**100**	**124**	**0**	**422**	**1278**	**7311**

Equivalent 12 & 24-hour Vehicle Volumes Including the Annual Average Daily Traffic (AADT) Factor
Applicable to the Day and Month of the Turning Movement Count
Expansion factors are applied exclusively to standard weekday 8-hour turning movement counts conducted during the hours of 0700h - 1000h, 1130h - 1330h and 1500h - 1800h

Equivalent 12-hour vehicle volumes. These volumes are calculated by multiplying the 8-hour totals by the 8 ➡12 expansion factor of 1.39

Equ. 12 Hr	108	3446	474	44	**4073**	353	3710	249	1	**4313**	**8386**	653	115	421	0	**1190**	275	139	172	0	**587**	**1776**	**10162**

Average daily 12-hour vehicle volumes. These volumes are calculated by multiplying the equivalent 12-hour totals by the AADT factor of: 1.0

AADT 12-hr	108	3446	474	44	**4073**	353	3710	249	1	**4313**	**8386**	653	115	421	0	**1190**	275	139	172	0	**587**	**1776**	**10162**

24-Hour AADT. These volumes are calculated by multiplying the average daily 12-hour vehicle volumes by the 12 ➡24 expansion factor of 1.31

AADT 24 Hr	142	4514	621	58	**5335**	463	4860	326	2	**5650**	**10985**	856	151	552	0	**1559**	361	182	226	0	**768**	**2327**	**13313**

AADT and expansion factors provided by the City of Ottawa

AM Peak Hour Factor ➡ 0.91												Highest Hourly Vehicle Volume Between 0700h & 1000h											
AM Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
0845-0945	5	348	37	3	**393**	30	271	15	1	**317**	**710**	44	7	41	0	**92**	26	11	17	0	**54**	**146**	**856**
OFF Peak Hour Factor ➡ 0.98												Highest Hourly Vehicle Volume Between 1130h & 1330h											
OFF Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
1200-1300	11	262	44	2	**319**	22	273	10	0	**305**	**624**	61	16	28	0	**105**	19	16	17	0	**52**	**157**	**781**
PM Peak Hour Factor ➡ 0.97												Highest Hourly Vehicle Volume Between 1500h & 1800h											
PM Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
1600-1700	11	332	62	6	**411**	56	555	46	0	**657**	**1068**	67	12	35	0	**114**	19	15	17	0	**51**	**165**	**1233**

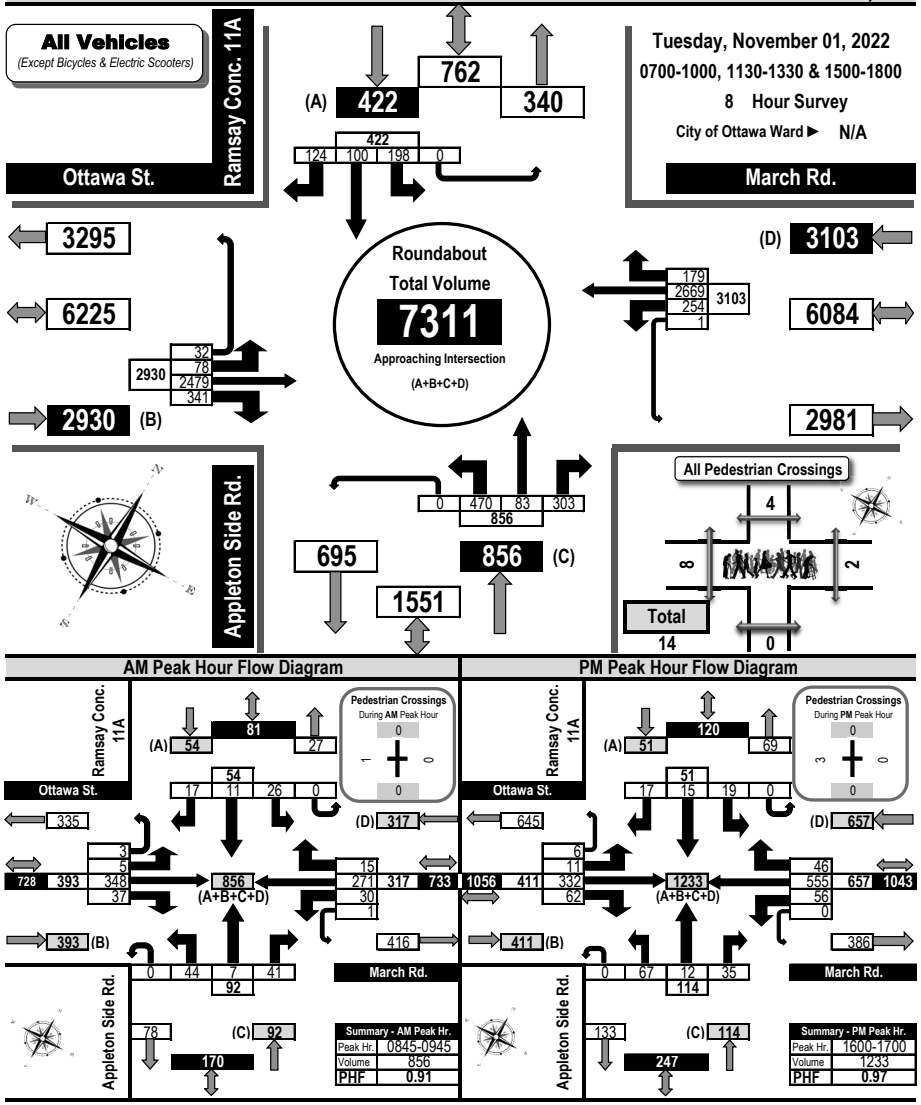
Comments:
School buses comprise 6.90% of the heavy vehicle traffic. There were a few minor conflicts during the day.

Notes:
1. Includes all vehicle types except bicycles, electric bicycles, and electric scooters.
2. When expansion and AADT factors are applied, the results will differ slightly due to rounding.

ACCURATE TRUSTED TRAFFIC DATA

Turning Movement Count
Summary, AM and PM Peak Hour Flow Diagrams
All Vehicles Except Bicycles

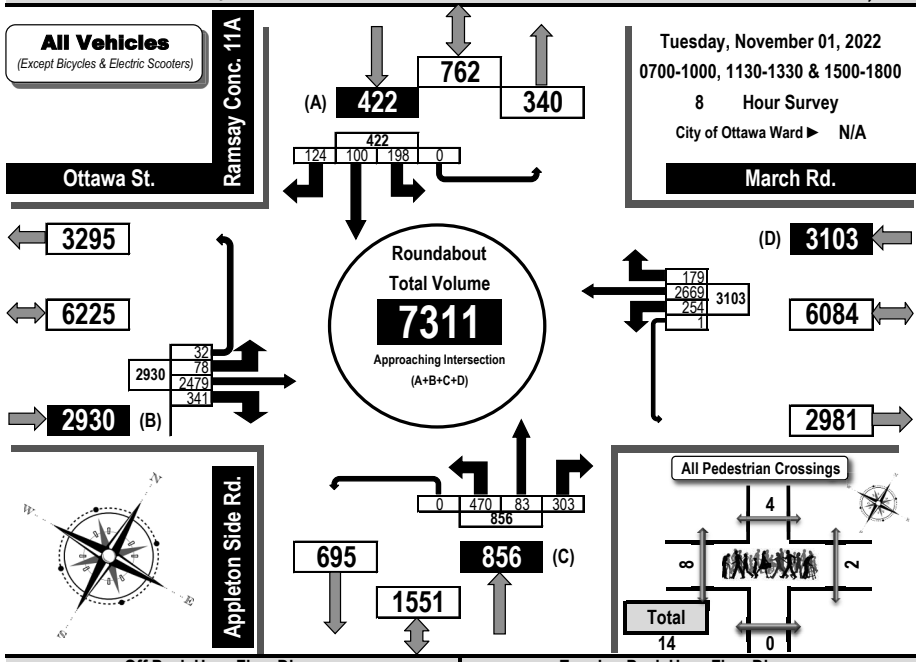
Appleton Side Road/Ramsay Concession 11A & March Road/Ottawa Street — **Almonte, ON**



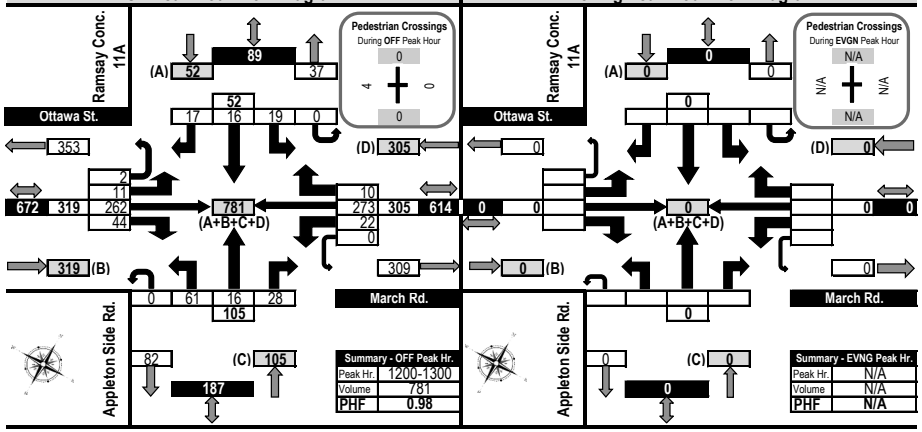
ACCURATE TRUSTED TRAFFIC DATA

Turning Movement Count
Summary, OFF and EVENING Peak Hour Flow Diagrams
All Vehicles Except Bicycles

Appleton Side Road/Ramsay Concession 11A & March Road/Ottawa Street — **Almonte, ON**



Off Peak Hour Flow Diagram



Summary - OFF Peak Hr.	
Peak Hr.	1200-1300
Volume	781
PHF	0.98

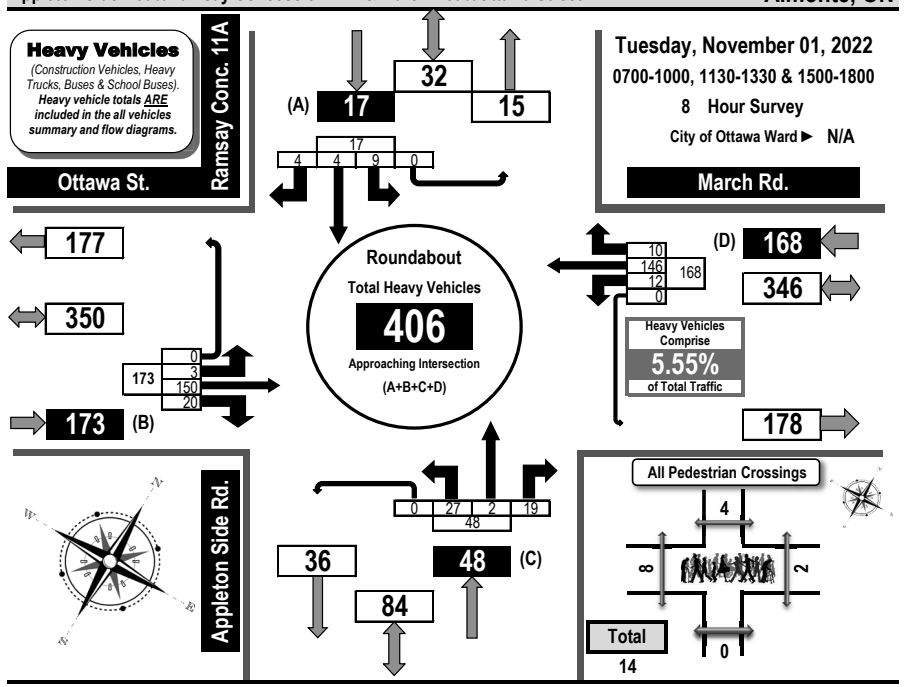
Evening Peak Hour Flow Diagram

Summary - EVNG Peak Hr.	
Peak Hr.	N/A
Volume	N/A
PHF	N/A

ACCURATE TRUSTED TRAFFIC DATA

Turning Movement Count
Heavy Vehicle Summary (FHWA Class 4-13)
Flow Diagram

Appleton Side Road/Ramsay Concession 11A & March Road/Ottawa Street — **Almonte, ON**



	Ottawa St.					March Rd.					Appleton Side Rd.					Ramsay Conc. 11A				
	Eastbound					Westbound					Northbound					Southbound				
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
0700-0800	1	20	5	0	26	1	21	2	0	24	3	1	4	0	8	3	0	1	0	4	62
0800-0900	0	28	4	0	32	1	22	2	0	25	5	0	5	0	10	2	0	0	0	2	69
0900-1000	1	23	1	0	25	1	24	2	0	27	1	0	4	0	5	2	1	0	0	3	60
1130-1230	1	16	3	0	20	2	18	1	0	21	3	1	0	0	4	0	1	1	0	2	47
1230-1330	0	22	2	0	24	1	18	0	0	19	7	0	2	0	9	0	1	0	0	1	53
1500-1600	0	20	2	0	22	3	16	1	0	20	5	0	1	0	6	1	0	2	0	3	51
1600-1700	0	16	1	0	17	3	19	2	0	24	3	0	1	0	4	1	1	0	0	2	47
1700-1800	0	5	2	0	7	0	8	0	0	8	0	0	2	0	2	0	0	0	0	0	17
Totals	3	150	20	0	173	12	146	10	0	168	27	2	19	0	48	9	4	4	0	17	406

Comments:
School buses comprise 6.90% of the heavy vehicle traffic. There were a few minor conflicts during the day.

Turning Movement Count
All Buses Summary (FHWA Class 4 ONLY)
Flow Diagram

Appleton Side Road/Ramsay Concession 11A & March Road/Ottawa Street — **Almonte, ON**

Buses ONLY
(Transit, Intercity, School Buses & Other Buses).
Bus totals ARE included in the all vehicles summary , heavy vehicle summary & flow diagrams.

Ramsay Conc. 11A

Ottawa St.

Tuesday, November 01, 2022
0700-1000, 1130-1330 & 1500-1800
8 Hour Survey
City of Ottawa Ward ► N/A

March Rd.

Appleton Side Rd.

	Ottawa St.					March Rd.					Appleton Side Rd.					Ramsay Conc. 11A					
	Eastbound					Westbound					Northbound					Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
0700-0800	1	1	1	0	3	0	2	0	0	2	0	0	0	0	0	1	0	0	0	1	6
0800-0900	0	3	1	0	4	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	6
0900-1000	0	2	0	0	2	0	3	1	0	4	0	0	0	0	0	0	0	0	0	0	6
1130-1230	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1230-1330	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500-1600	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2
1600-1700	0	0	0	0	0	2	3	1	0	6	2	0	0	0	2	0	0	0	0	0	8
1700-1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	1	6	3	0	10	2	8	2	0	12	3	0	0	0	3	3	0	0	0	3	28

Comments:
School buses comprise 6.90% of the heavy vehicle traffic. There were a few minor conflicts during the day.

Turning Movement Count
Bicycle Summary
Flow Diagram

Appleton Side Road/Ramsay Concession 11A & March Road/Ottawa Street — **Almonte, ON**

Bicycles
(Including electric bicycles and electric scooters)
Note:
Bicycle volumes are **NOT** included in vehicle totals.

Ramsay Conc. 11A

Ottawa St.

Tuesday, November 01, 2022
0700-1000, 1130-1330 & 1500-1800
8 Hour Survey
City of Ottawa Ward ► N/A

March Rd.

Appleton Side Rd.

Includes all bicycles travelling on sidewalks.

	Ottawa St.					March Rd.					Appleton Side Rd.					Ramsay Conc. 11A					
	Eastbound					Westbound					Northbound					Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
0700-0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800-0900	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
0900-1000	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
1130-1230	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	4
1230-1330	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500-1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600-1700	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1700-1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	1	0	3	0	4	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	7

Comments:
School buses comprise 6.90% of the heavy vehicle traffic. There were a few minor conflicts during the day.

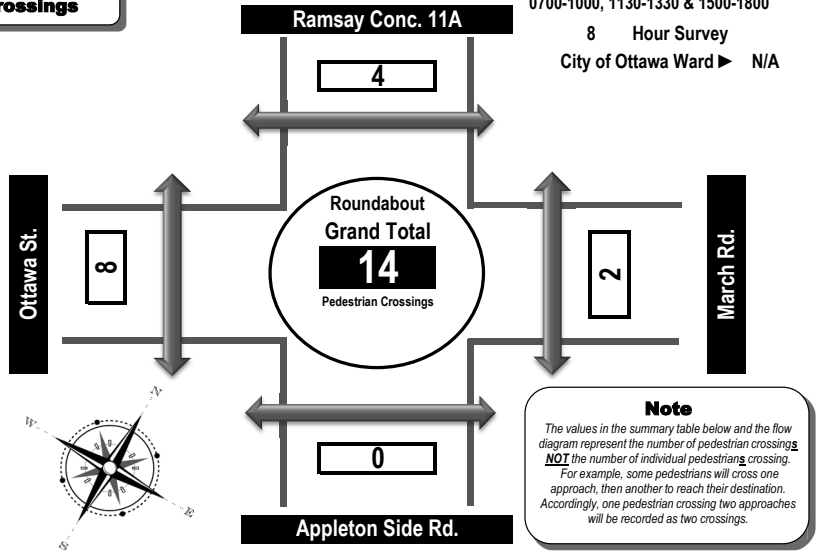
ACCURATE TRUSTED TRAFFIC DATA

Turning Movement Count
Pedestrian Crossings Summary and Flow Diagram

Appleton Side Road/Ramsay Concession 11A & March Road/Ottawa Street — **Almonte, ON**

Pedestrian Crossings

Tuesday, November 01, 2022
0700-1000, 1130-1330 & 1500-1800
8 Hour Survey
City of Ottawa Ward ► N/A



Note
*The values in the summary table below and the flow diagram represent the number of pedestrian crossing**s** **NOT** the number of individual pedestrian**s** crossing. For example, some pedestrians will cross one approach, then another to reach their destination. Accordingly, one pedestrian crossing two approaches will be recorded as two crossings.*

Time Period	West Side Crossing Ottawa St.	East Side Crossing March Rd.	Street Total	South Side Crossing Appleton Side Rd.	North Side Crossing Ramsay Conc. 11A	Street Total	Grand Total
0700-0800	0	0	0	0	0	0	0
0800-0900	0	0	0	0	2	2	2
0900-1000	1	0	1	0	0	0	1
1130-1230	4	0	4	0	0	0	4
1230-1330	0	0	0	0	0	0	0
1500-1600	0	2	2	0	2	2	4
1600-1700	3	0	3	0	0	0	3
1700-1800	0	0	0	0	0	0	0
Totals	8	2	10	0	4	4	14

Comments:
School buses comprise 6.90% of the heavy vehicle traffic. There were a few minor conflicts during the day.

ACCURATE TRUSTED TRAFFIC DATA

Turning Movement Count
Summary Report Including Peak Hours, AADT and Expansion Factors
All Vehicles Except Bicycles

Ottawa Street & Menzie Road/Paterson Street — **Almonte, ON**

Survey Date: Tuesday, November 01, 2022 **Start Time:** 0700 **AADT Factor:** 1.0
Weather AM: Overcast 10º C **Survey Duration:** 8 Hrs. **Survey Hours:** 0700-1000, 1130-1330 & 1500-1800
Weather PM: Mostly Sunny 16º C **Surveyor(s):** T. Carmody

	Ottawa St. Eastbound					Ottawa St. Westbound						Paterson St. Northbound					Menzie Rd. Southbound						
Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
0700-0800	0	487	35	0	522	30	238	1	0	269	791	30	4	58	0	92	8	7	2	0	17	109	900
0800-0900	3	459	63	0	525	60	293	2	0	355	880	26	4	62	0	92	4	12	7	0	23	115	995
0900-1000	1	509	65	0	575	50	370	3	0	423	998	77	9	77	0	163	2	14	6	0	22	185	1183
1130-1230	5	471	26	0	502	40	444	5	0	489	991	45	3	52	0	100	4	2	6	0	12	112	1103
1230-1330	5	431	29	0	465	40	430	8	0	478	943	45	1	33	0	79	3	4	12	0	19	98	1041
1500-1600	8	485	68	0	561	62	606	7	0	675	1236	79	18	44	0	141	9	6	6	0	21	162	1398
1600-1700	4	496	46	0	546	65	744	7	0	816	1362	76	8	57	0	141	7	4	6	0	17	158	1520
1700-1800	2	431	25	0	458	64	634	3	0	701	1159	59	6	30	0	95	3	6	2	0	11	106	1265
Totals	28	3769	357	0	4154	411	3759	36	0	4206	8360	437	53	413	0	903	40	55	47	0	142	1045	9405

Equivalent 12 & 24-hour Vehicle Volumes Including the Annual Average Daily Traffic (AADT) Factor
Applicable to the Day and Month of the Turning Movement Count
Expansion factors are applied exclusively to standard weekday 8-hour turning movement counts conducted during the hours of 0700h - 1000h, 1130h - 1330h and 1500h - 1800h

Equivalent 12-hour vehicle volumes. These volumes are calculated by multiplying the 8-hour totals by the 8 ➔12 expansion factor of 1.39																							
Equ. 12 Hr	39	5239	496	0	5774	571	5225	50	0	5846	11620	607	74	574	0	1255	56	76	65	0	197	1453	13073
Average daily 12-hour vehicle volumes. These volumes are calculated by multiplying the equivalent 12-hour totals by the AADT factor of: 1.0																							
AADT 12-hr	39	5239	496	0	5774	571	5225	50	0	5846	11620	607	74	574	0	1255	56	76	65	0	197	1453	13073
24-Hour AADT. These volumes are calculated by multiplying the average daily 12-hour vehicle volumes by the 12 ➔24 expansion factor of 1.31																							
AADT 24 Hr	51	6863	650	0	7564	748	6845	66	0	7659	15223	796	97	752	0	1644	73	100	86	0	259	1903	17126

AADT and expansion factors provided by the City of Ottawa

AM Peak Hour Factor ➔ 0.93												Highest Hourly Vehicle Volume Between 0700h & 1000h											
AM Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
0900-1000	1	509	65	0	575	50	370	3	0	423	998	77	9	77	0	163	2	14	6	0	22	185	1183
OFF Peak Hour Factor ➔ 0.97												Highest Hourly Vehicle Volume Between 1130h & 1330h											
OFF Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
1145-1245	3	476	28	0	507	45	439	5	0	489	996	47	3	51	0	101	1	1	9	0	11	112	1108
PM Peak Hour Factor ➔ 0.95												Highest Hourly Vehicle Volume Between 1500h & 1800h											
PM Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
1545-1645	4	510	47	0	561	60	741	11	0	812	1373	86	8	64	0	158	7	3	5	0	15	173	1546

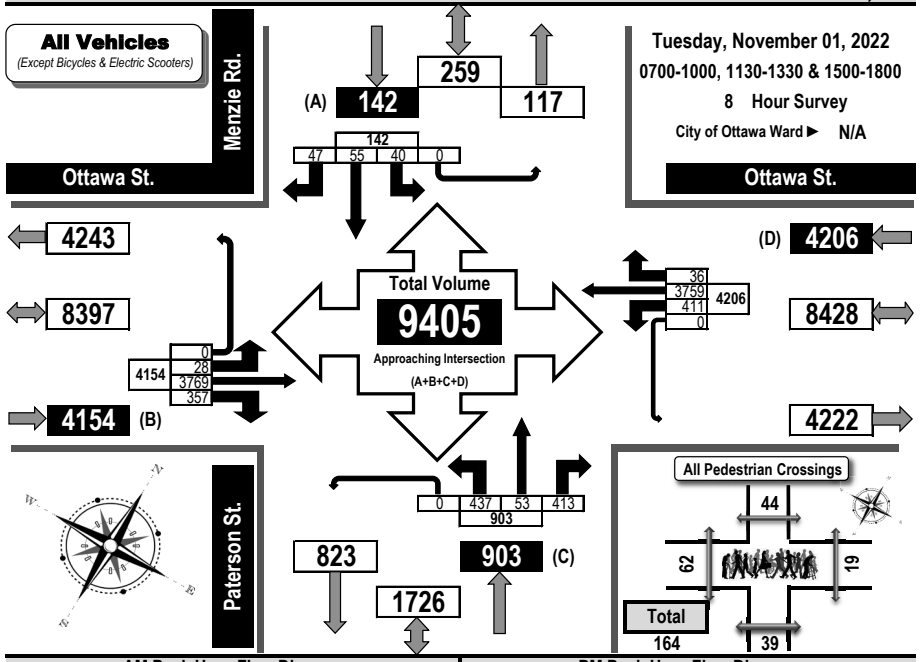
Comments:
School buses comprise 15.83% of the heavy vehicle traffic. A crossing guard assisted pedestrians crossing Ottawa Street and Paterson Street before and after school.

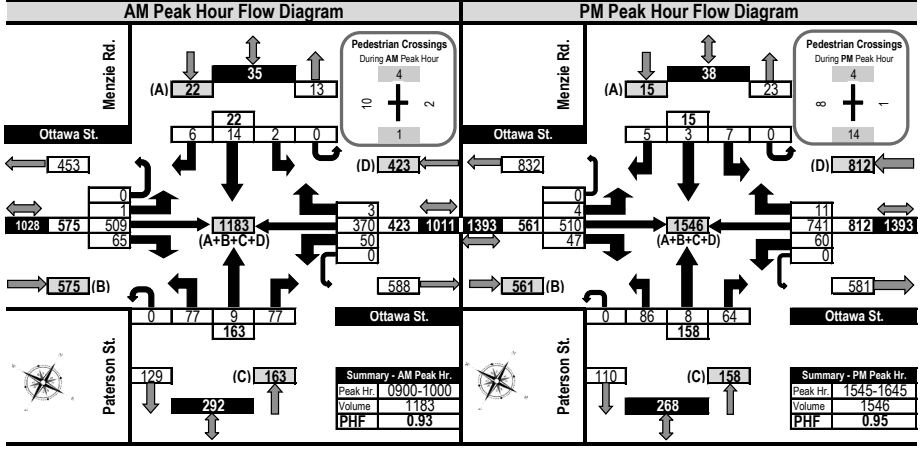
Notes:
1. Includes all vehicle types except bicycles, electric bicycles, and electric scooters.
2. When expansion and AADT factors are applied, the results will differ slightly due to rounding.

ACCURATE TRUSTED TRAFFIC DATA

Turning Movement Count
Summary, AM and PM Peak Hour Flow Diagrams
All Vehicles Except Bicycles

Ottawa Street & Menzie Road/Paterson Street — **Almonte, ON**

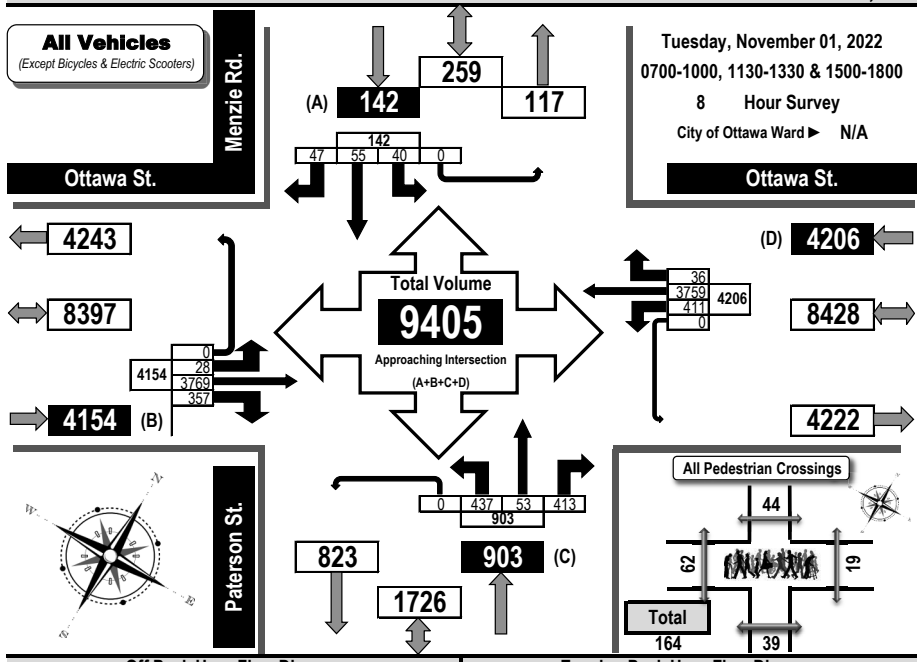


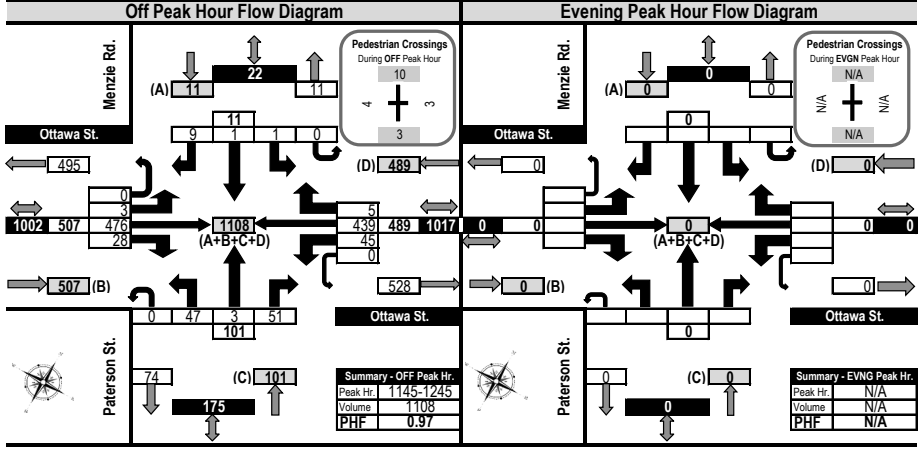


ACCURATE TRUSTED TRAFFIC DATA

Turning Movement Count
Summary, OFF and EVENING Peak Hour Flow Diagrams
All Vehicles Except Bicycles

Ottawa Street & Menzie Road/Paterson Street — **Almonte, ON**



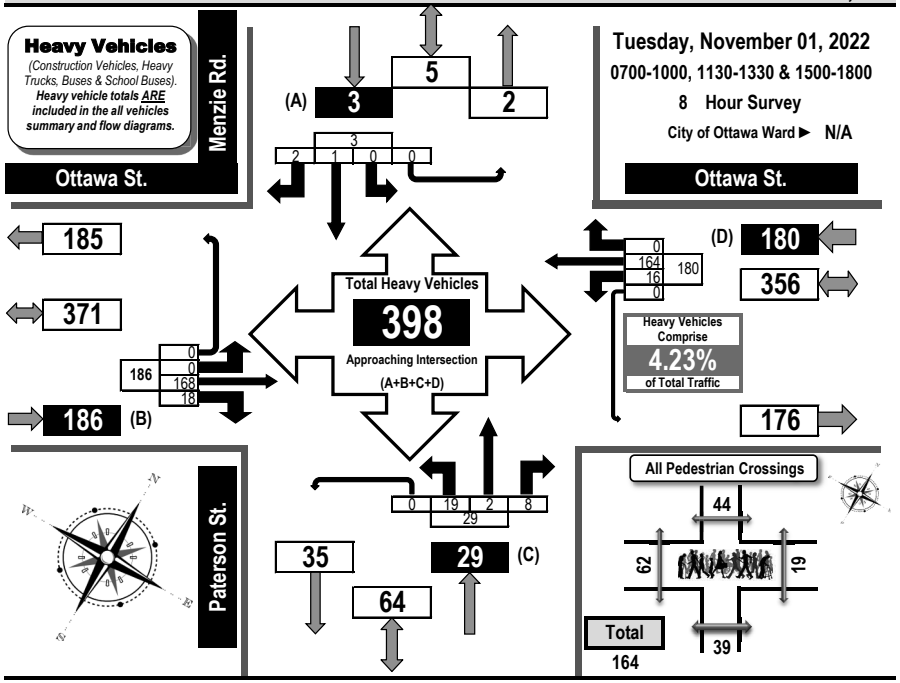


Turning Movement Count
Heavy Vehicle Summary (FHWA Class 4-13)
Flow Diagram

Ottawa Street & Menzie Road/Paterson Street — Almonte, ON

Heavy Vehicles
(Construction Vehicles, Heavy Trucks, Buses & School Buses).
Heavy vehicle totals ARE included in the all vehicles summary and flow diagrams.

Tuesday, November 01, 2022
0700-1000, 1130-1330 & 1500-1800
8 Hour Survey
City of Ottawa Ward ► N/A



	Ottawa St.					Ottawa St.					Paterson St.					Menzie Rd.					
	Eastbound					Westbound					Northbound					Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
0700-0800	0	28	2	0	30	3	23	0	0	26	3	0	0	0	3	0	0	1	0	1	60
0800-0900	0	30	2	0	32	5	20	0	0	25	2	0	1	0	3	0	1	0	0	1	61
0900-1000	0	24	6	0	30	2	27	0	0	29	6	0	3	0	9	0	0	0	0	0	68
1130-1230	0	16	0	0	16	2	21	0	0	23	1	0	2	0	3	0	0	0	0	0	42
1230-1330	0	25	0	0	25	1	22	0	0	23	0	0	1	0	1	0	0	0	0	0	49
1500-1600	0	24	8	0	32	2	22	0	0	24	7	2	0	0	9	0	0	0	0	0	65
1600-1700	0	15	0	0	15	1	23	0	0	24	0	0	1	0	1	0	0	0	0	0	40
1700-1800	0	6	0	0	6	0	6	0	0	6	0	0	0	0	0	0	0	1	0	1	13
Totals	0	168	18	0	186	16	164	0	0	180	19	2	8	0	29	0	1	2	0	3	398

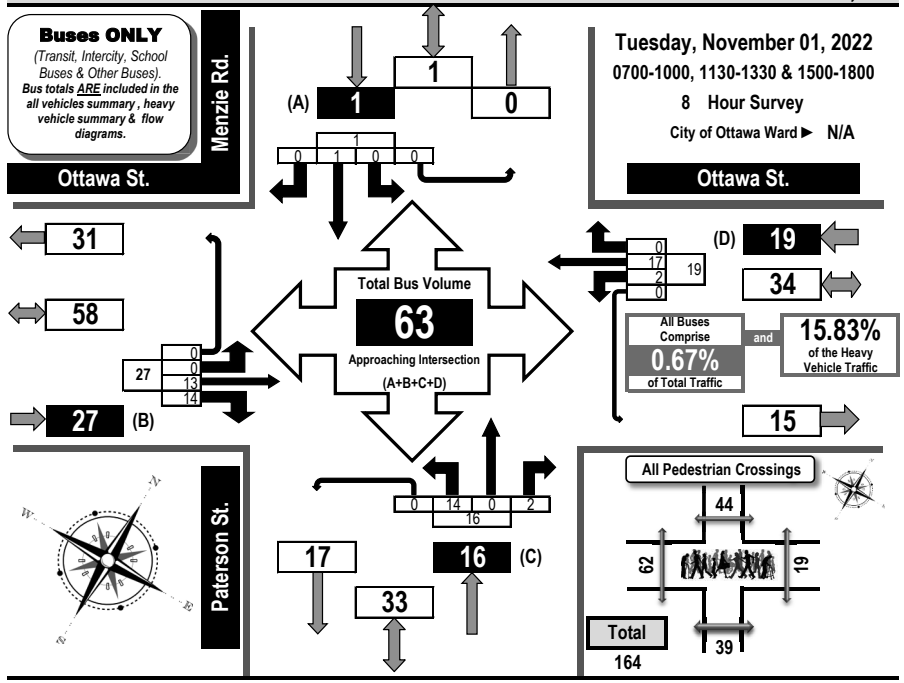
Comments:
School buses comprise 15.83% of the heavy vehicle traffic. A crossing guard assisted pedestrians crossing Ottawa Street and Paterson Street before and after school.

Turning Movement Count
All Buses Summary (FHWA Class 4 ONLY)
Flow Diagram

Ottawa Street & Menzie Road/Paterson Street — Almonte, ON

Buses ONLY
(Transit, Intercity, School Buses & Other Buses).
Bus totals ARE included in the all vehicles summary , heavy vehicle summary & flow diagrams.

Tuesday, November 01, 2022
0700-1000, 1130-1330 & 1500-1800
8 Hour Survey
City of Ottawa Ward ► N/A

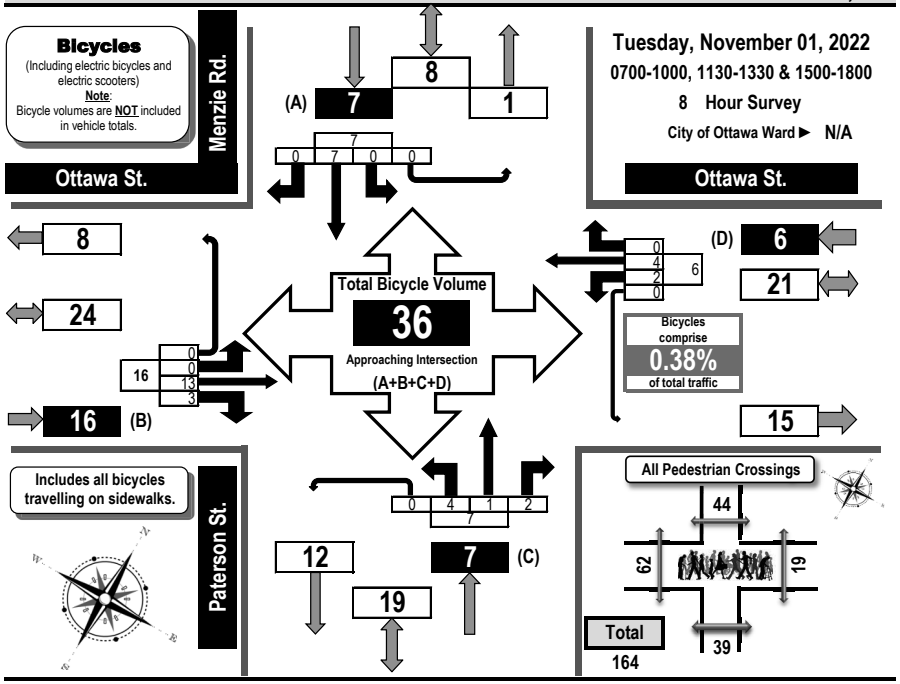


	Ottawa St.					Ottawa St.					Paterson St.					Menzie Rd.					
	Eastbound					Westbound					Northbound					Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
0700-0800	0	4	1	0	5	0	2	0	0	2	1	0	0	0	1	0	0	0	0	0	8
0800-0900	0	3	2	0	5	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	7
0900-1000	0	2	5	0	7	1	5	0	0	6	6	0	2	0	8	0	0	0	0	0	21
1130-1230	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
1230-1330	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1500-1600	0	2	6	0	8	1	3	0	0	4	7	0	0	0	7	0	0	0	0	0	19
1600-1700	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	5
1700-1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	0	13	14	0	27	2	17	0	0	19	14	0	2	0	16	0	1	0	0	1	63

Comments:
School buses comprise 15.83% of the heavy vehicle traffic. A crossing guard assisted pedestrians crossing Ottawa Street and Paterson Street before and after school.

Turning Movement Count
Bicycle Summary
Flow Diagram

Ottawa Street & Menzie Road/Paterson Street — **Almonte, ON**

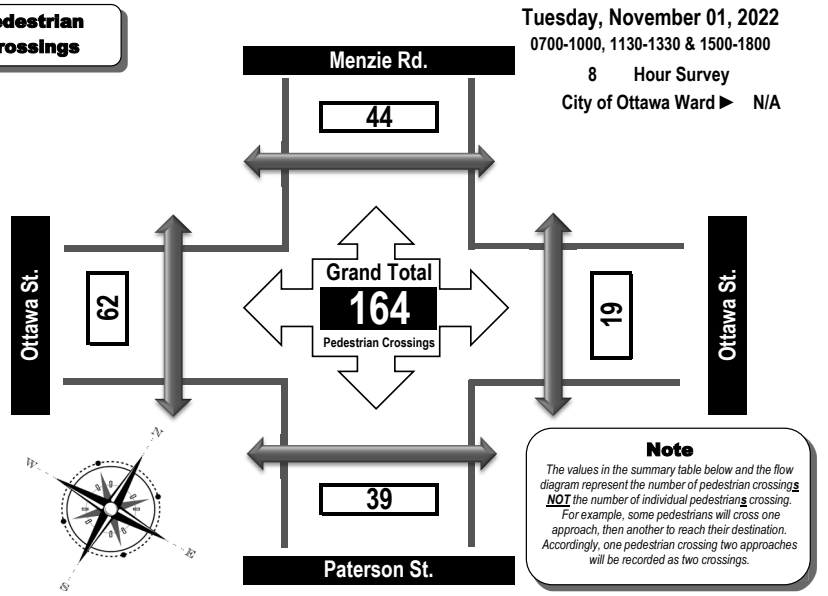


	Ottawa St. Eastbound					Ottawa St. Westbound					Paterson St. Northbound					Menzie Rd. Southbound						
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
0700-0800	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
0800-0900	0	2	0	0	2	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	3
0900-1000	0	1	1	0	2	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	6
1130-1230	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3
1230-1330	0	3	1	0	4	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	5
1500-1600	0	2	1	0	3	0	0	0	0	0	1	1	0	0	2	0	1	0	0	1	6
1600-1700	0	2	0	0	2	2	1	0	0	3	0	0	2	0	2	0	2	0	0	2	9
1700-1800	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	0	0	2	3
Totals	**0**	**13**	**3**	**0**	**16**	**2**	**4**	**0**	**0**	**6**	**4**	**1**	**2**	**0**	**7**	**0**	**7**	**0**	**0**	**7**	**36**

Comments:
School buses comprise 15.83% of the heavy vehicle traffic. A crossing guard assisted pedestrians crossing Ottawa Street and Paterson Street before and after school.

Turning Movement Count
Pedestrian Crossings Summary
and Flow Diagram

Ottawa Street & Menzie Road/Paterson Street — **Almonte, ON**



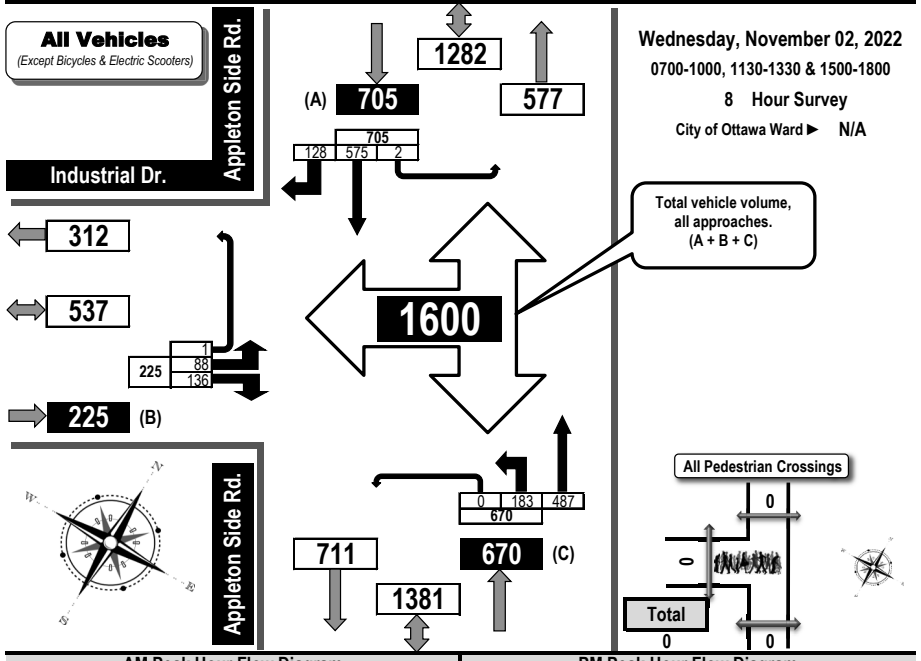
Time Period	West Side Crossing Ottawa St.	East Side Crossing Ottawa St.	Street Total	South Side Crossing Paterson St.	North Side Crossing Menzie Rd.	Street Total	Grand Total
0700-0800	3	1	4	3	3	6	10
0800-0900	3	0	3	2	6	8	11
0900-1000	10	2	12	1	4	5	17
1130-1230	9	4	13	5	12	17	30
1230-1330	4	3	7	3	4	7	14
1500-1600	28	4	32	12	2	14	46
1600-1700	2	1	3	7	6	13	16
1700-1800	3	4	7	6	7	13	20
Totals	**62**	**19**	**81**	**39**	**44**	**83**	**164**

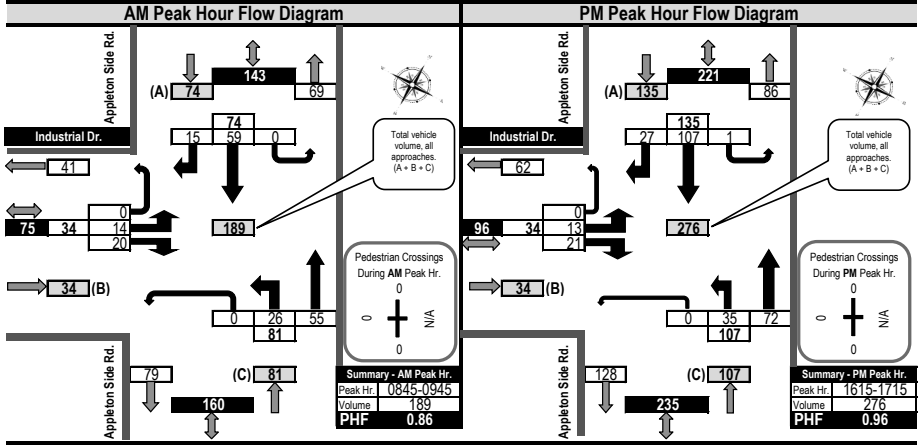
Comments:
School buses comprise 15.83% of the heavy vehicle traffic. A crossing guard assisted pedestrians crossing Ottawa Street and Paterson Street before and after school.

ACCURATE TRUSTED TRAFFIC DATA

Turning Movement Count
Summary, AM and PM Peak Hour Flow Diagrams
All Vehicles Except Bicycles

Appleton Side Road & Industrial Drive — **Almonte, ON**

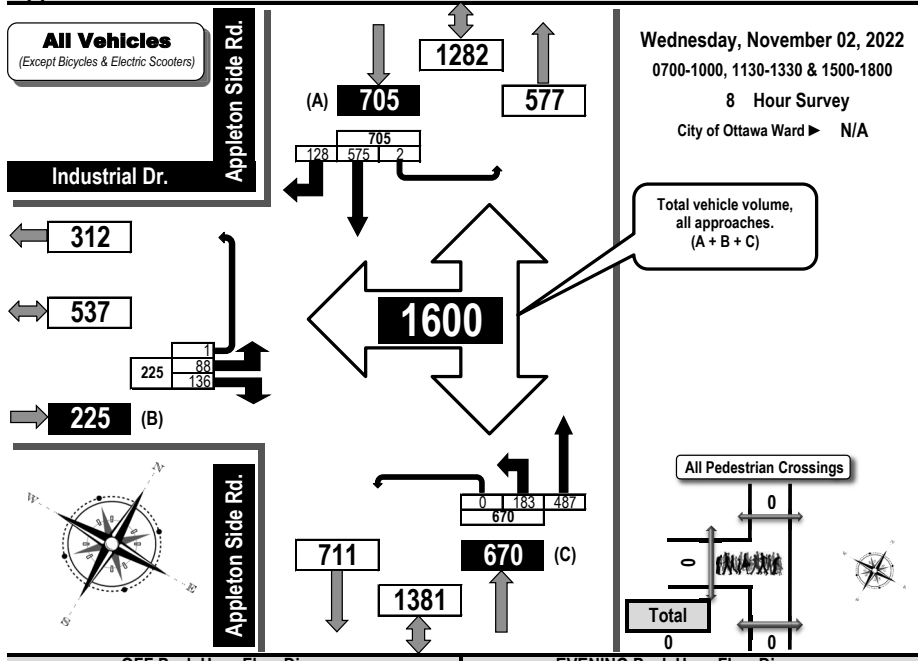


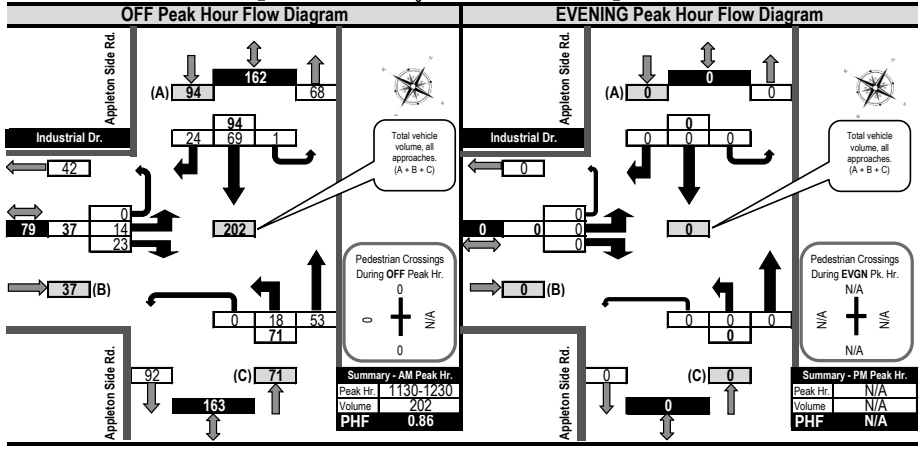


ACCURATE TRUSTED TRAFFIC DATA

Turning Movement Count
Summary, OFF and EVGN Peak Hour Flow Diagrams
All Vehicles Except Bicycles

Appleton Side Road & Industrial Drive — **Almonte, ON**





ACCURATE TRUSTED TRAFFIC DATA

Turning Movement Count
Summary Report Including Peak Hours, AADT and Expansion Factors
All Vehicles Except Bicycles

Appleton Side Road & Industrial Drive — Almonte, ON

Survey Date: Wednesday, November 02, 2022 **Start Time:** 0700 **AADT Factor:** 0.9
Weather AM: Sunny 5º C **Survey Duration:** 8 Hrs. **Survey Hours:** 0700-1000, 1130-1330 & 1500-1800
Weather PM: Sunny 15º C **Surveyor(s):** J. Mousseau

	Industrial Dr.					N/A						Appleton Side Rd.					Appleton Side Rd.					
	Eastbound					Westbound						Northbound					Southbound					
Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
0700-0800	5		12	1	18						18	13	45		0	58		64	9	0	73	131	149
0800-0900	8		15	0	23						23	27	53		0	80		58	19	0	77	157	180
0900-1000	10		15	0	25						25	22	49		0	71		61	8	0	69	140	165
1130-1230	14		23	0	37						37	18	53		0	71		69	24	1	94	165	202
1230-1330	18		6	0	24						24	17	68		0	85		65	18	0	83	168	192
1500-1600	9		26	0	35						35	30	82		0	112		85	15	0	100	212	247
1600-1700	11		19	0	30						30	30	71		0	101		106	26	0	132	233	263
1700-1800	13		20	0	33						33	26	66		0	92		67	9	1	77	169	202
Totals	88		136	1	225						225	183	487		0	670		575	128	2	705	1375	1600

Equivalent 12 & 24-hour Vehicle Volumes Including the Annual Average Daily Traffic (AADT) Factor
Applicable to the Day and Month of the Turning Movement Count
Expansion factors are applied exclusively to standard weekday 8-hour turning movement counts conducted during the hours of 0700h - 1000h, 1130h - 1330h and 1500h - 1800h

Equivalent 12-hour vehicle volumes. These volumes are calculated by multiplying the 8-hour totals by the 8 ➡12 expansion factor of 1.39

Equ. 12 Hr	122	0	189	1	313	0	0	0	0	0	313	254	677	0	0	931	0	799	178	3	980	1911	2224

Average daily 12-hour vehicle volumes. These volumes are calculated by multiplying the equivalent 12-hour totals by the AADT factor of: 0.9

AADT 12-hr	110	0	170	1	281	0	0	0	0	0	281	229	609	0	0	838	0	719	160	3	882	1720	2002

24-Hour AADT. These volumes are calculated by multiplying the average daily 12-hour vehicle volumes by the 12 ➡24 expansion factor of 1.31

AADT 24 Hr	144	0	223	2	369	0	0	0	0	0	369	300	798	0	0	1098	0	942	210	3	1155	2253	2622

AADT and expansion factors provided by the City of Ottawa

AM Peak Hour Factor ➡ 0.86												Highest Hourly Vehicle Volume Between 0700h & 1000h										
AM Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
0845-0945	14	0	20	0	34	0	0	0	0	0	34	26	55	0	0	81	0	59	15	0	74	155	189
OFF Peak Hour Factor ➡ 0.81												Highest Hourly Vehicle Volume Between 1130h & 1330h										
OFF Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
1130-1230	14	0	23	0	37	0	0	0	0	0	37	18	53	0	0	71	0	69	24	1	94	165	202
PM Peak Hour Factor ➡ 0.96												Highest Hourly Vehicle Volume Between 1500h & 1800h										
PM Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
1615-1715	13	0	21	0	34	0	0	0	0	0	34	35	72	0	0	107	0	107	27	1	135	242	276

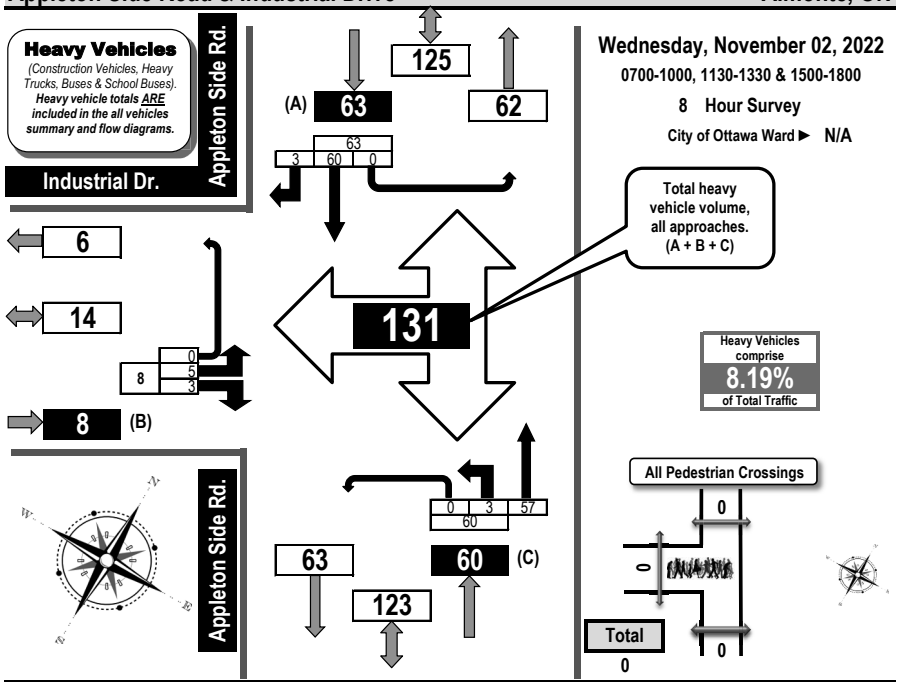
Comments:
School buses comprise 7.63% of the heavy vehicle traffic.

Notes:
1. Includes all vehicle types except bicycles, electric bicycles, and electric scooters.
2. When expansion and AADT factors are applied, the results will differ slightly due to rounding.

ACCURATE TRUSTED TRAFFIC DATA

Turning Movement Count
Heavy Vehicle Summary (FHWA Class 4 to 13)
Flow Diagram

Appleton Side Road & Industrial Drive — Almonte, ON



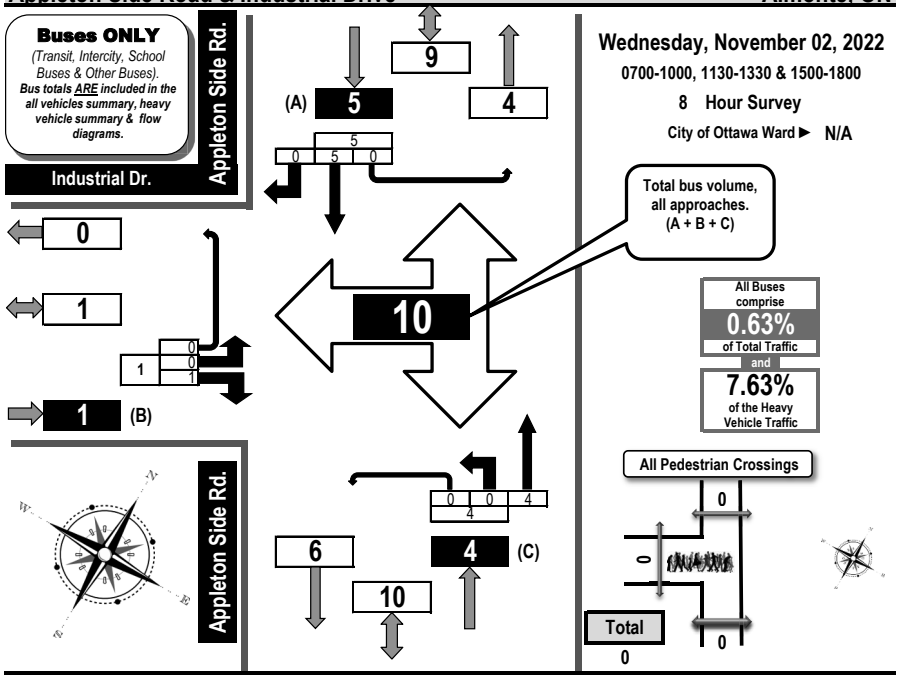
	Industrial Dr.					N/A					Appleton Side Rd.					Appleton Side Rd.					
	Eastbound					Westbound					Northbound					Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
0700-0800	1		1	0	2						0	8		0	8		5	0	0	5	15
0800-0900	0		1	0	1						0	5		0	5		6	1	0	7	13
0900-1000	3		0	0	3						1	5		0	6		6	0	0	6	15
1130-1230	0		0	0	0						0	7		0	7		8	0	0	8	15
1230-1330	1		0	0	1						1	11		0	12		9	0	0	9	22
1500-1600	0		0	0	0						0	14		0	14		9	0	0	9	23
1600-1700	0		1	0	1						1	5		0	6		13	1	0	14	21
1700-1800	0		0	0	0						0	2		0	2		4	1	0	5	7
Totals	5		3	0	8						3	57		0	60		60	3	0	63	131

Comments:
School buses comprise 7.63% of the heavy vehicle traffic.

Turning Movement Count
All Buses Summary (FHWA Class 4 ONLY)
Flow Diagram

Appleton Side Road & Industrial Drive — **Almonte, ON**

Buses ONLY
(Transit, Intercity, School Buses & Other Buses).
Bus totals ARE included in the all vehicles summary, heavy vehicle summary & flow diagrams.



Wednesday, November 02, 2022
0700-1000, 1130-1330 & 1500-1800
8 Hour Survey
City of Ottawa Ward ► N/A

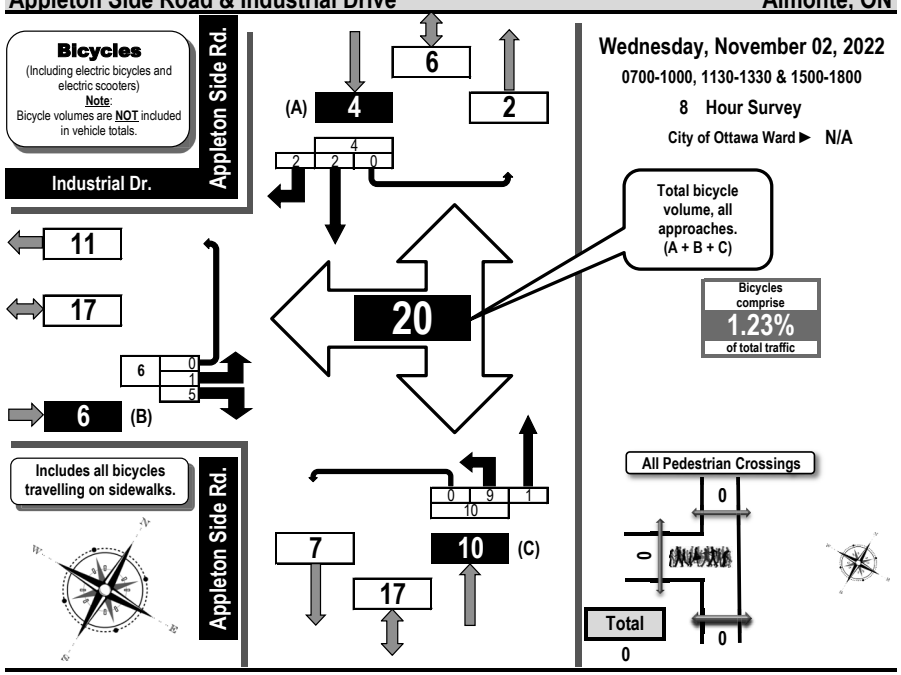
	Industrial Dr.					N/A					Appleton Side Rd.					Appleton Side Rd.					
	Eastbound					Westbound					Northbound					Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
0700-0800	0		1	0	1						0	0		0	0		1	0	0	1	2
0800-0900	0		0	0	0						0	1		0	1		1	0	0	1	2
0900-1000	0		0	0	0						0	0		0	0		0	0	0	0	0
1130-1230	0		0	0	0						0	0		0	0		0	0	0	0	0
1230-1330	0		0	0	0						0	1		0	1		0	0	0	0	1
1500-1600	0		0	0	0						0	0		0	0		1	0	0	1	1
1600-1700	0		0	0	0						0	2		0	2		2	0	0	2	4
1700-1800	0		0	0	0						0	0		0	0		0	0	0	0	0
Totals	0		1	0	1						0	4		0	4		5	0	0	5	10

Comments:
School buses comprise 7.63% of the heavy vehicle traffic.

Turning Movement Count
Bicycle Summary
Flow Diagram

Appleton Side Road & Industrial Drive — **Almonte, ON**

Bicycles
(Including electric bicycles and electric scooters)
Note:
Bicycle volumes are **NOT** included in vehicle totals.



Wednesday, November 02, 2022
0700-1000, 1130-1330 & 1500-1800
8 Hour Survey
City of Ottawa Ward ► N/A

	Industrial Dr.					N/A					Appleton Side Rd.					Appleton Side Rd.					
	Eastbound					Westbound					Northbound					Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
0700-0800	0		0	0	0						0	0		0	0		0	0	0	0	0
0800-0900	0		0	0	0						1	0		0	1		0	0	0	0	1
0900-1000	0		2	0	2						0	0		0	0		0	0	0	0	2
1130-1230	1		1	0	2						2	0		0	2		0	1	0	1	5
1230-1330	0		0	0	0						1	0		0	1		2	0	0	2	3
1500-1600	0		2	0	2						4	0		0	4		0	0	0	0	6
1600-1700	0		0	0	0						1	0		0	1		0	1	0	1	2
1700-1800	0		0	0	0						0	1		0	1		0	0	0	0	1
Totals	1		5	0	6						9	1		0	10		2	2	0	4	20

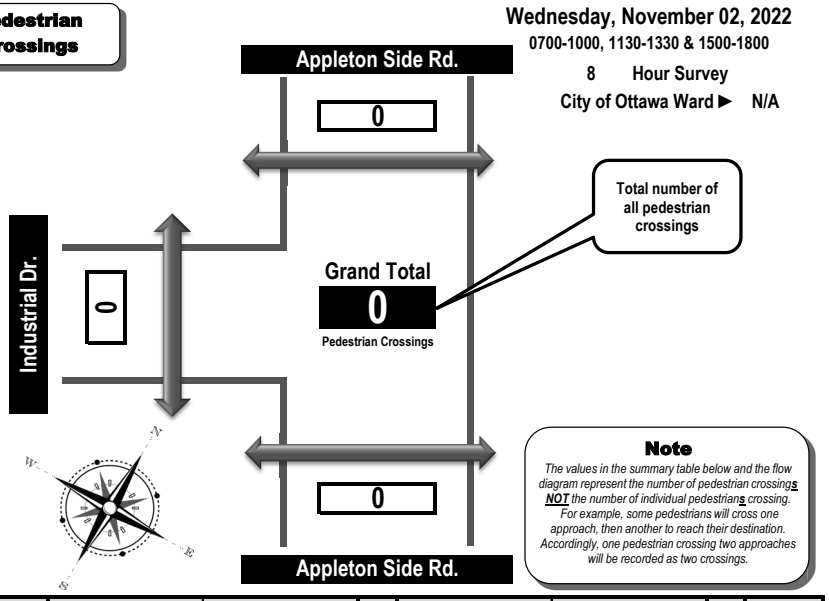
Comments:
School buses comprise 7.63% of the heavy vehicle traffic.

Turning Movement Count
Pedestrian Crossings Summary and Flow Diagram

Appleton Side Road & Industrial Drive — Almonte, ON

Pedestrian Crossings

Wednesday, November 02, 2022
0700-1000, 1130-1330 & 1500-1800
8 Hour Survey
City of Ottawa Ward ► N/A



Note
*The values in the summary table below and the flow diagram represent the number of pedestrian crossing**s** **NOT** the number of individual pedestrian**s** crossing. For example, some pedestrians will cross one approach, then another to reach their destination. Accordingly, one pedestrian crossing two approaches will be recorded as two crossings.*

Time Period	West Side Crossing Industrial Dr.	East Side Crossing N/A	Street Total	South Side Crossing Appleton Side Rd.	North Side Crossing Appleton Side Rd.	Street Total	Grand Total
0700-0800	0		0	0	0	0	0
0800-0900	0		0	0	0	0	0
0900-1000	0		0	0	0	0	0
1130-1230	0		0	0	0	0	0
1230-1330	0		0	0	0	0	0
1500-1600	0		0	0	0	0	0
1600-1700	0		0	0	0	0	0
1700-1800	0		0	0	0	0	0
Totals	0		0	0	0	0	0

No Pedestrian Crossings Observed

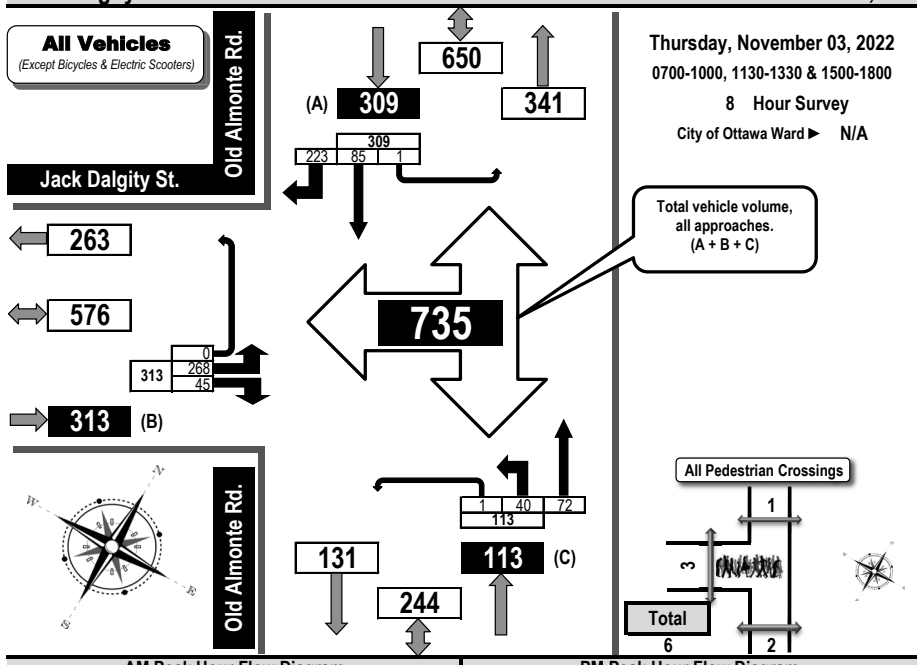
Comments:
School buses comprise 7.63% of the heavy vehicle traffic.

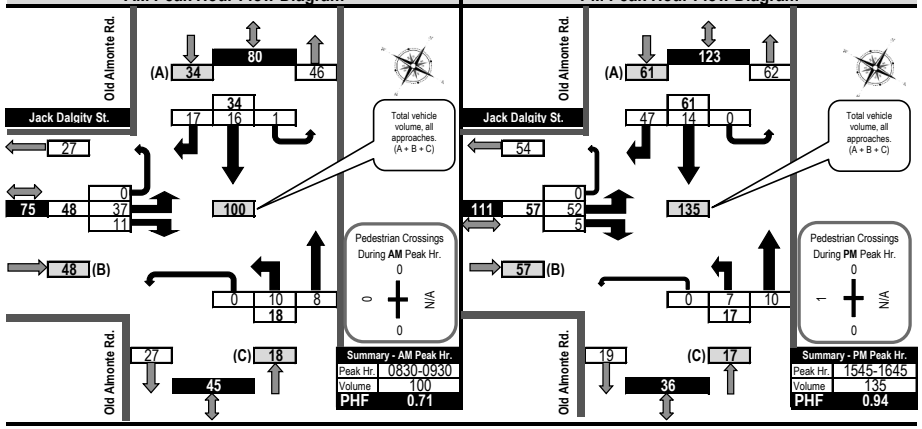
Turning Movement Count
Summary, AM and PM Peak Hour Flow Diagrams
All Vehicles Except Bicycles

Jack Dalgity Street & Old Almonte Road — Almonte, ON

All Vehicles
(Except Bicycles & Electric Scooters)

Thursday, November 03, 2022
0700-1000, 1130-1330 & 1500-1800
8 Hour Survey
City of Ottawa Ward ► N/A

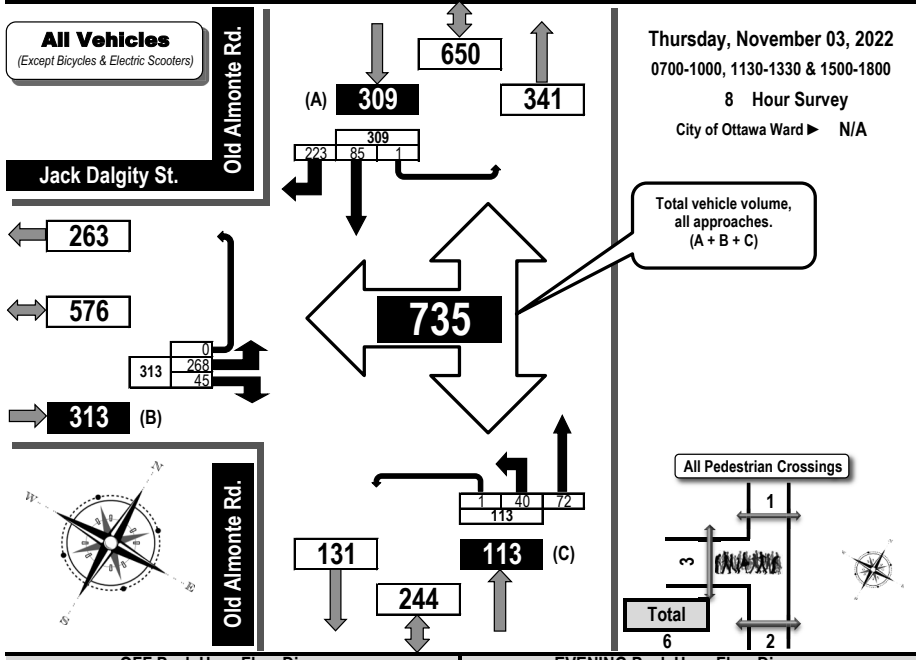


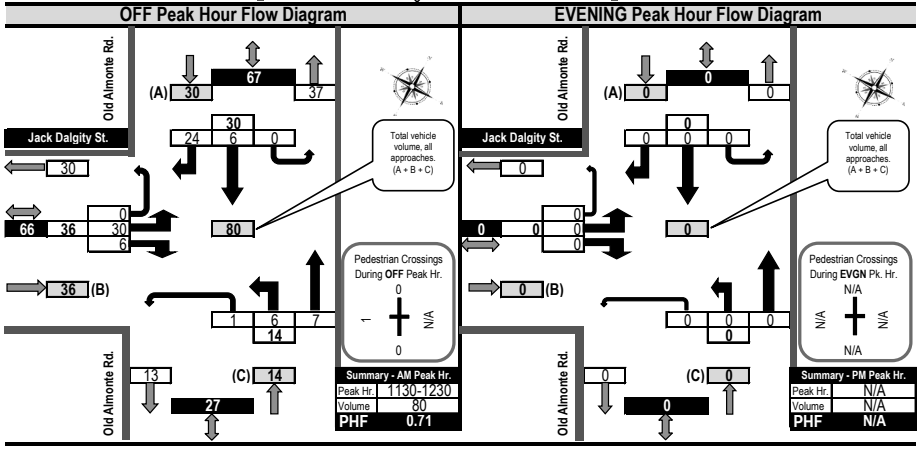


ACCURATE TRUSTED TRAFFIC DATA

Turning Movement Count
Summary, OFF and EVGN Peak Hour Flow Diagrams
All Vehicles Except Bicycles

Jack Dalgity Street & Old Almonte Road — Almonte, ON





ACCURATE TRUSTED TRAFFIC DATA

Turning Movement Count
Summary Report Including Peak Hours, AADT and Expansion Factors
All Vehicles Except Bicycles

Jack Dalgity Street & Old Almonte Road — Almonte, ON

Survey Date: Thursday, November 03, 2022 **Start Time:** 0700 **AADT Factor:** 0.9
Weather AM: Clear & Sunny +1° C **Survey Duration:** 8 Hrs. **Survey Hours:** 0700-1000, 1130-1330 & 1500-1800
Weather PM: Mainly Clear 17° C **Surveyor(s):** J. Mousseau

	Jack Dalgity St.					N/A						Old Almonte Rd.					Old Almonte Rd.					
	Eastbound					Westbound						Northbound					Southbound					
Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
0700-0800	29		4	0	33						33	3	6		0	9		5	14	0	19	28	61
0800-0900	22		10	0	32						32	9	7		0	16		9	16	0	25	41	73
0900-1000	45		6	0	51						51	4	8		0	12		12	18	1	31	43	94
1130-1230	30		6	0	36						36	6	7		1	14		6	24	0	30	44	80
1230-1330	30		4	0	34						34	0	9		0	9		9	23	0	32	41	75
1500-1600	38		5	0	43						43	3	16		0	19		18	40	0	58	77	120
1600-1700	45		6	0	51						51	9	11		0	20		12	51	0	63	83	134
1700-1800	29		4	0	33						33	6	8		0	14		14	37	0	51	65	98
Totals	268		45	0	313						313	40	72		1	113		85	223	1	309	422	735

Equivalent 12 & 24-hour Vehicle Volumes Including the Annual Average Daily Traffic (AADT) Factor
Applicable to the Day and Month of the Turning Movement Count

Expansion factors are applied exclusively to standard weekday 8-hour turning movement counts conducted during the hours of 0700h - 1000h, 1130h - 1330h and 1500h - 1800h

Equivalent 12-hour vehicle volumes. These volumes are calculated by multiplying the 8-hour totals by the 8 ➡12 expansion factor of 1.39																						
Equ. 12 Hr	373	0	63	0	435	0	0	0	0	0	435	56	100	0	1	157	0	118	310	1	430	587	1022
Average daily 12-hour vehicle volumes. These volumes are calculated by multiplying the equivalent 12-hour totals by the AADT factor of: 0.9																						
AADT 12-hr	335	0	56	0	392	0	0	0	0	0	392	50	90	0	1	141	0	106	279	1	387	528	919
24-Hour AADT. These volumes are calculated by multiplying the average daily 12-hour vehicle volumes by the 12 ➡24 expansion factor of 1.31																						
AADT 24 Hr	439	0	74	0	513	0	0	0	0	0	513	66	118	0	2	185	0	139	365	2	506	692	1205

AADT and expansion factors provided by the City of Ottawa

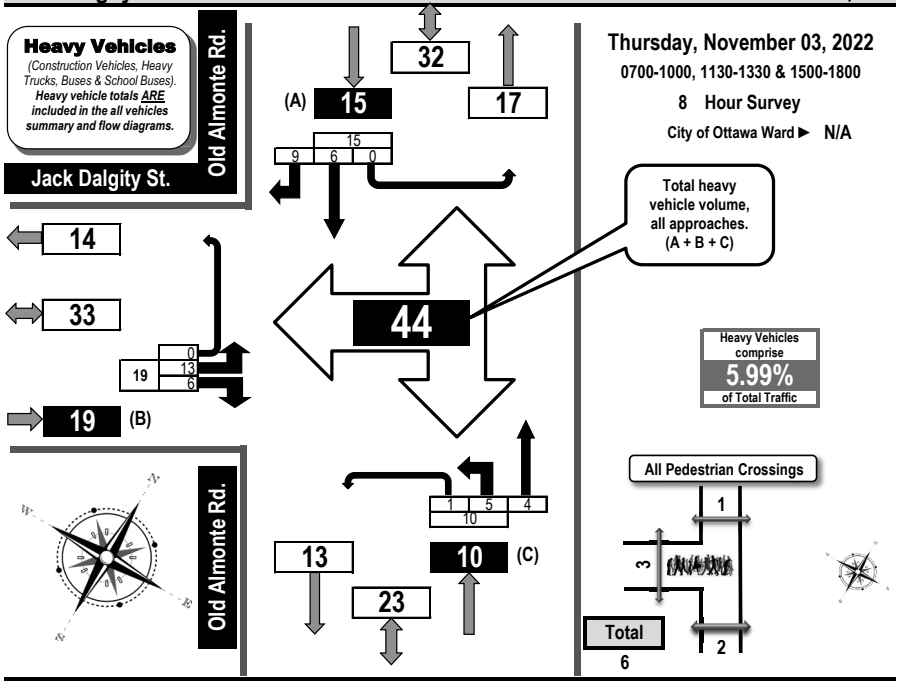
AM Peak Hour Factor ➡ 0.71												Highest Hourly Vehicle Volume Between 0700h & 1000h										
AM Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
0830-0930	37	0	11	0	48	0	0	0	0	0	48	10	8	0	0	18	0	16	17	1	34	52	100
OFF Peak Hour Factor ➡ 0.83												Highest Hourly Vehicle Volume Between 1130h & 1330h										
OFF Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
1130-1230	30	0	6	0	36	0	0	0	0	0	36	6	7	0	1	14	0	6	24	0	30	44	80
PM Peak Hour Factor ➡ 0.94												Highest Hourly Vehicle Volume Between 1500h & 1800h										
PM Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
1545-1645	52	0	5	0	57	0	0	0	0	0	57	7	10	0	0	17	0	14	47	0	61	78	135

Comments:
School buses comprise 15.91% of the heavy vehicle traffic. There were 10 construction related heavy vehicles.

Notes:
1. Includes all vehicle types except bicycles, electric bicycles, and electric scooters.
2. When expansion and AADT factors are applied, the results will differ slightly due to rounding.

Turning Movement Count
Heavy Vehicle Summary (FHWA Class 4 to 13)
Flow Diagram

Jack Dalgity Street & Old Almonte Road — **Almonte, ON**



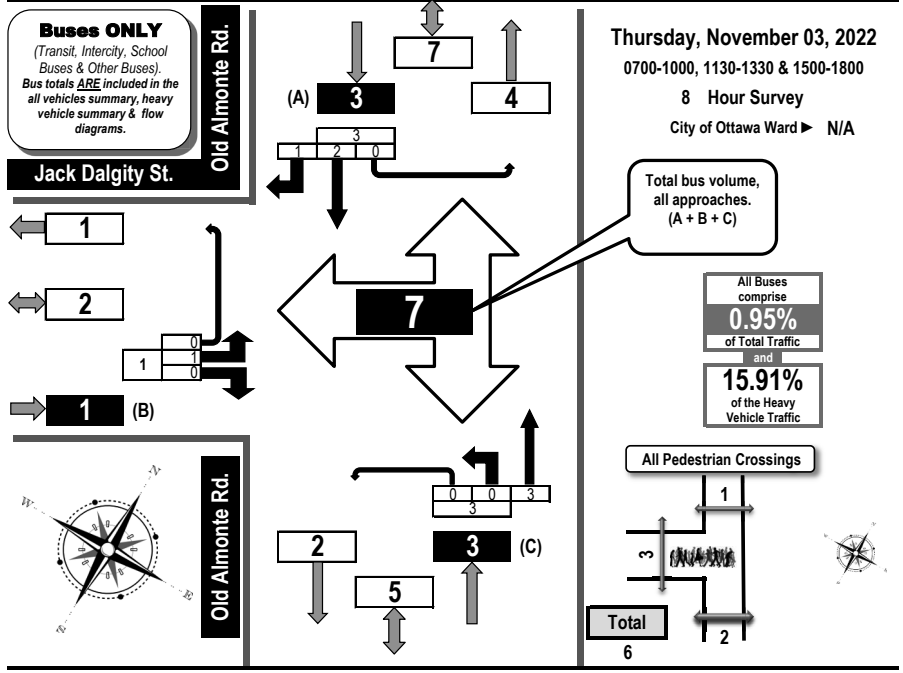
Thursday, November 03, 2022
0700-1000, 1130-1330 & 1500-1800
8 Hour Survey
City of Ottawa Ward ► N/A

	Jack Dalgity St.					N/A					Old Almonte Rd.					Old Almonte Rd.					
	Eastbound					Westbound					Northbound					Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
0700-0800	2		0	0	2						1	1		0	2		2	1	0	3	7
0800-0900	2		0	0	2						0	0		0	0		0	1	0	1	3
0900-1000	1		5	0	6						3	0		0	3		1	1	0	2	11
1130-1230	2		0	0	2						1	0		1	2		0	2	0	2	6
1230-1330	1		0	0	1						0	0		0	0		0	1	0	1	2
1500-1600	0		1	0	1						0	2		0	2		1	1	0	2	5
1600-1700	5		0	0	5						0	0		0	0		1	2	0	3	8
1700-1800	0		0	0	0						0	1		0	1		1	0	0	1	2
Totals	13		6	0	19						5	4		1	10		6	9	0	15	44

Comments:
School buses comprise 15.91% of the heavy vehicle traffic. There were 10 construction related heavy vehicles.

Turning Movement Count
All Buses Summary (FHWA Class 4 ONLY)
Flow Diagram

Jack Dalgity Street & Old Almonte Road — **Almonte, ON**



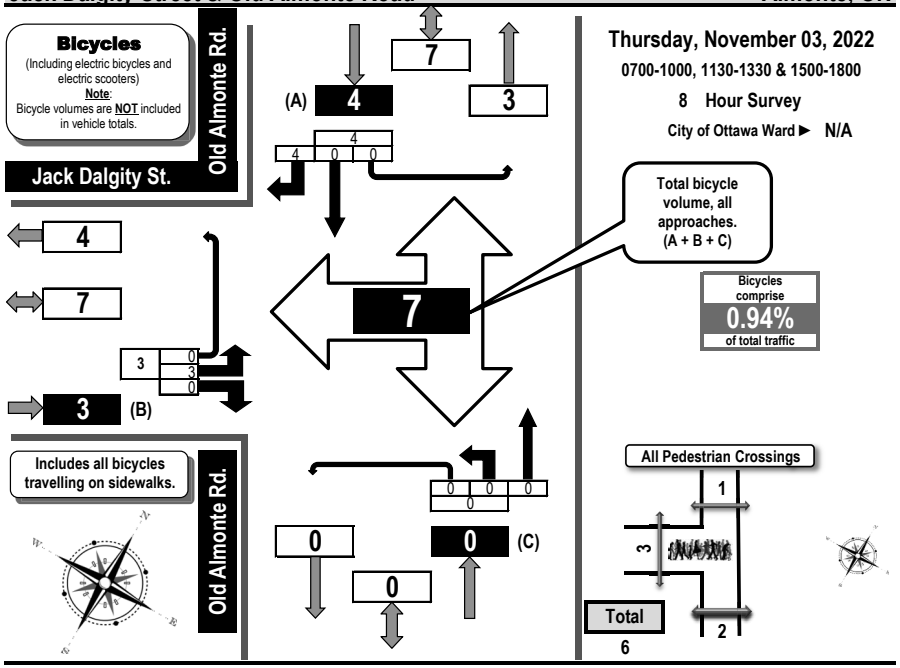
Thursday, November 03, 2022
0700-1000, 1130-1330 & 1500-1800
8 Hour Survey
City of Ottawa Ward ► N/A

	Jack Dalgity St.					N/A					Old Almonte Rd.					Old Almonte Rd.					
	Eastbound					Westbound					Northbound					Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
0700-0800	0		0	0	0						0	1		0	1		1	0	0	1	2
0800-0900	0		0	0	0						0	0		0	0		0	0	0	0	0
0900-1000	1		0	0	1						0	0		0	0		1	0	0	1	2
1130-1230	0		0	0	0						0	0		0	0		0	0	0	0	0
1230-1330	0		0	0	0						0	0		0	0		0	0	0	0	0
1500-1600	0		0	0	0						0	2		0	2		0	1	0	1	3
1600-1700	0		0	0	0						0	0		0	0		0	0	0	0	0
1700-1800	0		0	0	0						0	0		0	0		0	0	0	0	0
Totals	1		0	0	1						0	3		0	3		2	1	0	3	7

Comments:
School buses comprise 15.91% of the heavy vehicle traffic. There were 10 construction related heavy vehicles.

Turning Movement Count
Bicycle Summary
Flow Diagram

Jack Dalgity Street & Old Almonte Road — **Almonte, ON**



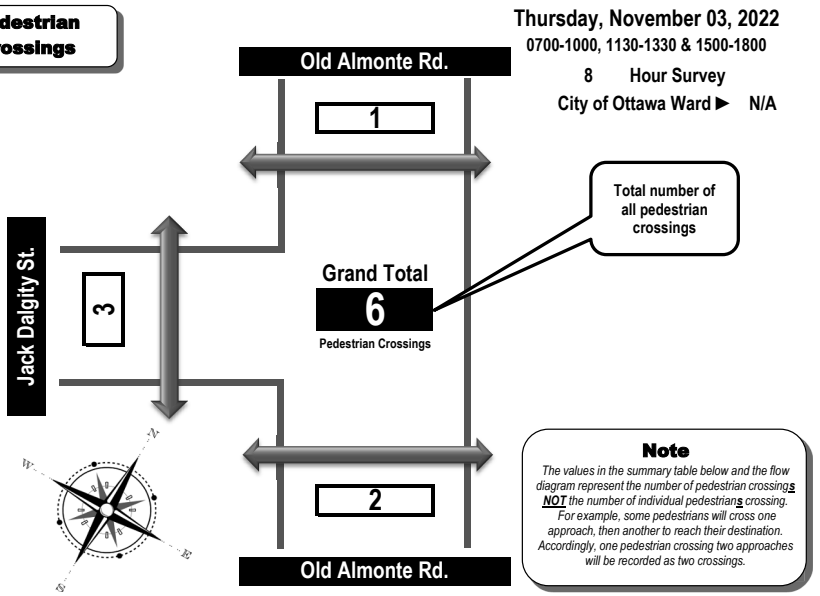
Thursday, November 03, 2022
0700-1000, 1130-1330 & 1500-1800
8 Hour Survey
City of Ottawa Ward ► N/A

	Jack Dalgity St.					N/A					Old Almonte Rd.					Old Almonte Rd.					
	Eastbound					Westbound					Northbound					Southbound					
Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
0700-0800	1		0	0	1						0	0		0	0		0	0	0	0	1
0800-0900	1		0	0	1						0	0		0	0		0	0	0	0	1
0900-1000	0		0	0	0						0	0		0	0		0	0	0	0	0
1130-1230	0		0	0	0						0	0		0	0		0	0	0	0	0
1230-1330	0		0	0	0						0	0		0	0		0	0	0	0	0
1500-1600	1		0	0	1						0	0		0	0		0	0	0	0	1
1600-1700	0		0	0	0						0	0		0	0		0	3	0	3	3
1700-1800	0		0	0	0						0	0		0	0		0	1	0	1	1
Totals	3		0	0	3						0	0		0	0		0	4	0	4	7

Comments:
School buses comprise 15.91% of the heavy vehicle traffic. There were 10 construction related heavy vehicles.

Turning Movement Count
Pedestrian Crossings Summary and Flow Diagram

Jack Dalgity Street & Old Almonte Road — **Almonte, ON**



Thursday, November 03, 2022
0700-1000, 1130-1330 & 1500-1800
8 Hour Survey
City of Ottawa Ward ► N/A

Note
*The values in the summary table below and the flow diagram represent the number of pedestrian crossing**s** **NOT** the number of individual pedestrian**s** crossing. For example, some pedestrians will cross one approach, then another to reach their destination. Accordingly, one pedestrian crossing two approaches will be recorded as two crossings.*

Time Period	West Side Crossing Jack Dalgity St.	East Side Crossing N/A	Street Total	South Side Crossing Old Almonte Rd.	North Side Crossing Old Almonte Rd.	Street Total	Grand Total
0700-0800	1		1	1	0	1	2
0800-0900	0		0	0	0	0	0
0900-1000	0		0	0	0	0	0
1130-1230	1		1	1	0	1	2
1230-1330	0		0	0	0	0	0
1500-1600	1		1	0	0	0	1
1600-1700	0		0	0	1	1	1
1700-1800	0		0	0	0	0	0
Totals	3		3	2	1	3	6

Comments:
School buses comprise 15.91% of the heavy vehicle traffic. There were 10 construction related heavy vehicles.

ROAD NAME	FROM:	TO:	AADT	SPEED	MAINTENANCE CLASS	LOWER TIER MUNICIPALITY
16-South Lavant Road	PIN #2264 (Poland)	Hwy 511 (Co Rd 511)	350	80	4	Lanark Highlands
16-Wolf Grove Road	Hwy 511 (Co Rd 511)	Hopetown Hamlet Limit (60 Max Sign)	1100	60	4	Lanark Highlands
16-Wolf Grove Road	Hopetown Hamlet Limit (60 Max Sign)	PIN #4248 (Middleville)	1100	80	3	Lanark Highlands
16-Wolf Grove Road	PIN #4248 (Middleville)	Co Rd 8 (6th Con C Lanark)	1100	60	4	Lanark Highlands
16-Wolf Grove Road	Co Rd 8 (6th Con C Lanark)	PIN #4132 East Ent (Middleville)	1400	60	4	Lanark Highlands
16-Wolf Grove Road	PIN #4132 East Ent (Middleville)	Ramsay Con 1	1400	80	3	Lanark Highlands
16-Wolf Grove Road	Ramsay Con 1	Tatlock Road	1400	80	3	Mississippi Mills
16-Wolf Grove Road	Tatlock Road	Civitan Hall Ent (Almonte)	3000	80	3	Mississippi Mills
16-Almonte Street	Civitan Hall Ent (Almonte)	Christian Street (Co Rd 29)	3200	60	3	Mississippi Mills
16A-Perth Street	Christian Street (Co Rd 29)	Bridge Street	4500	50	3	Mississippi Mills
16A-Bridge Street	Perth Street	Centre of Maclan Bridge	4500	50	3	Mississippi Mills
16A-Queen Street	Centre of Maclan Bridge	Martin Street South	8000	50	3	Mississippi Mills
16A-Martin Street South	Queen Street	Ottawa Street	8000	50	3	Mississippi Mills
17-Derry Side Road	Richmond Road (Co Rd 10)	9th Line Beckwith	650	80	4	Beckwith
17-Cemetery Side Road	9th Line Beckwith	Hwy. #7	1200	50/70	3	Beckwith
17-Appleton Side Road	Hwy. #7	River Road (Co Rd 11)	800	80	4	Beckwith/ Mississippi Mills
17-Appleton Side Road	River Road (Co Rd 11)	March Road (Co Rd 49)	1100	80	3	Mississippi Mills
17-Martin Street North	Ottawa Street	Brookdale Street	2200	50/40	4	Mississippi Mills
17-Martin Street North	Brookdale Street	Railway Crossing	1100	80	3	Mississippi Mills
17-Martin Street North	Railway Crossing	PIN #6466 (Blakeney)	1100	80	3	Mississippi Mills
17-Martin Street North	PIN #6466 (Blakeney)	Blakeney Road (Co Rd 17)	1100	60	4	Mississippi Mills
17-Blakeney Road	Blakeney Road (Co Rd 17)	Ridge Road	650	60	4	Mississippi Mills
17-Blakeney Road	Ridge Road	Panmure Road	650	80	4	Mississippi Mills
17-Panmure Road	Blakeney Road (South)	Blakeney Road (North)	300	80	4	Mississippi Mills
17-Blakeney Road	Panmure Road	Kinburn Sideroad (Co Rd 20)	300	80/60	4	Mississippi Mills
18-Port Elmsley Road	Rideau Ferry Road (Co Rd 1)	PIN #310 DNE Township Office	1150	80	3	Drummond North Elmsley
18-Port Elmsley Road	PIN #310 DNE Township Office	Co. Rd. #43	1150	60	4	Drummond North Elmsley
19-Bennett Lake Road	Fallbrook Road (Co Rd 7)	PIN #155 (Fallbrook)	450	50	5	Tay Valley
19-Bennett Lake Road	PIN #155 (Fallbrook)	Osprey Road	450	80	4	Tay Valley
19-Bennett Lake Road	Osprey Road	Start of Gravel	120	80	4	Tay Valley
19-Bennett Lake Road	Start of Gravel	End of Gravel	120	80	4	Tay Valley
19-Bennett Lake Road	End of Gravel	Maberly Elphin Rd. (Co Rd 36)	150	80	4	Tay Valley
20-Kinburn Side Road	Timmins Road (Ottawa Bndry)	Blakeney Rd. (Co Rd 17)	1900	80	3	Mississippi Mills
20-Kinburn Side Road	Blakeney Rd. (Co Rd 17)	Co Rd 29 North	1900	60	4	Mississippi Mills
20-Waba Road	Co. Rd. #29 North	Five Arches Drive	1650	50	4	Mississippi Mills
20-Waba Road	Five Arches Drive	Shaw Road (Co. Rd. #22)	1650	80	3	Mississippi Mills
20-Waba Road	Shaw Road (Co. Rd. #22)	Campbell Side Rd. (Co. Rd. #24)	1000	80	3	Mississippi Mills
20-Waba Road	Campbell Side Rd. (Co. Rd. #24)	Robertson Line (Renfrew Bndry)	1000	80	3	Mississippi Mills
21-Lally Road	Narrows Lock Rd. (Co. Rd. #14)	Lally Lake Drive	100	60	5	Tay Valley
21-Elm Grove Road	Lally Lake Drive	Tay Valley Sign	600	60	4	Tay Valley
21-Elm Grove Road	Tay Valley Sign	Rideau Ferry Rd. (Co. Rd. #1)	1600	60	4	Drummond North Elmsley

ROAD NAME	FROM:	TO:	AADT	SPEED	MAINTENANCE CLASS	LOWER TIER MUNICIPALITY
22-Shaw Road	Waba Road (Co. Rd. #20)	Lunney Road (Ottawa Bndry)	500	80	4	Mississippi Mills
23-Rosedale Road South	Co. Rd. #43	Guthrie Road	600	80	4	Montague
23-Rosedale Road South	Guthrie Road	Roger Stevens Drive (Co. Rd. #4)	600	60/80	4	Montague
24-Peneshula Road	Snye Road	Bellamy Road	800	60	4	Lanark Highlands/ Mississippi Mills
24-Bellamy Road	Peneshula Road	4th Con. Pakenham	900	80	4	Mississippi Mills
24-4th Con. Pakenham	Bellamy Road	Campbell Side Road	900	80	4	Mississippi Mills
24-Campbell Side Road	4th Con. Pakenham	Waba Road (Co. Rd. #20)	600	80	4	Mississippi Mills
29-McNeely Avenue	Hwy. #7	Lake Avenue	12000	80	2	Town of Carleton Place
29-McNeely Avenue	Lake Avenue	Town Line Rd. East (Co. Rd. #29)	11000	60	3	Town of Carleton Place
29-Town Line Road East	McNeely Avenue	Ramsay Con. 8	9000	50	3	Town of Carleton Place
29-County Rd. #29 South	Ramsay Con. 8	Wilson Street (Co. Rd. #11)	8000	80	2	Mississippi Mills
29-County Rd. #29 South	Wilson Street (Co. Rd. #11)	Perth Street (Co. Rd. #16A)	6000	80	2	Mississippi Mills
29-Christian Street	Perth Street (Co. Rd. #16A)	Almonte Street (Co. Rd. #16)	5000	70	3	Mississippi Mills
29-Christian Street	Almonte Street (Co. Rd. #16)	Gleeson Road	3700	70	3	Mississippi Mills
29-County Rd. #29 North	Gleeson Road	Snedden Road	3700	80	3	Mississippi Mills
29-County Rd. #29 North	Snedden Road	McWatty Road	3700	80	3	Mississippi Mills
29-County Rd. #29 North	McWatty Road	Waba Road (Co. Rd. #20)	3700	50	4	Mississippi Mills
29-County Rd. #29 North	Waba Road (Co. Rd. #20)	Kinburn Sideroad (Co. Rd. #20)	2800	50	4	Mississippi Mills
29-County Rd. #29 North	Kinburn Sideroad (Co. Rd. #20)	Walter Bradley Road	2800	80	3	Mississippi Mills
29-County Rd. #29 North	Walter Bradley Road	Lanark County Sign (Ottawa Bndry)	2800	80	3	Mississippi Mills/ City of Ottawa
36-Bolingbroke Road	Leeds Bndry	Althorpe Road (Co. Rd. #6)	800	80	4	Tay Valley
36-Bolingbroke Road	Althorpe Road (Co. Rd. #6)	Hanna Road	750	80	4	Tay Valley
36-Bolingbroke Road	Hanna Road	Maberly Station Road	500	80	4	Tay Valley
36-Bolingbroke Road	Maberly Station Road	Hwy. #7	500	60	4	Tay Valley
36-Maberly Elphin Road	Hwy. #7	PIN #400 (Maberly)	600	60	4	Tay Valley
36-Maberly Elphin Road	PIN #400 (Maberly)	Bennett Lake Rd. (Co. Rd. #19)	600	80	4	Tay Valley
36-Maberly Elphin Road	Bennett Lake Rd. (Co. Rd. #19)	LDNS Sign (Twp Bndry)	600	80	4	Tay Valley
36-Elphin Maberly Road	LDNS Sign (Twp Bndry)	Elphin Hamlet Sign West	600	80	4	Lanark Highlands
36-Elphin Maberly Road	Elphin Hamlet Sign West	Co Rd 12 (McDonalds Corners Rd)	500	60	4	Lanark Highlands
36-Elphin Maberly Road	Co Rd 12 (McDonalds Corners Rd)	Elphin Hamlet Sign North	500	60	4	Lanark Highlands
36-Elphin Maberly Road	Elphin Hamlet Sign North	PIN #3923 (Frontenac Bndry)	500	60/80	4	Lanark Highlands
43-Hwy 43	Merrickville Bndry (West)	Rosedale Rd. S (Co. Rd. #23)	3600	80	3	Montague
43-Hwy 43	Rosedale Rd. S (Co. Rd. #23)	New Smiths Falls Boundary	4800	80	3	Montague
43-Hwy 43	Mazie Street (SFalls Bndry)	Station Road	9000	80	2	Drummond North Elmsley
43-Hwy 43	Station Road	Port Elmsley Rd. (Co. Rd. #18)	9000	60	3	Drummond North Elmsley
43-Hwy 43	Port Elmsley Rd. (Co. Rd. #18)	Meadow Lane	8500	60	3	Drummond North Elmsley
43-Hwy 43	Meadow Lane	Irwin Street	7000	80	3	Drummond North Elmsley/ Town of Perth
49-March Road	Ottawa Bndry	Appleton Side Rd. (Co. Rd. #17)	7500	80	2	Mississippi Mills
511-Lanark Road	Hwy. #7	PIN #40 (Perth Bndry)	8000	60	3	Tay Valley/ Town of Perth
511-Hwy 511	PIN #40 (Perth Bndry)	Clarchris Road	8000	70	3	Tay Valley/ Drummond North Elmsley
511-Hwy 511	Clarchris Road	PIN #1325 (Balderson South)	8000	80	2	Tay Valley/ Drummond North Elmsley

Appendix C

2022 Existing Synchro Worksheets

MOVEMENT SUMMARY

Site: 101 [Ottawa/CR49 & Appleton/Ramsay Existing AM (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Appleton														
1	L2	44	2.0	48	2.0	0.101	8.9	LOS A	0.4	2.7	0.41	0.59	0.41	48.4
2	T1	7	2.0	8	2.0	0.101	3.4	LOS A	0.4	2.7	0.41	0.59	0.41	47.8
3	R2	41	2.0	45	2.0	0.101	3.7	LOS A	0.4	2.7	0.41	0.59	0.41	46.4
Approach		92	2.0	101	2.0	0.101	6.1	LOS A	0.4	2.7	0.41	0.59	0.41	47.5
East: CR 49														
4	L2	31	2.0	34	2.0	0.111	7.7	LOS A	0.6	4.3	0.20	0.35	0.20	49.8
5	T1	271	2.0	298	2.0	0.111	2.2	LOS A	0.6	4.4	0.20	0.30	0.20	49.6
6	R2	15	2.0	16	2.0	0.111	2.7	LOS A	0.6	4.4	0.19	0.26	0.19	48.3
Approach		317	2.0	348	2.0	0.111	2.8	LOS A	0.6	4.4	0.20	0.30	0.20	49.5
North: Ramsay														
7	L2	26	2.0	29	2.0	0.058	8.7	LOS A	0.2	1.5	0.38	0.55	0.38	48.5
8	T1	11	2.0	12	2.0	0.058	3.2	LOS A	0.2	1.5	0.38	0.55	0.38	47.9
9	R2	17	2.0	19	2.0	0.058	3.5	LOS A	0.2	1.5	0.38	0.55	0.38	46.5
Approach		54	2.0	59	2.0	0.058	5.9	LOS A	0.2	1.5	0.38	0.55	0.38	47.7
West: Ottawa														
10	L2	8	2.0	9	2.0	0.138	7.8	LOS A	0.7	5.2	0.22	0.29	0.22	50.3
11	T1	348	2.0	382	2.0	0.138	2.3	LOS A	0.7	5.3	0.21	0.28	0.21	49.7
12	R2	37	2.0	41	2.0	0.138	2.7	LOS A	0.7	5.3	0.20	0.28	0.20	48.3
Approach		393	2.0	432	2.0	0.138	2.4	LOS A	0.7	5.3	0.21	0.28	0.21	49.6
All Vehicles		856	2.0	941	2.0	0.138	3.2	LOS A	0.7	5.3	0.24	0.34	0.24	49.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Ottawa/CR49 & Appleton/Ramsay Existing PM (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Appleton														
1	L2	67	2.0	69	2.0	0.116	8.8	LOS A	0.5	3.2	0.41	0.60	0.41	48.1
2	T1	12	2.0	12	2.0	0.116	3.3	LOS A	0.5	3.2	0.41	0.60	0.41	47.5
3	R2	35	2.0	36	2.0	0.116	3.6	LOS A	0.5	3.2	0.41	0.60	0.41	46.2
Approach		114	2.0	118	2.0	0.116	6.6	LOS A	0.5	3.2	0.41	0.60	0.41	47.4
East: CR 49														
4	L2	56	2.0	58	2.0	0.221	7.9	LOS A	1.3	9.4	0.28	0.36	0.28	49.6
5	T1	555	2.0	572	2.0	0.221	2.4	LOS A	1.3	9.6	0.27	0.32	0.27	49.3
6	R2	46	2.0	47	2.0	0.221	2.8	LOS A	1.3	9.6	0.26	0.28	0.26	48.0
Approach		657	2.0	677	2.0	0.221	2.9	LOS A	1.3	9.6	0.27	0.32	0.27	49.2
North: Ramsay														
7	L2	19	2.0	20	2.0	0.060	9.5	LOS A	0.2	1.6	0.50	0.61	0.50	48.4
8	T1	15	2.0	15	2.0	0.060	4.0	LOS A	0.2	1.6	0.50	0.61	0.50	47.8
9	R2	17	2.0	18	2.0	0.060	4.3	LOS A	0.2	1.6	0.50	0.61	0.50	46.4
Approach		51	2.0	53	2.0	0.060	6.2	LOS A	0.2	1.6	0.50	0.61	0.50	47.5
West: Ottawa														
10	L2	17	2.0	18	2.0	0.138	7.9	LOS A	0.7	5.2	0.24	0.31	0.24	50.0
11	T1	332	2.0	342	2.0	0.138	2.4	LOS A	0.7	5.3	0.23	0.30	0.23	49.6
12	R2	62	2.0	64	2.0	0.138	2.8	LOS A	0.7	5.3	0.22	0.29	0.22	48.2
Approach		411	2.0	424	2.0	0.138	2.6	LOS A	0.7	5.3	0.23	0.30	0.23	49.4
All Vehicles		1233	2.0	1271	2.0	0.221	3.3	LOS A	1.3	9.6	0.28	0.35	0.28	49.0

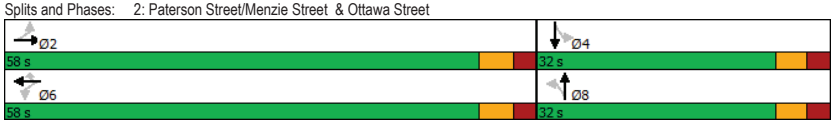
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	509	65	50	370	3	77	9	77	2	14	6
Future Volume (vph)	1	509	65	50	370	3	77	9	77	2	14	6
Satd. Flow (prot)	0	1658	0	1626	1664	1483	0	1529	0	0	1660	0
Flt Permitted				0.427				0.838			0.972	
Satd. Flow (perm)	0	1658	0	730	1664	1439	0	1300	0	0	1620	0
Satd. Flow (RTOR)		12				36		50			6	
Lane Group Flow (vph)	0	618	0	54	398	3	0	176	0	0	23	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	2	2		6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	26.3	26.3		26.3	26.3	26.3	31.0	31.0		31.0	31.0	
Total Split (s)	58.0	58.0		58.0	58.0	58.0	32.0	32.0		32.0	32.0	
Total Split (%)	64.4%	64.4%		64.4%	64.4%	64.4%	35.6%	35.6%		35.6%	35.6%	
Maximum Green (s)	51.7	51.7		51.7	51.7	51.7	26.0	26.0		26.0	26.0	
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.3	3.3		3.3	3.3	
All-Red Time (s)	2.6	2.6		2.6	2.6	2.6	2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.3		6.3	6.3	6.3		6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max	Max	None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0	13.0	18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	1	1		4	4	4	2	2		10	10	
Act Effct Green (s)		55.5		55.5	55.5	55.5		14.7			14.7	
Actuated g/C Ratio		0.67		0.67	0.67	0.67		0.18			0.18	
v/c Ratio		0.55		0.11	0.36	0.00		0.64			0.08	
Control Delay		10.5		7.1	8.0	0.0		32.4			21.0	
Queue Delay		0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay		10.5		7.1	8.0	0.0		32.4			21.0	
LOS		B		A	A	A		C			C	
Approach Delay		10.5			7.8			32.4			21.0	
Approach LOS		B			A			C			C	
Queue Length 50th (m)		39.0		2.4	21.2	0.0		17.1			2.1	
Queue Length 95th (m)		98.1		9.3	53.8	0.0		35.8			7.6	
Internal Link Dist (m)		113.0			108.0			153.2			106.0	
Turn Bay Length (m)						30.0						
Base Capacity (vph)		1118		490	1118	978		445			515	
Starvation Cap Reductn		0		0	0	0		0			0	
Spillback Cap Reductn		0		0	0	0		0			0	
Storage Cap Reductn		0		0	0	0		0			0	
Reduced v/c Ratio		0.55		0.11	0.36	0.00		0.40			0.04	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 82.6
Natural Cycle: 65
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 12.8 Intersection LOS: B
Intersection Capacity Utilization 75.5% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 2: Paterson Street/Menzie Street & Ottawa Street



Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	20	26	55	59	15
Future Vol, veh/h	14	20	26	55	59	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	21	2	4	9	10	2
Mvmt Flow	16	23	30	64	69	17

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	202	78	86	0	-	0
Stage 1	78	-	-	-	-	-
Stage 2	124	-	-	-	-	-
Critical Hdwy	6.61	6.22	4.14	-	-	-
Critical Hdwy Stg 1	5.61	-	-	-	-	-
Critical Hdwy Stg 2	5.61	-	-	-	-	-
Follow-up Hdwy	3.689	3.318	2.236	-	-	-
Pot Cap-1 Maneuver	746	983	1498	-	-	-
Stage 1	899	-	-	-	-	-
Stage 2	857	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	730	983	1498	-	-	-
Mov Cap-2 Maneuver	730	-	-	-	-	-
Stage 1	880	-	-	-	-	-
Stage 2	857	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.4	2.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1498	-	860	-	-
HCM Lane V/C Ratio	0.02	-	0.046	-	-
HCM Control Delay (s)	7.5	0	9.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	37	11	10	8	16	17
Future Vol, veh/h	37	11	10	8	16	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	3	45	30	2	6	6
Mvmt Flow	52	15	14	11	23	24

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	74	35	47	0	-	0
Stage 1	35	-	-	-	-	-
Stage 2	39	-	-	-	-	-
Critical Hdwy	6.43	6.65	4.4	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.705	2.47	-	-	-
Pot Cap-1 Maneuver	927	927	1398	-	-	-
Stage 1	985	-	-	-	-	-
Stage 2	981	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	918	927	1398	-	-	-
Mov Cap-2 Maneuver	918	-	-	-	-	-
Stage 1	975	-	-	-	-	-
Stage 2	981	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.2	4.2	0
HCM LOS	A		

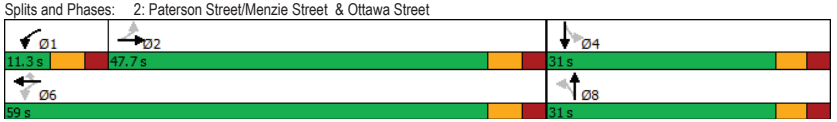
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1398	-	920	-	-
HCM Lane V/C Ratio	0.01	-	0.073	-	-
HCM Control Delay (s)	7.6	0	9.2	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	510	47	60	741	11	86	8	64	7	3	5
Future Volume (vph)	4	510	47	60	741	11	86	8	64	7	3	5
Satd. Flow (prot)	0	1703	0	1658	1728	1483	0	1597	0	0	1608	0
Flt Permitted		0.996		0.311				0.821			0.887	
Satd. Flow (perm)	0	1696	0	539	1728	1438	0	1337	0	0	1460	0
Satd. Flow (RTOR)		7				36		37			5	
Lane Group Flow (vph)	0	590	0	63	780	12	0	166	0	0	15	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	2	2		1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	26.3	26.3		11.3	26.3	26.3	31.0	31.0		31.0	31.0	
Total Split (s)	47.7	47.7		11.3	59.0	59.0	31.0	31.0		31.0	31.0	
Total Split (%)	53.0%	53.0%		12.6%	65.6%	65.6%	34.4%	34.4%		34.4%	34.4%	
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.3	3.3		3.3	3.3	
All-Red Time (s)	2.6	2.6		2.6	2.6	2.6	2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.3		6.3	6.3	6.3		6.0			6.0	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	Max	Max		None	Max	Max	None	None		Max	Max	
Act Effct Green (s)		43.7		52.7	52.7	52.7		25.0			25.0	
Actuated g/C Ratio		0.49		0.59	0.59	0.59		0.28			0.28	
v/c Ratio		0.71		0.17	0.77	0.01		0.42			0.04	
Control Delay		25.0		9.1	20.6	0.5		24.2			19.6	
Queue Delay		0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay		25.0		9.1	20.6	0.5		24.2			19.6	
LOS		C		A	C	A		C			B	
Approach Delay		25.0			19.5			24.2			19.6	
Approach LOS		C			B			C			B	
Queue Length 50th (m)		80.3		4.3	93.9	0.0		17.8			1.3	
Queue Length 95th (m)		122.4		9.4	144.2	0.5		35.8			5.8	
Internal Link Dist (m)		113.0			108.0			153.2			106.0	
Turn Bay Length (m)						30.0						
Base Capacity (vph)		826		377	1011	856		398			409	
Starvation Cap Reductn		0		0	0	0		0			0	
Spillback Cap Reductn		0		0	0	0		0			0	
Storage Cap Reductn		0		0	0	0		0			0	
Reduced v/c Ratio		0.71		0.17	0.77	0.01		0.42			0.04	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Natural Cycle: 80
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.77

Intersection Signal Delay: 22.0 Intersection LOS: C
Intersection Capacity Utilization 78.6% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 2: Paterson Street/Menzie Street & Ottawa Street



Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	21	35	72	107	27
Future Vol, veh/h	13	21	35	72	107	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	5	3	7	12	4
Mvmt Flow	14	22	36	75	111	28

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	272	125	139	0	-	0
Stage 1	125	-	-	-	-	-
Stage 2	147	-	-	-	-	-
Critical Hdwy	6.42	6.25	4.13	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.345	2.227	-	-	-
Pot Cap-1 Maneuver	717	918	1438	-	-	-
Stage 1	901	-	-	-	-	-
Stage 2	880	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	698	918	1438	-	-	-
Mov Cap-2 Maneuver	698	-	-	-	-	-
Stage 1	878	-	-	-	-	-
Stage 2	880	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	2.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1438	-	819	-	-
HCM Lane V/C Ratio	0.025	-	0.043	-	-
HCM Control Delay (s)	7.6	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	52	5	7	10	14	47
Future Vol, veh/h	52	5	7	10	14	47
Conflicting Peds, #/hr	0	0	1	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	10	2	2	2	7	4
Mvmt Flow	55	5	7	11	15	50

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	66	41	66	0	-	0
Stage 1	41	-	-	-	-	-
Stage 2	25	-	-	-	-	-
Critical Hdwy	6.5	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	920	1030	1536	-	-	-
Stage 1	961	-	-	-	-	-
Stage 2	977	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	914	1029	1535	-	-	-
Mov Cap-2 Maneuver	914	-	-	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	976	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.2	3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1535	-	923	-	-
HCM Lane V/C Ratio	0.005	-	0.066	-	-
HCM Control Delay (s)	7.4	0	9.2	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Appendix D

Signal Warrants

Jack Dalgity Stree @ Paterson Street
2027 Future Background

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	69	10%	10%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	39	23%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	43	6%	6%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	22	30%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B

Jack Dalgity Stree @ Paterson Street
2032 Future Background

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	80	11%	11%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	39	23%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	53	7%	7%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	22	30%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B

Jack Dalgity Stree/Access #1 @ Paterson Street
2027 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	118	16%	16%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	52	31%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	66	9%	9%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	26	35%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B

Jack Dalgity Stree/Access #1 @ Paterson Street
2032 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	128	18%	18%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	52	31%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	76	11%	11%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	26	35%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B

Access #2 @ Appleton Side Road
2027 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	197	27%	27%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	73	43%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	148	21%	21%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	41	55%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B

Access #2 @ Appleton Side Road
2032 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	205	28%	28%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	73	43%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	156	22%	22%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	41	55%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B

Ottawa St/March Rd (CR 49) and Appleton Side Rd (CR 17)/Ramsay Con 11A
2027 Future Background

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	559	78%	48%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	81	48%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	477	66%	63%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	48	63%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B

Ottawa St/March Rd (CR 49) and Appleton Side Rd (CR 17)/Ramsay Con 11A
2032 Future Background

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	598	83%	50%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	86	50%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	513	71%	67%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	50	67%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B

Ottawa St/March Rd (CR 49) and Appleton Side Rd (CR 17)/Ramsay Con 11A
2027 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	642	89%	72%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	122	72%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	520	72%	72%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	63	83%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B

Ottawa St/March Rd (CR 49) and Appleton Side Rd (CR 17)/Ramsay Con 11A
2032 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	681	95%	74%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	127	74%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	555	77%	77%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	65	87%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B

Appendix E

2027 Future Background Synchro and Sidra Worksheets

MOVEMENT SUMMARY

Site: 101 [Ottawa/CR49 & Appleton/Ramsay FB2027 AM (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Appleton														
1	L2	47	2.0	52	2.0	0.109	8.9	LOS A	0.4	3.0	0.43	0.61	0.43	48.4
2	T1	7	2.0	8	2.0	0.109	3.5	LOS A	0.4	3.0	0.43	0.61	0.43	47.8
3	R2	44	2.0	48	2.0	0.109	3.8	LOS A	0.4	3.0	0.43	0.61	0.43	46.4
Approach		98	2.0	108	2.0	0.109	6.2	LOS A	0.4	3.0	0.43	0.61	0.43	47.4
East: CR 49														
4	L2	33	2.0	36	2.0	0.119	7.7	LOS A	0.7	4.7	0.21	0.35	0.21	49.8
5	T1	292	2.0	321	2.0	0.119	2.3	LOS A	0.7	4.7	0.20	0.30	0.20	49.6
6	R2	15	2.0	16	2.0	0.119	2.7	LOS A	0.7	4.7	0.20	0.26	0.20	48.3
Approach		340	2.0	374	2.0	0.119	2.8	LOS A	0.7	4.7	0.20	0.30	0.20	49.5
North: Ramsay														
7	L2	26	2.0	29	2.0	0.059	8.8	LOS A	0.2	1.5	0.40	0.56	0.40	48.4
8	T1	11	2.0	12	2.0	0.059	3.3	LOS A	0.2	1.5	0.40	0.56	0.40	47.8
9	R2	17	2.0	19	2.0	0.059	3.6	LOS A	0.2	1.5	0.40	0.56	0.40	46.5
Approach		54	2.0	59	2.0	0.059	6.0	LOS A	0.2	1.5	0.40	0.56	0.40	47.7
West: Ottawa														
10	L2	8	2.0	9	2.0	0.149	7.8	LOS A	0.8	5.7	0.22	0.29	0.22	50.3
11	T1	375	2.0	412	2.0	0.149	2.3	LOS A	0.8	5.8	0.21	0.28	0.21	49.7
12	R2	40	2.0	44	2.0	0.149	2.7	LOS A	0.8	5.8	0.21	0.28	0.21	48.3
Approach		423	2.0	465	2.0	0.149	2.4	LOS A	0.8	5.8	0.21	0.28	0.21	49.6
All Vehicles		915	2.0	1005	2.0	0.149	3.2	LOS A	0.8	5.8	0.24	0.34	0.24	49.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Ottawa/CR49 & Appleton/Ramsay FB2027 PM (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Appleton														
1	L2	72	2.0	74	2.0	0.126	8.9	LOS A	0.5	3.5	0.42	0.62	0.42	48.0
2	T1	12	2.0	12	2.0	0.126	3.4	LOS A	0.5	3.5	0.42	0.62	0.42	47.5
3	R2	38	2.0	39	2.0	0.126	3.7	LOS A	0.5	3.5	0.42	0.62	0.42	46.1
Approach		122	2.0	126	2.0	0.126	6.7	LOS A	0.5	3.5	0.42	0.62	0.42	47.4
East: CR 49														
4	L2	60	2.0	62	2.0	0.238	8.0	LOS A	1.4	10.3	0.30	0.36	0.30	49.5
5	T1	598	2.0	616	2.0	0.238	2.4	LOS A	1.5	10.5	0.28	0.32	0.28	49.3
6	R2	46	2.0	47	2.0	0.238	2.9	LOS A	1.5	10.5	0.28	0.29	0.28	48.0
Approach		704	2.0	726	2.0	0.238	2.9	LOS A	1.5	10.5	0.28	0.32	0.28	49.2
North: Ramsay														
7	L2	19	2.0	20	2.0	0.062	9.6	LOS A	0.2	1.7	0.51	0.63	0.51	48.3
8	T1	15	2.0	15	2.0	0.062	4.2	LOS A	0.2	1.7	0.51	0.63	0.51	47.7
9	R2	17	2.0	18	2.0	0.062	4.4	LOS A	0.2	1.7	0.51	0.63	0.51	46.3
Approach		51	2.0	53	2.0	0.062	6.3	LOS A	0.2	1.7	0.51	0.63	0.51	47.5
West: Ottawa														
10	L2	17	2.0	18	2.0	0.149	7.9	LOS A	0.8	5.6	0.25	0.31	0.25	50.0
11	T1	358	2.0	369	2.0	0.149	2.4	LOS A	0.8	5.7	0.24	0.30	0.24	49.5
12	R2	67	2.0	69	2.0	0.149	2.8	LOS A	0.8	5.7	0.23	0.30	0.23	48.1
Approach		442	2.0	456	2.0	0.149	2.7	LOS A	0.8	5.7	0.24	0.30	0.24	49.3
All Vehicles		1319	2.0	1360	2.0	0.238	3.3	LOS A	1.5	10.5	0.29	0.35	0.29	49.0

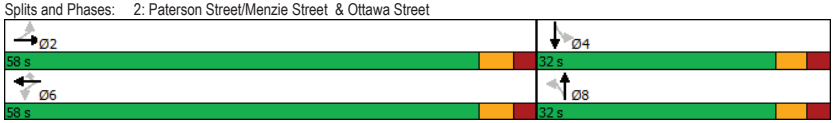
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	548	70	54	399	3	83	9	83	2	14	6
Future Volume (vph)	1	548	70	54	399	3	83	9	83	2	14	6
Satd. Flow (prot)	0	1658	0	1626	1664	1483	0	1528	0	0	1660	0
Flt Permitted				0.404				0.838			0.972	
Satd. Flow (perm)	0	1658	0	691	1664	1439	0	1300	0	0	1620	0
Satd. Flow (RTOR)		12				36		51			6	
Lane Group Flow (vph)	0	665	0	58	429	3	0	188	0	0	23	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	2	2		6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	26.3	26.3		26.3	26.3	26.3	31.0	31.0		31.0	31.0	
Total Split (s)	58.0	58.0		58.0	58.0	58.0	32.0	32.0		32.0	32.0	
Total Split (%)	64.4%	64.4%		64.4%	64.4%	64.4%	35.6%	35.6%		35.6%	35.6%	
Maximum Green (s)	51.7	51.7		51.7	51.7	51.7	26.0	26.0		26.0	26.0	
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.3	3.3		3.3	3.3	
All-Red Time (s)	2.6	2.6		2.6	2.6	2.6	2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.3		6.3	6.3	6.3		6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max	Max	None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0	13.0	18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	1	1		4	4	4	2	2		10	10	
Act Effct Green (s)		55.3		55.3	55.3	55.3		15.2			15.2	
Actuated g/C Ratio		0.67		0.67	0.67	0.67		0.18			0.18	
v/c Ratio		0.60		0.13	0.39	0.00		0.67			0.08	
Control Delay		11.6		7.4	8.5	0.0		33.9			20.9	
Queue Delay		0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay		11.6		7.4	8.5	0.0		33.9			20.9	
LOS		B		A	A	A		C			C	
Approach Delay		11.6			8.3			33.9			20.9	
Approach LOS		B			A			C			C	
Queue Length 50th (m)		45.6		2.7	24.2	0.0		18.9			2.1	
Queue Length 95th (m)		111.3		10.0	59.1	0.0		38.4			7.6	
Internal Link Dist (m)		113.0			108.0			153.2			106.0	
Turn Bay Length (m)						30.0						
Base Capacity (vph)		1110		461	1110	972		444			514	
Starvation Cap Reductn		0		0	0	0		0			0	
Spillback Cap Reductn		0		0	0	0		0			0	
Storage Cap Reductn		0		0	0	0		0			0	
Reduced v/c Ratio		0.60		0.13	0.39	0.00		0.42			0.04	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 82.8
Natural Cycle: 70
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 13.6 Intersection LOS: B
Intersection Capacity Utilization 78.6% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 2: Paterson Street/Menzie Street & Ottawa Street



Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	20	26	61	64	15
Future Vol, veh/h	14	20	26	61	64	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	21	2	4	9	10	2
Mvmt Flow	16	23	30	71	74	17

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	214	83	91	0	-	0
Stage 1	83	-	-	-	-	-
Stage 2	131	-	-	-	-	-
Critical Hdwy	6.61	6.22	4.14	-	-	-
Critical Hdwy Stg 1	5.61	-	-	-	-	-
Critical Hdwy Stg 2	5.61	-	-	-	-	-
Follow-up Hdwy	3.689	3.318	2.236	-	-	-
Pot Cap-1 Maneuver	734	976	1491	-	-	-
Stage 1	894	-	-	-	-	-
Stage 2	850	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	719	976	1491	-	-	-
Mov Cap-2 Maneuver	719	-	-	-	-	-
Stage 1	875	-	-	-	-	-
Stage 2	850	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.4	2.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1491	-	851	-	-
HCM Lane V/C Ratio	0.02	-	0.046	-	-
HCM Control Delay (s)	7.5	0	9.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	37	11	10	20	25	17
Future Vol, veh/h	37	11	10	20	25	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	3	45	30	2	6	6
Mvmt Flow	52	15	14	28	35	24

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	103	47	59	0	-	0
Stage 1	47	-	-	-	-	-
Stage 2	56	-	-	-	-	-
Critical Hdwy	6.43	6.65	4.4	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.705	2.47	-	-	-
Pot Cap-1 Maneuver	893	913	1384	-	-	-
Stage 1	973	-	-	-	-	-
Stage 2	964	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	884	913	1384	-	-	-
Mov Cap-2 Maneuver	884	-	-	-	-	-
Stage 1	963	-	-	-	-	-
Stage 2	964	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.4	2.5	0
HCM LOS	A		

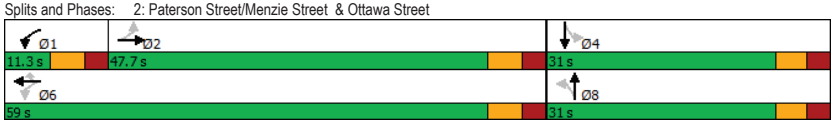
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1384	-	890	-	-
HCM Lane V/C Ratio	0.01	-	0.076	-	-
HCM Control Delay (s)	7.6	0	9.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣		↰	↑	↱		✣			✣	
Traffic Volume (vph)	4	549	51	65	798	11	93	8	69	7	3	5
Future Volume (vph)	4	549	51	65	798	11	93	8	69	7	3	5
Satd. Flow (prot)	0	1703	0	1658	1728	1483	0	1595	0	0	1608	0
Flt Permitted		0.996		0.290				0.821			0.884	
Satd. Flow (perm)	0	1696	0	506	1728	1438	0	1335	0	0	1455	0
Satd. Flow (RTOR)		7				36		38			5	
Lane Group Flow (vph)	0	636	0	68	840	12	0	179	0	0	15	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	2	2		1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	26.3	26.3		11.3	26.3	26.3	31.0	31.0		31.0	31.0	
Total Split (s)	47.7	47.7		11.3	59.0	59.0	31.0	31.0		31.0	31.0	
Total Split (%)	53.0%	53.0%		12.6%	65.6%	65.6%	34.4%	34.4%		34.4%	34.4%	
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.3	3.3		3.3	3.3	
All-Red Time (s)	2.6	2.6		2.6	2.6	2.6	2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.3		6.3	6.3	6.3		6.0			6.0	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	Max	Max		None	Max	Max	None	None		Max	Max	
Act Effct Green (s)		43.7		52.7	52.7	52.7		25.0			25.0	
Actuated g/C Ratio		0.49		0.59	0.59	0.59		0.28			0.28	
v/c Ratio		0.77		0.19	0.83	0.01		0.45			0.04	
Control Delay		27.8		9.4	24.2	0.5		25.2			19.6	
Queue Delay		0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay		27.8		9.4	24.2	0.5		25.2			19.6	
LOS		C		A	C	A		C			B	
Approach Delay		27.8			22.8			25.2			19.6	
Approach LOS		C			C			C			B	
Queue Length 50th (m)		90.4		4.7	108.1	0.0		19.8			1.3	
Queue Length 95th (m)		#150.6		10.1	#174.7	0.5		38.7			5.8	
Internal Link Dist (m)		113.0			108.0			153.2			106.0	
Turn Bay Length (m)						30.0						
Base Capacity (vph)		826		360	1011	856		398			407	
Starvation Cap Reductn		0		0	0	0		0			0	
Spillback Cap Reductn		0		0	0	0		0			0	
Storage Cap Reductn		0		0	0	0		0			0	
Reduced v/c Ratio		0.77		0.19	0.83	0.01		0.45			0.04	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Natural Cycle: 80
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.83

Intersection Signal Delay: 24.8 Intersection LOS: C
Intersection Capacity Utilization 82.9% ICU Level of Service E
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Paterson Street/Menzie Street & Ottawa Street



Intersection	
Int Delay, s/veh	2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	21	35	80	116	27
Future Vol, veh/h	13	21	35	80	116	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	5	3	7	12	4
Mvmt Flow	14	22	36	83	121	28

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	290	135	149	0	-	0
Stage 1	135	-	-	-	-	-
Stage 2	155	-	-	-	-	-
Critical Hdwy	6.42	6.25	4.13	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.345	2.227	-	-	-
Pot Cap-1 Maneuver	701	906	1426	-	-	-
Stage 1	891	-	-	-	-	-
Stage 2	873	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	683	906	1426	-	-	-
Mov Cap-2 Maneuver	683	-	-	-	-	-
Stage 1	868	-	-	-	-	-
Stage 2	873	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	2.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1426	-	805	-	-
HCM Lane V/C Ratio	0.026	-	0.044	-	-
HCM Control Delay (s)	7.6	0	9.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	52	5	7	22	23	47
Future Vol, veh/h	52	5	7	22	23	47
Conflicting Peds, #/hr	0	0	1	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	10	2	2	2	7	4
Mvmt Flow	55	5	7	23	24	50

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	87	50	75	0	-	0
Stage 1	50	-	-	-	-	-
Stage 2	37	-	-	-	-	-
Critical Hdwy	6.5	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	895	1018	1524	-	-	-
Stage 1	952	-	-	-	-	-
Stage 2	965	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	889	1017	1523	-	-	-
Mov Cap-2 Maneuver	889	-	-	-	-	-
Stage 1	946	-	-	-	-	-
Stage 2	964	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	1.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1523	-	899	-	-
HCM Lane V/C Ratio	0.005	-	0.067	-	-
HCM Control Delay (s)	7.4	0	9.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Appendix F

2032 Future Background Synchro and Sidra Worksheets

MOVEMENT SUMMARY

Site: 101 [Ottawa/CR49 & Appleton/Ramsay FB2032 AM (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Appleton														
1	L2	51	2.0	56	2.0	0.120	9.0	LOS A	0.5	3.3	0.44	0.62	0.44	48.3
2	T1	7	2.0	8	2.0	0.120	3.6	LOS A	0.5	3.3	0.44	0.62	0.44	47.7
3	R2	48	2.0	53	2.0	0.120	3.9	LOS A	0.5	3.3	0.44	0.62	0.44	46.4
Approach		106	2.0	116	2.0	0.120	6.3	LOS A	0.5	3.3	0.44	0.62	0.44	47.4
East: CR 49														
4	L2	36	2.0	40	2.0	0.129	7.8	LOS A	0.7	5.1	0.22	0.35	0.22	49.7
5	T1	315	2.0	346	2.0	0.129	2.3	LOS A	0.7	5.2	0.21	0.30	0.21	49.5
6	R2	15	2.0	16	2.0	0.129	2.7	LOS A	0.7	5.2	0.21	0.27	0.21	48.3
Approach		366	2.0	402	2.0	0.129	2.8	LOS A	0.7	5.2	0.22	0.30	0.22	49.5
North: Ramsay														
7	L2	26	2.0	29	2.0	0.060	8.8	LOS A	0.2	1.6	0.41	0.57	0.41	48.4
8	T1	11	2.0	12	2.0	0.060	3.4	LOS A	0.2	1.6	0.41	0.57	0.41	47.8
9	R2	17	2.0	19	2.0	0.060	3.7	LOS A	0.2	1.6	0.41	0.57	0.41	46.4
Approach		54	2.0	59	2.0	0.060	6.1	LOS A	0.2	1.6	0.41	0.57	0.41	47.6
West: Ottawa														
10	L2	8	2.0	9	2.0	0.161	7.8	LOS A	0.9	6.2	0.23	0.29	0.23	50.2
11	T1	404	2.0	444	2.0	0.161	2.3	LOS A	0.9	6.3	0.22	0.28	0.22	49.7
12	R2	43	2.0	47	2.0	0.161	2.7	LOS A	0.9	6.3	0.21	0.28	0.21	48.2
Approach		455	2.0	500	2.0	0.161	2.5	LOS A	0.9	6.3	0.22	0.28	0.22	49.6
All Vehicles		981	2.0	1078	2.0	0.161	3.2	LOS A	0.9	6.3	0.25	0.34	0.25	49.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Ottawa/CR49 & Appleton/Ramsay FB2032 PM (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Appleton														
1	L2	78	2.0	80	2.0	0.137	8.9	LOS A	0.5	3.9	0.44	0.63	0.44	48.0
2	T1	12	2.0	12	2.0	0.137	3.5	LOS A	0.5	3.9	0.44	0.63	0.44	47.4
3	R2	41	2.0	42	2.0	0.137	3.8	LOS A	0.5	3.9	0.44	0.63	0.44	46.1
Approach		131	2.0	135	2.0	0.137	6.8	LOS A	0.5	3.9	0.44	0.63	0.44	47.3
East: CR 49														
4	L2	65	2.0	67	2.0	0.257	8.0	LOS A	1.6	11.3	0.31	0.36	0.31	49.5
5	T1	644	2.0	664	2.0	0.257	2.5	LOS A	1.6	11.6	0.30	0.32	0.30	49.2
6	R2	46	2.0	47	2.0	0.257	2.9	LOS A	1.6	11.6	0.29	0.29	0.29	47.9
Approach		755	2.0	778	2.0	0.257	3.0	LOS A	1.6	11.6	0.30	0.32	0.30	49.1
North: Ramsay														
7	L2	19	2.0	20	2.0	0.063	9.8	LOS A	0.2	1.7	0.53	0.64	0.53	48.2
8	T1	15	2.0	15	2.0	0.063	4.3	LOS A	0.2	1.7	0.53	0.64	0.53	47.6
9	R2	17	2.0	18	2.0	0.063	4.6	LOS A	0.2	1.7	0.53	0.64	0.53	46.3
Approach		51	2.0	53	2.0	0.063	6.4	LOS A	0.2	1.7	0.53	0.64	0.53	47.4
West: Ottawa														
10	L2	17	2.0	18	2.0	0.160	7.9	LOS A	0.9	6.2	0.26	0.32	0.26	50.0
11	T1	385	2.0	397	2.0	0.160	2.4	LOS A	0.9	6.3	0.25	0.31	0.25	49.5
12	R2	72	2.0	74	2.0	0.160	2.8	LOS A	0.9	6.3	0.24	0.30	0.24	48.1
Approach		474	2.0	489	2.0	0.160	2.7	LOS A	0.9	6.3	0.25	0.31	0.25	49.3
All Vehicles		1411	2.0	1455	2.0	0.257	3.4	LOS A	1.6	11.6	0.30	0.36	0.30	49.0

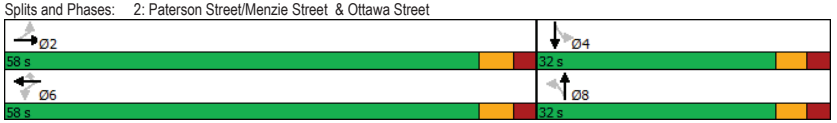
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	591	75	58	429	3	89	9	89	2	14	6
Future Volume (vph)	1	591	75	58	429	3	89	9	89	2	14	6
Satd. Flow (prot)	0	1658	0	1626	1664	1483	0	1528	0	0	1660	0
Flt Permitted				0.379				0.837			0.971	
Satd. Flow (perm)	0	1658	0	648	1664	1439	0	1298	0	0	1618	0
Satd. Flow (RTOR)		12				36		51			6	
Lane Group Flow (vph)	0	717	0	62	461	3	0	202	0	0	23	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	2	2		6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	26.3	26.3		26.3	26.3	26.3	31.0	31.0		31.0	31.0	
Total Split (s)	58.0	58.0		58.0	58.0	58.0	32.0	32.0		32.0	32.0	
Total Split (%)	64.4%	64.4%		64.4%	64.4%	64.4%	35.6%	35.6%		35.6%	35.6%	
Maximum Green (s)	51.7	51.7		51.7	51.7	51.7	26.0	26.0		26.0	26.0	
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.3	3.3		3.3	3.3	
All-Red Time (s)	2.6	2.6		2.6	2.6	2.6	2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.3		6.3	6.3	6.3		6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max	Max	None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0	13.0	18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	1	1		4	4	4	2	2		10	10	
Act Effct Green (s)		54.9		54.9	54.9	54.9		15.8			15.8	
Actuated g/C Ratio		0.66		0.66	0.66	0.66		0.19			0.19	
v/c Ratio		0.65		0.14	0.42	0.00		0.70			0.07	
Control Delay		13.1		7.9	9.1	0.0		35.8			20.7	
Queue Delay		0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay		13.1		7.9	9.1	0.0		35.8			20.7	
LOS		B		A	A	A		D			C	
Approach Delay		13.1			8.9			35.8			20.7	
Approach LOS		B			A			D			C	
Queue Length 50th (m)		54.6		3.0	28.2	0.0		21.2			2.1	
Queue Length 95th (m)		127.2		10.8	64.8	0.0		42.0			7.6	
Internal Link Dist (m)		113.0			108.0			153.2			106.0	
Turn Bay Length (m)						30.0						
Base Capacity (vph)		1100		428	1100	963		442			512	
Starvation Cap Reductn		0		0	0	0		0			0	
Spillback Cap Reductn		0		0	0	0		0			0	
Storage Cap Reductn		0		0	0	0		0			0	
Reduced v/c Ratio		0.65		0.14	0.42	0.00		0.46			0.04	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 83
Natural Cycle: 75
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 14.9 Intersection LOS: B
Intersection Capacity Utilization 82.0% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 2: Paterson Street/Menzie Street & Ottawa Street



Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	20	26	69	70	15
Future Vol, veh/h	14	20	26	69	70	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	21	2	4	9	10	2
Mvmt Flow	16	23	30	80	81	17

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	230	90	98	0	-	0
Stage 1	90	-	-	-	-	-
Stage 2	140	-	-	-	-	-
Critical Hdwy	6.61	6.22	4.14	-	-	-
Critical Hdwy Stg 1	5.61	-	-	-	-	-
Critical Hdwy Stg 2	5.61	-	-	-	-	-
Follow-up Hdwy	3.689	3.318	2.236	-	-	-
Pot Cap-1 Maneuver	718	968	1483	-	-	-
Stage 1	888	-	-	-	-	-
Stage 2	842	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	703	968	1483	-	-	-
Mov Cap-2 Maneuver	703	-	-	-	-	-
Stage 1	869	-	-	-	-	-
Stage 2	842	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1483	-	838	-	-
HCM Lane V/C Ratio	0.02	-	0.047	-	-
HCM Control Delay (s)	7.5	0	9.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	37	11	10	32	34	17
Future Vol, veh/h	37	11	10	32	34	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	3	45	30	2	6	6
Mvmt Flow	52	15	14	45	48	24

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	133	60	72	0	-	0
Stage 1	60	-	-	-	-	-
Stage 2	73	-	-	-	-	-
Critical Hdwy	6.43	6.65	4.4	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.705	2.47	-	-	-
Pot Cap-1 Maneuver	858	897	1368	-	-	-
Stage 1	960	-	-	-	-	-
Stage 2	947	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	849	897	1368	-	-	-
Mov Cap-2 Maneuver	849	-	-	-	-	-
Stage 1	950	-	-	-	-	-
Stage 2	947	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	1.8	0
HCM LOS	A		

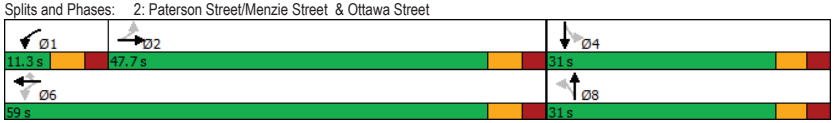
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1368	-	860	-	-
HCM Lane V/C Ratio	0.01	-	0.079	-	-
HCM Control Delay (s)	7.7	0	9.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	592	55	70	860	11	100	8	74	7	3	5
Future Volume (vph)	4	592	55	70	860	11	100	8	74	7	3	5
Satd. Flow (prot)	0	1703	0	1658	1728	1483	0	1595	0	0	1608	0
Flt Permitted		0.995		0.269				0.821			0.881	
Satd. Flow (perm)	0	1695	0	469	1728	1438	0	1335	0	0	1450	0
Satd. Flow (RTOR)		7				36		38			5	
Lane Group Flow (vph)	0	685	0	74	905	12	0	191	0	0	15	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	2	2		1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	26.3	26.3		11.3	26.3	26.3	31.0	31.0		31.0	31.0	
Total Split (s)	47.7	47.7		11.3	59.0	59.0	31.0	31.0		31.0	31.0	
Total Split (%)	53.0%	53.0%		12.6%	65.6%	65.6%	34.4%	34.4%		34.4%	34.4%	
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.3	3.3		3.3	3.3	
All-Red Time (s)	2.6	2.6		2.6	2.6	2.6	2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.3		6.3	6.3	6.3		6.0			6.0	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	Max	Max		None	Max	Max	None	None		Max	Max	
Act Effct Green (s)		43.7		52.7	52.7	52.7		25.0			25.0	
Actuated g/C Ratio		0.49		0.59	0.59	0.59		0.28			0.28	
v/c Ratio		0.83		0.22	0.90	0.01		0.48			0.04	
Control Delay		31.6		9.7	29.8	0.5		26.2			19.6	
Queue Delay		0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay		31.6		9.7	29.8	0.5		26.2			19.6	
LOS		C		A	C	A		C			B	
Approach Delay		31.6			28.0			26.2			19.6	
Approach LOS		C			C			C			B	
Queue Length 50th (m)		102.3		5.1	125.8	0.0		21.7			1.3	
Queue Length 95th (m)		#170.4		10.7	#214.4	0.5		41.9			5.8	
Internal Link Dist (m)		113.0			108.0			153.2			106.0	
Turn Bay Length (m)						30.0						
Base Capacity (vph)		825		340	1011	856		398			406	
Starvation Cap Reductn		0		0	0	0		0			0	
Spillback Cap Reductn		0		0	0	0		0			0	
Storage Cap Reductn		0		0	0	0		0			0	
Reduced v/c Ratio		0.83		0.22	0.90	0.01		0.48			0.04	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Natural Cycle: 90
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.90

Intersection Signal Delay: 29.0 Intersection LOS: C
Intersection Capacity Utilization 87.3% ICU Level of Service E
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Paterson Street/Menzie Street & Ottawa Street



Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	21	35	89	126	27
Future Vol, veh/h	13	21	35	89	126	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	5	3	7	12	4
Mvmt Flow	14	22	36	93	131	28

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	310	145	159	0	-	0
Stage 1	145	-	-	-	-	-
Stage 2	165	-	-	-	-	-
Critical Hdwy	6.42	6.25	4.13	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.345	2.227	-	-	-
Pot Cap-1 Maneuver	682	894	1414	-	-	-
Stage 1	882	-	-	-	-	-
Stage 2	864	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	664	894	1414	-	-	-
Mov Cap-2 Maneuver	664	-	-	-	-	-
Stage 1	858	-	-	-	-	-
Stage 2	864	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	2.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1414	-	789	-	-
HCM Lane V/C Ratio	0.026	-	0.045	-	-
HCM Control Delay (s)	7.6	0	9.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	52	5	7	34	32	47
Future Vol, veh/h	52	5	7	34	32	47
Conflicting Peds, #/hr	0	0	1	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	10	2	2	2	7	4
Mvmt Flow	55	5	7	36	34	50

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	110	60	85	0	-	0
Stage 1	60	-	-	-	-	-
Stage 2	50	-	-	-	-	-
Critical Hdwy	6.5	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	868	1005	1512	-	-	-
Stage 1	943	-	-	-	-	-
Stage 2	952	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	862	1004	1511	-	-	-
Mov Cap-2 Maneuver	862	-	-	-	-	-
Stage 1	937	-	-	-	-	-
Stage 2	951	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.4	1.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1511	-	873	-	-
HCM Lane V/C Ratio	0.005	-	0.069	-	-
HCM Control Delay (s)	7.4	0	9.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Appendix G

2027 Future Total Synchro and Sidra Worksheets

MOVEMENT SUMMARY

Site: 101 [Ottawa/CR49 & Appleton/Ramsay FT2027 AM (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Appleton														
1	L2	83	2.0	91	2.0	0.219	9.2	LOS A	0.9	6.4	0.46	0.64	0.46	48.5
2	T1	7	2.0	8	2.0	0.219	3.7	LOS A	0.9	6.4	0.46	0.64	0.46	47.9
3	R2	106	2.0	116	2.0	0.219	4.0	LOS A	0.9	6.4	0.46	0.64	0.46	46.5
Approach		196	2.0	215	2.0	0.219	6.2	LOS A	0.9	6.4	0.46	0.64	0.46	47.4
East: CR 49														
4	L2	15	2.0	16	2.0	0.133	7.9	LOS A	0.7	5.3	0.28	0.32	0.28	49.9
5	T1	295	2.0	324	2.0	0.133	2.4	LOS A	0.8	5.4	0.27	0.31	0.27	49.4
6	R2	56	2.0	62	2.0	0.133	2.8	LOS A	0.8	5.4	0.26	0.30	0.26	48.0
Approach		366	2.0	402	2.0	0.133	2.7	LOS A	0.8	5.4	0.27	0.31	0.27	49.2
North: Ramsay														
7	L2	26	2.0	29	2.0	0.060	8.9	LOS A	0.2	1.6	0.41	0.57	0.41	48.4
8	T1	11	2.0	12	2.0	0.060	3.4	LOS A	0.2	1.6	0.41	0.57	0.41	47.8
9	R2	17	2.0	19	2.0	0.060	3.7	LOS A	0.2	1.6	0.41	0.57	0.41	46.4
Approach		54	2.0	59	2.0	0.060	6.1	LOS A	0.2	1.6	0.41	0.57	0.41	47.6
West: Ottawa														
10	L2	8	2.0	9	2.0	0.153	7.7	LOS A	0.9	6.1	0.19	0.28	0.19	50.4
11	T1	384	2.0	422	2.0	0.153	2.2	LOS A	0.9	6.1	0.19	0.28	0.19	49.8
12	R2	53	2.0	58	2.0	0.153	2.7	LOS A	0.9	6.1	0.18	0.27	0.18	48.4
Approach		445	2.0	489	2.0	0.153	2.4	LOS A	0.9	6.1	0.19	0.28	0.19	49.7
All Vehicles		1061	2.0	1166	2.0	0.219	3.4	LOS A	0.9	6.4	0.28	0.37	0.28	49.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Ottawa/CR49 & Appleton/Ramsay FT2027 PM (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Appleton														
1	L2	96	2.0	99	2.0	0.196	9.0	LOS A	0.8	5.9	0.46	0.63	0.46	48.2
2	T1	12	2.0	12	2.0	0.196	3.5	LOS A	0.8	5.9	0.46	0.63	0.46	47.6
3	R2	80	2.0	82	2.0	0.196	3.8	LOS A	0.8	5.9	0.46	0.63	0.46	46.3
Approach		188	2.0	194	2.0	0.196	6.4	LOS A	0.8	5.9	0.46	0.63	0.46	47.3
East: CR 49														
4	L2	127	2.0	131	2.0	0.270	8.1	LOS A	1.7	12.1	0.34	0.43	0.34	48.9
5	T1	608	2.0	627	2.0	0.270	2.6	LOS A	1.8	12.5	0.33	0.35	0.33	48.9
6	R2	46	2.0	47	2.0	0.270	3.0	LOS A	1.8	12.5	0.32	0.30	0.32	47.8
Approach		781	2.0	805	2.0	0.270	3.5	LOS A	1.8	12.5	0.33	0.36	0.33	48.9
North: Ramsay														
7	L2	19	2.0	20	2.0	0.065	9.9	LOS A	0.2	1.8	0.55	0.65	0.55	48.2
8	T1	15	2.0	15	2.0	0.065	4.4	LOS A	0.2	1.8	0.55	0.65	0.55	47.6
9	R2	17	2.0	18	2.0	0.065	4.7	LOS A	0.2	1.8	0.55	0.65	0.55	46.2
Approach		51	2.0	53	2.0	0.065	6.5	LOS A	0.2	1.8	0.55	0.65	0.55	47.3
West: Ottawa														
10	L2	17	2.0	18	2.0	0.173	8.2	LOS A	1.0	6.9	0.35	0.35	0.35	49.6
11	T1	364	2.0	375	2.0	0.173	2.7	LOS A	1.0	7.1	0.34	0.34	0.34	49.2
12	R2	105	2.0	108	2.0	0.173	3.0	LOS A	1.0	7.1	0.33	0.34	0.33	47.8
Approach		486	2.0	501	2.0	0.173	2.9	LOS A	1.0	7.1	0.34	0.34	0.34	48.9
All Vehicles		1506	2.0	1553	2.0	0.270	3.8	LOS A	1.8	12.5	0.36	0.40	0.36	48.6

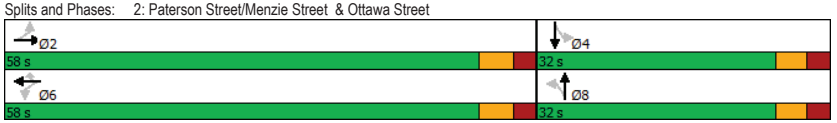
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	561	86	57	435	3	128	9	92	2	14	6
Future Volume (vph)	1	561	86	57	435	3	128	9	92	2	14	6
Satd. Flow (prot)	0	1651	0	1626	1664	1483	0	1535	0	0	1660	0
Flt Permitted				0.378				0.814			0.972	
Satd. Flow (perm)	0	1651	0	647	1664	1439	0	1271	0	0	1620	0
Satd. Flow (RTOR)		14				36		38			6	
Lane Group Flow (vph)	0	696	0	61	468	3	0	247	0	0	23	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	2	2		6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	26.3	26.3		26.3	26.3	26.3	31.0	31.0		31.0	31.0	
Total Split (s)	58.0	58.0		58.0	58.0	58.0	32.0	32.0		32.0	32.0	
Total Split (%)	64.4%	64.4%		64.4%	64.4%	64.4%	35.6%	35.6%		35.6%	35.6%	
Maximum Green (s)	51.7	51.7		51.7	51.7	51.7	26.0	26.0		26.0	26.0	
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.3	3.3		3.3	3.3	
All-Red Time (s)	2.6	2.6		2.6	2.6	2.6	2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.3		6.3	6.3	6.3		6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max	Max	None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0	13.0	18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	1	1		4	4	4	2	2		10	10	
Act Effct Green (s)		53.2		53.2	53.2	53.2		18.7			18.7	
Actuated g/C Ratio		0.63		0.63	0.63	0.63		0.22			0.22	
v/c Ratio		0.66		0.15	0.45	0.00		0.79			0.06	
Control Delay		14.9		9.1	10.7	0.0		44.3			19.8	
Queue Delay		0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay		14.9		9.1	10.7	0.0		44.3			19.8	
LOS		B		A	B	A		D			B	
Approach Delay		14.9			10.5			44.3			19.8	
Approach LOS		B			B			D			B	
Queue Length 50th (m)		62.6		3.6	34.8	0.0		31.2			2.1	
Queue Length 95th (m)		123.9		10.9	68.2	0.0		56.7			7.6	
Internal Link Dist (m)		113.0			108.0			153.2			106.0	
Turn Bay Length (m)						30.0						
Base Capacity (vph)		1048		409	1051	922		419			505	
Starvation Cap Reductn		0		0	0	0		0			0	
Spillback Cap Reductn		0		0	0	0		0			0	
Storage Cap Reductn		0		0	0	0		0			0	
Reduced v/c Ratio		0.66		0.15	0.45	0.00		0.59			0.05	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 84.2
Natural Cycle: 70
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 18.2 Intersection LOS: B
Intersection Capacity Utilization 83.4% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 2: Paterson Street/Menzie Street & Ottawa Street



Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	20	26	159	100	15
Future Vol, veh/h	14	20	26	159	100	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	21	2	4	9	10	2
Mvmt Flow	16	23	30	185	116	17

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	370	125	133	0	-	0
Stage 1	125	-	-	-	-	-
Stage 2	245	-	-	-	-	-
Critical Hdwy	6.61	6.22	4.14	-	-	-
Critical Hdwy Stg 1	5.61	-	-	-	-	-
Critical Hdwy Stg 2	5.61	-	-	-	-	-
Follow-up Hdwy	3.689	3.318	2.236	-	-	-
Pot Cap-1 Maneuver	594	926	1440	-	-	-
Stage 1	856	-	-	-	-	-
Stage 2	753	-	-	-	-	-
Platoon blocked, %					-	-
Mov Cap-1 Maneuver	580	926	1440	-	-	-
Mov Cap-2 Maneuver	580	-	-	-	-	-
Stage 1	836	-	-	-	-	-
Stage 2	753	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.1	1.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1440	-	743	-	-
HCM Lane V/C Ratio	0.021	-	0.053	-	-
HCM Control Delay (s)	7.6	0	10.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	37	0	11	9	0	53	10	20	3	20	25	17
Future Vol, veh/h	37	0	11	9	0	53	10	20	3	20	25	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	93	71	93	93	93	71	71	93	93	71	71
Heavy Vehicles, %	3	2	45	2	2	2	30	2	2	2	6	6
Mvmt Flow	52	0	15	10	0	57	14	28	3	22	35	24

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	177	150	47	157	161	30	59	0	0	31	0	0
Stage 1	91	91	-	58	58	-	-	-	-	-	-	-
Stage 2	86	59	-	99	103	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.52	6.65	7.12	6.52	6.22	4.4	-	-	4.12	-	-
Critical Hdwy Stg 1	6.13	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.018	3.705	3.518	4.018	3.318	2.47	-	-	2.218	-	-
Pot Cap-1 Maneuver	783	742	913	809	731	1044	1384	-	-	1582	-	-
Stage 1	914	820	-	954	847	-	-	-	-	-	-	-
Stage 2	919	846	-	907	810	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	727	724	913	781	713	1044	1384	-	-	1582	-	-
Mov Cap-2 Maneuver	727	724	-	781	713	-	-	-	-	-	-	-
Stage 1	905	809	-	944	839	-	-	-	-	-	-	-
Stage 2	860	838	-	879	799	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.2	8.9	2.4	1.9
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1384	-	-	763	995	1582	-	-
HCM Lane V/C Ratio	0.01	-	-	0.089	0.067	0.014	-	-
HCM Control Delay (s)	7.6	0	-	10.2	8.9	7.3	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.2	0	-	-

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	98	18	7	87	84	36
Future Vol, veh/h	98	18	7	87	84	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	105	19	8	94	90	39

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	220	110	129	0	-	0
Stage 1	110	-	-	-	-	-
Stage 2	110	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	768	943	1457	-	-	-
Stage 1	915	-	-	-	-	-
Stage 2	915	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	763	943	1457	-	-	-
Mov Cap-2 Maneuver	763	-	-	-	-	-
Stage 1	910	-	-	-	-	-
Stage 2	915	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.4	0.6	0
HCM LOS	B		

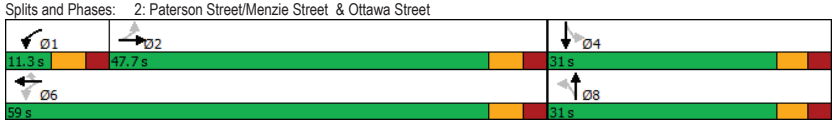
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1457	-	786	-	-
HCM Lane V/C Ratio	0.005	-	0.159	-	-
HCM Control Delay (s)	7.5	0	10.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	587	99	75	822	11	123	8	75	7	3	5
Future Volume (vph)	4	587	99	75	822	11	123	8	75	7	3	5
Satd. Flow (prot)	0	1685	0	1658	1728	1483	0	1603	0	0	1608	0
Flt Permitted		0.996		0.286				0.808			0.874	
Satd. Flow (perm)	0	1678	0	499	1728	1438	0	1323	0	0	1438	0
Satd. Flow (RTOR)		12				36		32			5	
Lane Group Flow (vph)	0	726	0	79	865	12	0	216	0	0	15	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	2	2		1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	26.3	26.3		11.3	26.3	26.3	31.0	31.0		31.0	31.0	
Total Split (s)	47.7	47.7		11.3	59.0	59.0	31.0	31.0		31.0	31.0	
Total Split (%)	53.0%	53.0%		12.6%	65.6%	65.6%	34.4%	34.4%		34.4%	34.4%	
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.3	3.3		3.3	3.3	
All-Red Time (s)	2.6	2.6		2.6	2.6	2.6	2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.3		6.3	6.3	6.3		6.0			6.0	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	Max	Max		None	Max	Max	None	None		None	None	
Act Effct Green (s)		45.7		54.8	54.8	54.8		16.9			16.9	
Actuated g/C Ratio		0.54		0.65	0.65	0.65		0.20			0.20	
v/c Ratio		0.79		0.20	0.77	0.01		0.74			0.05	
Control Delay		26.0		7.9	17.9	0.5		41.6			20.6	
Queue Delay		0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay		26.0		7.9	17.9	0.5		41.6			20.6	
LOS		C		A	B	A		D			C	
Approach Delay		26.0			16.8			41.6			20.6	
Approach LOS		C			B			D			C	
Queue Length 50th (m)		91.0		4.0	84.1	0.0		26.9			1.3	
Queue Length 95th (m)		#187.2		11.3	#199.1	0.5		49.4			5.8	
Internal Link Dist (m)		113.0			108.0			153.2			106.0	
Turn Bay Length (m)						30.0						
Base Capacity (vph)		918		394	1126	950		416			431	
Starvation Cap Reductn		0		0	0	0		0			0	
Spillback Cap Reductn		0		0	0	0		0			0	
Storage Cap Reductn		0		0	0	0		0			0	
Reduced v/c Ratio		0.79		0.20	0.77	0.01		0.52			0.03	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 84.1
Natural Cycle: 90
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.79

Intersection Signal Delay: 23.2 Intersection LOS: C
Intersection Capacity Utilization 88.4% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Paterson Street/Menzie Street & Ottawa Street



Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	21	35	147	222	27
Future Vol, veh/h	13	21	35	147	222	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	5	3	7	12	4
Mvmt Flow	14	22	36	153	231	28

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	470	245	259	0	-	0
Stage 1	245	-	-	-	-	-
Stage 2	225	-	-	-	-	-
Critical Hdwy	6.42	6.25	4.13	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.345	2.227	-	-	-
Pot Cap-1 Maneuver	552	786	1300	-	-	-
Stage 1	796	-	-	-	-	-
Stage 2	812	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	535	786	1300	-	-	-
Mov Cap-2 Maneuver	535	-	-	-	-	-
Stage 1	772	-	-	-	-	-
Stage 2	812	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.7	1.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1300	-	666	-	-
HCM Lane V/C Ratio	0.028	-	0.053	-	-
HCM Control Delay (s)	7.8	0	10.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	52	0	5	6	0	36	7	22	10	58	23	47
Future Vol, veh/h	52	0	5	6	0	36	7	22	10	58	23	47
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	93	94	93	93	93	94	94	93	93	94	94
Heavy Vehicles, %	10	2	2	2	2	2	2	2	2	2	7	4
Mvmt Flow	55	0	5	6	0	39	7	23	11	62	24	50

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	236	222	50	219	242	29	75	0	0	34	0	0
Stage 1	174	174	-	43	43	-	-	-	-	-	-	-
Stage 2	62	48	-	176	199	-	-	-	-	-	-	-
Critical Hdwy	7.2	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.2	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.2	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.59	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	702	677	1018	737	660	1046	1524	-	-	1578	-	-
Stage 1	809	755	-	971	859	-	-	-	-	-	-	-
Stage 2	929	855	-	826	736	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	652	645	1017	708	629	1046	1523	-	-	1578	-	-
Mov Cap-2 Maneuver	652	645	-	708	629	-	-	-	-	-	-	-
Stage 1	804	723	-	966	855	-	-	-	-	-	-	-
Stage 2	890	851	-	788	705	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.9	8.9	1.3	3.4
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1523	-	-	673	979	1578	-	-
HCM Lane V/C Ratio	0.005	-	-	0.09	0.046	0.04	-	-
HCM Control Delay (s)	7.4	0	-	10.9	8.9	7.4	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑			↰	↱	
Traffic Vol, veh/h	67	12	19	115	137	106
Future Vol, veh/h	67	12	19	115	137	106
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	72	13	20	124	147	114

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	368	204	261	0	-	0
Stage 1	204	-	-	-	-	-
Stage 2	164	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	632	837	1303	-	-	-
Stage 1	830	-	-	-	-	-
Stage 2	865	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	622	837	1303	-	-	-
Mov Cap-2 Maneuver	622	-	-	-	-	-
Stage 1	817	-	-	-	-	-
Stage 2	865	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.4	1.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1303	-	647	-	-
HCM Lane V/C Ratio	0.016	-	0.131	-	-
HCM Control Delay (s)	7.8	0	11.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.5	-	-

Appendix H

2032 Future Total Synchro and Sidra Worksheets

MOVEMENT SUMMARY

Site: 101 [Ottawa/CR49 & Appleton/Ramsay FT2032 AM (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Appleton														
1	L2	87	2.0	96	2.0	0.233	9.3	LOS A	1.0	7.0	0.49	0.66	0.49	48.4
2	T1	7	2.0	8	2.0	0.233	3.8	LOS A	1.0	7.0	0.49	0.66	0.49	47.8
3	R2	110	2.0	121	2.0	0.233	4.1	LOS A	1.0	7.0	0.49	0.66	0.49	46.4
Approach		204	2.0	224	2.0	0.233	6.3	LOS A	1.0	7.0	0.49	0.66	0.49	47.3
East: CR 49														
4	L2	59	2.0	65	2.0	0.143	7.9	LOS A	0.8	5.8	0.29	0.41	0.29	49.2
5	T1	318	2.0	349	2.0	0.143	2.4	LOS A	0.8	6.0	0.28	0.33	0.28	49.2
6	R2	15	2.0	16	2.0	0.143	2.8	LOS A	0.8	6.0	0.27	0.28	0.27	48.0
Approach		392	2.0	431	2.0	0.143	3.3	LOS A	0.8	6.0	0.28	0.34	0.28	49.1
North: Ramsay														
7	L2	26	2.0	29	2.0	0.062	9.0	LOS A	0.2	1.7	0.44	0.59	0.44	48.3
8	T1	11	2.0	12	2.0	0.062	3.6	LOS A	0.2	1.7	0.44	0.59	0.44	47.7
9	R2	17	2.0	19	2.0	0.062	3.9	LOS A	0.2	1.7	0.44	0.59	0.44	46.4
Approach		54	2.0	59	2.0	0.062	6.3	LOS A	0.2	1.7	0.44	0.59	0.44	47.6
West: Ottawa														
10	L2	8	2.0	9	2.0	0.172	7.9	LOS A	0.9	6.6	0.27	0.30	0.27	50.1
11	T1	413	2.0	454	2.0	0.172	2.4	LOS A	0.9	6.7	0.26	0.30	0.26	49.5
12	R2	56	2.0	62	2.0	0.172	2.8	LOS A	0.9	6.7	0.25	0.29	0.25	48.1
Approach		477	2.0	524	2.0	0.172	2.6	LOS A	0.9	6.7	0.26	0.30	0.26	49.4
All Vehicles		1127	2.0	1238	2.0	0.233	3.7	LOS A	1.0	7.0	0.32	0.39	0.32	48.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Ottawa/CR49 & Appleton/Ramsay FT2032 PM (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Appleton														
1	L2	102	2.0	105	2.0	0.209	9.1	LOS A	0.9	6.4	0.47	0.65	0.47	48.1
2	T1	12	2.0	12	2.0	0.209	3.6	LOS A	0.9	6.4	0.47	0.65	0.47	47.5
3	R2	83	2.0	86	2.0	0.209	3.9	LOS A	0.9	6.4	0.47	0.65	0.47	46.2
Approach		197	2.0	203	2.0	0.209	6.6	LOS A	0.9	6.4	0.47	0.65	0.47	47.3
East: CR 49														
4	L2	132	2.0	136	2.0	0.290	8.1	LOS A	1.9	13.3	0.36	0.43	0.36	48.9
5	T1	654	2.0	674	2.0	0.290	2.6	LOS A	1.9	13.7	0.35	0.35	0.35	48.9
6	R2	46	2.0	47	2.0	0.290	3.0	LOS A	1.9	13.7	0.34	0.30	0.34	47.8
Approach		832	2.0	858	2.0	0.290	3.5	LOS A	1.9	13.7	0.35	0.36	0.35	48.8
North: Ramsay														
7	L2	19	2.0	20	2.0	0.067	10.0	LOS B	0.3	1.8	0.56	0.67	0.56	48.1
8	T1	15	2.0	15	2.0	0.067	4.6	LOS A	0.3	1.8	0.56	0.67	0.56	47.5
9	R2	17	2.0	18	2.0	0.067	4.8	LOS A	0.3	1.8	0.56	0.67	0.56	46.2
Approach		51	2.0	53	2.0	0.067	6.7	LOS A	0.3	1.8	0.56	0.67	0.56	47.3
West: Ottawa														
10	L2	17	2.0	18	2.0	0.186	8.2	LOS A	1.0	7.5	0.36	0.35	0.36	49.6
11	T1	391	2.0	403	2.0	0.186	2.7	LOS A	1.1	7.7	0.35	0.35	0.35	49.1
12	R2	110	2.0	113	2.0	0.186	3.1	LOS A	1.1	7.7	0.34	0.34	0.34	47.8
Approach		518	2.0	534	2.0	0.186	3.0	LOS A	1.1	7.7	0.35	0.35	0.35	48.8
All Vehicles		1598	2.0	1647	2.0	0.290	3.8	LOS A	1.9	13.7	0.37	0.40	0.37	48.6

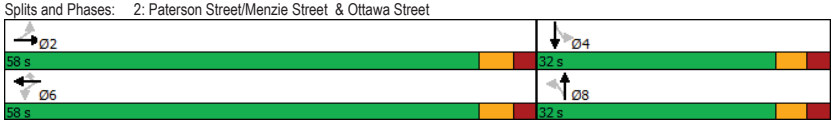
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	604	91	61	465	3	134	9	98	2	14	6
Future Volume (vph)	1	604	91	61	465	3	134	9	98	2	14	6
Satd. Flow (prot)	0	1651	0	1626	1664	1483	0	1533	0	0	1660	0
Flt Permitted				0.353				0.815			0.972	
Satd. Flow (perm)	0	1651	0	604	1664	1439	0	1272	0	0	1620	0
Satd. Flow (RTOR)		14				36		38			6	
Lane Group Flow (vph)	0	748	0	66	500	3	0	259	0	0	23	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	2	2		6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	26.3	26.3		26.3	26.3	26.3	31.0	31.0		31.0	31.0	
Total Split (s)	58.0	58.0		58.0	58.0	58.0	32.0	32.0		32.0	32.0	
Total Split (%)	64.4%	64.4%		64.4%	64.4%	64.4%	35.6%	35.6%		35.6%	35.6%	
Maximum Green (s)	51.7	51.7		51.7	51.7	51.7	26.0	26.0		26.0	26.0	
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.3	3.3		3.3	3.3	
All-Red Time (s)	2.6	2.6		2.6	2.6	2.6	2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.3		6.3	6.3	6.3		6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max	Max	None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0	13.0	18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	1	1		4	4	4	2	2		10	10	
Act Effct Green (s)		53.0		53.0	53.0	53.0		19.3			19.3	
Actuated g/C Ratio		0.63		0.63	0.63	0.63		0.23			0.23	
v/c Ratio		0.72		0.18	0.48	0.00		0.81			0.06	
Control Delay		17.1		9.8	11.5	0.0		45.8			19.7	
Queue Delay		0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay		17.1		9.8	11.5	0.0		45.8			19.7	
LOS		B		A	B	A		D			B	
Approach Delay		17.1			11.2			45.8			19.7	
Approach LOS		B			B			D			B	
Queue Length 50th (m)		74.3		4.1	39.8	0.0		33.4			2.1	
Queue Length 95th (m)		142.7		12.0	74.6	0.0		59.8			7.6	
Internal Link Dist (m)		113.0			108.0			153.2			106.0	
Turn Bay Length (m)						30.0						
Base Capacity (vph)		1038		377	1041	914		418			503	
Starvation Cap Reductn		0		0	0	0		0			0	
Spillback Cap Reductn		0		0	0	0		0			0	
Storage Cap Reductn		0		0	0	0		0			0	
Reduced v/c Ratio		0.72		0.18	0.48	0.00		0.62			0.05	

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 84.6
Natural Cycle: 75
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 19.7 Intersection LOS: B
Intersection Capacity Utilization 86.8% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 2: Paterson Street/Menzie Street & Ottawa Street



Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	20	26	167	106	15
Future Vol, veh/h	14	20	26	167	106	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	21	2	4	9	10	2
Mvmt Flow	16	23	30	194	123	17

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	386	132	140	0	-	0
Stage 1	132	-	-	-	-	-
Stage 2	254	-	-	-	-	-
Critical Hdwy	6.61	6.22	4.14	-	-	-
Critical Hdwy Stg 1	5.61	-	-	-	-	-
Critical Hdwy Stg 2	5.61	-	-	-	-	-
Follow-up Hdwy	3.689	3.318	2.236	-	-	-
Pot Cap-1 Maneuver	582	917	1431	-	-	-
Stage 1	849	-	-	-	-	-
Stage 2	746	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	569	917	1431	-	-	-
Mov Cap-2 Maneuver	569	-	-	-	-	-
Stage 1	829	-	-	-	-	-
Stage 2	746	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.2	1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1431	-	733	-	-
HCM Lane V/C Ratio	0.021	-	0.054	-	-
HCM Control Delay (s)	7.6	0	10.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	37	0	11	9	0	53	10	32	3	20	34	17
Future Vol, veh/h	37	0	11	9	0	53	10	32	3	20	34	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	93	71	93	93	93	71	71	93	93	71	71
Heavy Vehicles, %	3	2	45	2	2	2	30	2	2	2	6	6
Mvmt Flow	52	0	15	10	0	57	14	45	3	22	48	24

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	207	180	60	187	191	47	72	0	0	48	0	0
Stage 1	104	104	-	75	75	-	-	-	-	-	-	-
Stage 2	103	76	-	112	116	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.52	6.65	7.12	6.52	6.22	4.4	-	-	4.12	-	-
Critical Hdwy Stg 1	6.13	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.018	3.705	3.518	4.018	3.318	2.47	-	-	2.218	-	-
Pot Cap-1 Maneuver	748	714	897	774	704	1022	1368	-	-	1559	-	-
Stage 1	899	809	-	934	833	-	-	-	-	-	-	-
Stage 2	900	832	-	893	800	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	693	695	897	745	686	1022	1368	-	-	1559	-	-
Mov Cap-2 Maneuver	693	695	-	745	686	-	-	-	-	-	-	-
Stage 1	889	797	-	924	824	-	-	-	-	-	-	-
Stage 2	840	823	-	864	788	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.4	9	1.7	1.7
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1368	-	-	731	970	1559	-	-
HCM Lane V/C Ratio	0.01	-	-	0.092	0.069	0.014	-	-
HCM Control Delay (s)	7.7	0	-	10.4	9	7.3	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.2	0	-	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	98	18	7	95	90	36
Future Vol, veh/h	98	18	7	95	90	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	105	19	8	102	97	39

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	235	117	136	0	-	0
Stage 1	117	-	-	-	-	-
Stage 2	118	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	753	935	1448	-	-	-
Stage 1	908	-	-	-	-	-
Stage 2	907	-	-	-	-	-
Platoon blocked, %					-	-
Mov Cap-1 Maneuver	748	935	1448	-	-	-
Mov Cap-2 Maneuver	748	-	-	-	-	-
Stage 1	903	-	-	-	-	-
Stage 2	907	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.6	0.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1448	-	772	-	-
HCM Lane V/C Ratio	0.005	-	0.162	-	-
HCM Control Delay (s)	7.5	0	10.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

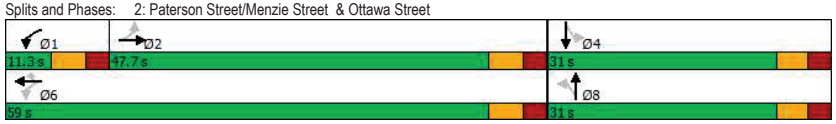
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	630	103	80	884	11	130	8	80	7	3	5
Future Volume (vph)	4	630	103	80	884	11	130	8	80	7	3	5
Satd. Flow (prot)	0	1685	0	1658	1728	1483	0	1601	0	0	1608	0
Flt Permitted		0.996		0.265				0.808			0.874	
Satd. Flow (perm)	0	1679	0	462	1728	1438	0	1321	0	0	1438	0
Satd. Flow (RTOR)		12				36		32			5	
Lane Group Flow (vph)	0	775	0	84	931	12	0	229	0	0	15	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	2	2		1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	26.3	26.3		11.3	26.3	26.3	31.0	31.0		31.0	31.0	
Total Split (s)	47.7	47.7		11.3	59.0	59.0	31.0	31.0		31.0	31.0	
Total Split (%)	53.0%	53.0%		12.6%	65.6%	65.6%	34.4%	34.4%		34.4%	34.4%	
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.3	3.3		3.3	3.3	
All-Red Time (s)	2.6	2.6		2.6	2.6	2.6	2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.3		6.3	6.3	6.3		6.0			6.0	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Recall Mode	Max	Max		None	Max	Max	None	None		None	None	
Act Effct Green (s)		45.4		54.5	54.5	54.5		17.5			17.5	
Actuated g/C Ratio		0.54		0.65	0.65	0.65		0.21			0.21	
v/c Ratio		0.85		0.23	0.83	0.01		0.77			0.05	
Control Delay		30.7		8.4	21.8	0.5		43.3			20.5	
Queue Delay		0.0		0.0	0.0	0.0		0.0			0.0	
Total Delay		30.7		8.4	21.8	0.5		43.3			20.5	
LOS		C		A	C	A		D			C	
Approach Delay		30.7			20.5			43.3			20.5	
Approach LOS		C			C			D			C	
Queue Length 50th (m)		105.1		4.5	102.1	0.0		29.2			1.3	
Queue Length 95th (m)		#207.2		11.8	#224.2	0.5		52.7			5.8	
Internal Link Dist (m)		113.0			108.0			153.2			106.0	
Turn Bay Length (m)						30.0						
Base Capacity (vph)		910		369	1116	941		415			430	
Starvation Cap Reductn		0		0	0	0		0			0	
Spillback Cap Reductn		0		0	0	0		0			0	
Storage Cap Reductn		0		0	0	0		0			0	
Reduced v/c Ratio		0.85		0.23	0.83	0.01		0.55			0.03	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 84.3
Natural Cycle: 90
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.85

Intersection Signal Delay: 26.9	Intersection LOS: C
Intersection Capacity Utilization 93.8%	ICU Level of Service F
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Paterson Street/Menzie Street & Ottawa Street



Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	21	35	156	232	27
Future Vol, veh/h	13	21	35	156	232	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	5	3	7	12	4
Mvmt Flow	14	22	36	163	242	28

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	491	256	270	0	-	0
Stage 1	256	-	-	-	-	-
Stage 2	235	-	-	-	-	-
Critical Hdwy	6.42	6.25	4.13	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.345	2.227	-	-	-
Pot Cap-1 Maneuver	537	775	1288	-	-	-
Stage 1	787	-	-	-	-	-
Stage 2	804	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	520	775	1288	-	-	-
Mov Cap-2 Maneuver	520	-	-	-	-	-
Stage 1	763	-	-	-	-	-
Stage 2	804	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.8	1.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1288	-	653	-	-
HCM Lane V/C Ratio	0.028	-	0.054	-	-
HCM Control Delay (s)	7.9	0	10.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	52	0	5	6	0	36	7	34	10	58	32	47
Future Vol, veh/h	52	0	5	6	0	36	7	34	10	58	32	47
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	93	94	93	93	93	94	94	93	93	94	94
Heavy Vehicles, %	10	2	2	2	2	2	2	2	2	2	7	4
Mvmt Flow	55	0	5	6	0	39	7	36	11	62	34	50

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	259	245	60	242	265	42	85	0	0	47	0	0
Stage 1	184	184	-	56	56	-	-	-	-	-	-	-
Stage 2	75	61	-	186	209	-	-	-	-	-	-	-
Critical Hdwy	7.2	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.2	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.2	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.59	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	678	657	1005	712	640	1029	1512	-	-	1560	-	-
Stage 1	800	747	-	956	848	-	-	-	-	-	-	-
Stage 2	915	844	-	816	729	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	629	625	1004	683	609	1029	1511	-	-	1560	-	-
Mov Cap-2 Maneuver	629	625	-	683	609	-	-	-	-	-	-	-
Stage 1	795	715	-	951	844	-	-	-	-	-	-	-
Stage 2	876	840	-	778	698	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.1	8.9	1	3.2
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1511	-	-	650	960	1560	-	-
HCM Lane V/C Ratio	0.005	-	-	0.093	0.047	0.04	-	-
HCM Control Delay (s)	7.4	0	-	11.1	8.9	7.4	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑			↰	↱	
Traffic Vol, veh/h	67	12	19	124	147	106
Future Vol, veh/h	67	12	19	124	147	106
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	72	13	20	133	158	114

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	388	215	272	0	-	0
Stage 1	215	-	-	-	-	-
Stage 2	173	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	616	825	1291	-	-	-
Stage 1	821	-	-	-	-	-
Stage 2	857	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	606	825	1291	-	-	-
Mov Cap-2 Maneuver	606	-	-	-	-	-
Stage 1	807	-	-	-	-	-
Stage 2	857	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.6	1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1291	-	631	-	-
HCM Lane V/C Ratio	0.016	-	0.135	-	-
HCM Control Delay (s)	7.8	0	11.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.5	-	-

Appendix I

Turn Lane Warrants

Jack Dalgity Stree/Access #1 @ Paterson Street

Existing

Design Speed											Yes					
60 km/h	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM	37	0	11	0	0	0	10	8	0	0	16	17	0.0%	33	18
PM	52	0	5	0	0	0	7	10	0	0	14	47	0.0%	61	17

Future Background 2027

Design Speed											Yes					
60 km/h	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM	37	0	11	0	0	0	10	20	0	0	25	17	0.0%	42	30
PM	52	0	5	0	0	0	7	22	0	0	23	47	0.0%	70	29

Future Background 2032

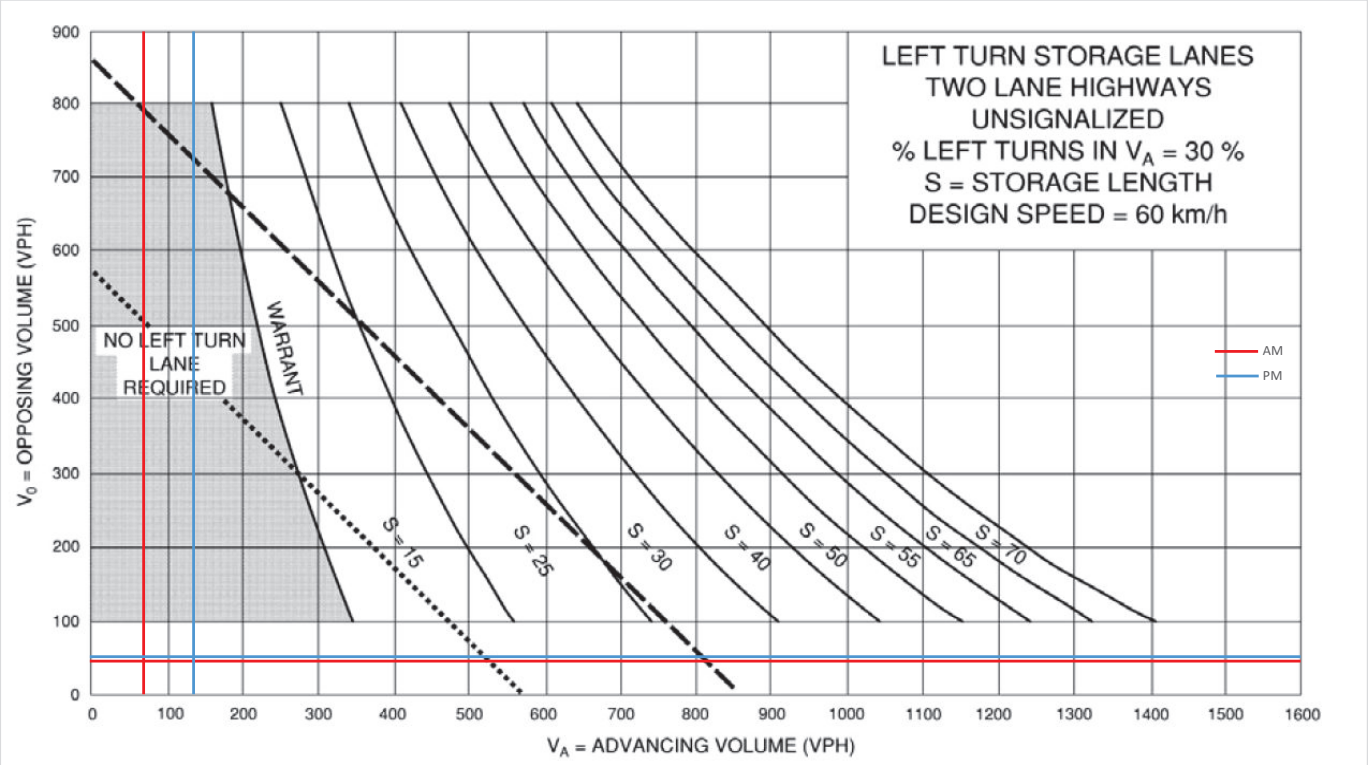
Design Speed											Yes					
60 km/h	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM	37	0	11	0	0	0	10	32	0	0	34	17	0.0%	51	42
PM	52	0	5	0	0	0	7	34	0	0	32	47	0.0%	79	41

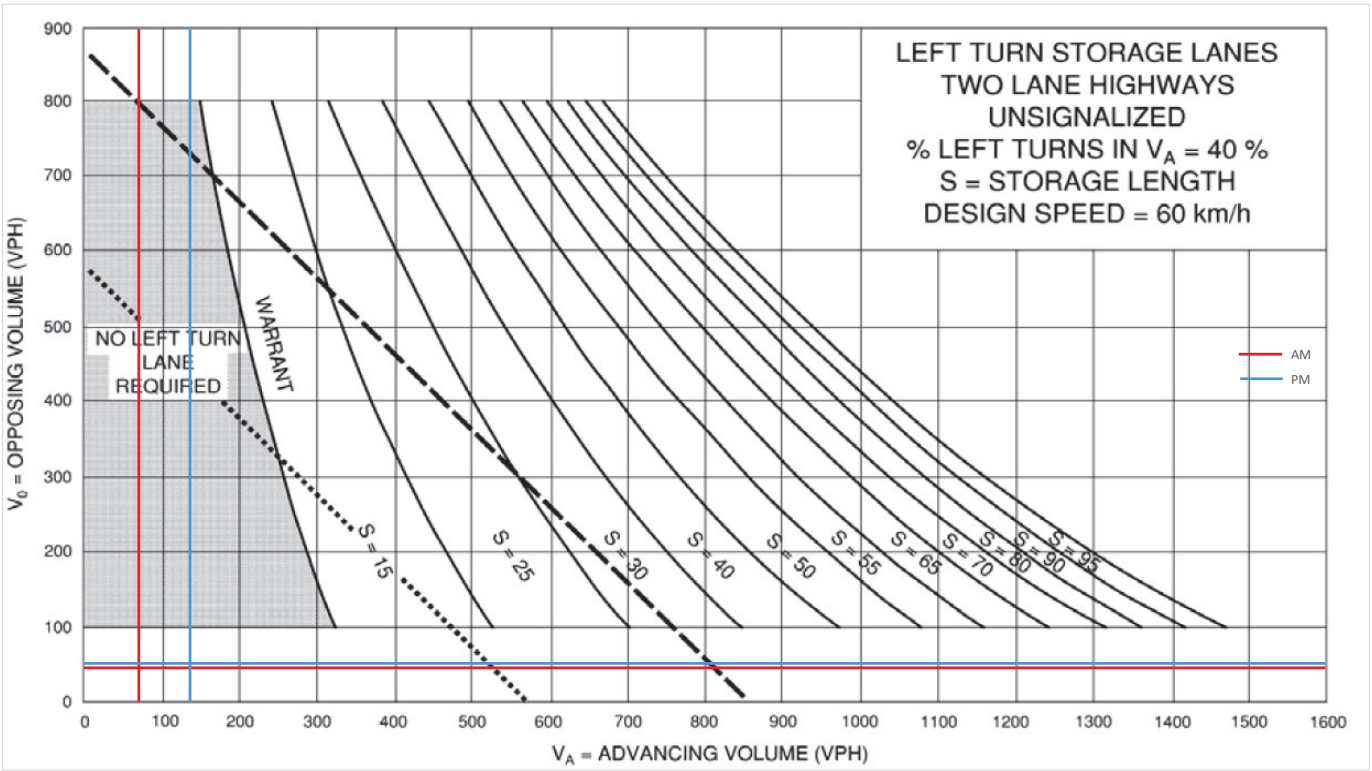
Future Total 2027

Design Speed											Yes					
60 km/h	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM	37	0	11	9	0	53	10	20	3	20	25	17	32.3%	62	33
PM	52	0	5	6	0	36	7	22	10	58	23	47	45.3%	128	39

Future Total 2032

Design Speed											Yes					
60 km/h	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM	37	0	11	9	0	53	10	32	3	20	34	17	28.2%	71	45
PM	52	0	5	6	0	36	7	34	10	58	32	47	42.3%	137	51


LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 30 %
S = STORAGE LENGTH
DESIGN SPEED = 60 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S = 15
S = 25
S = 30
S = 40
S = 50
S = 55
S = 65
S = 70
AM
PM
V_0 = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600


LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 40 %
S = STORAGE LENGTH
DESIGN SPEED = 60 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S = 15
S = 25
S = 30
S = 40
S = 50
S = 55
S = 65
S = 70
S = 80
S = 90
S = 95
AM
PM
V_0 = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600

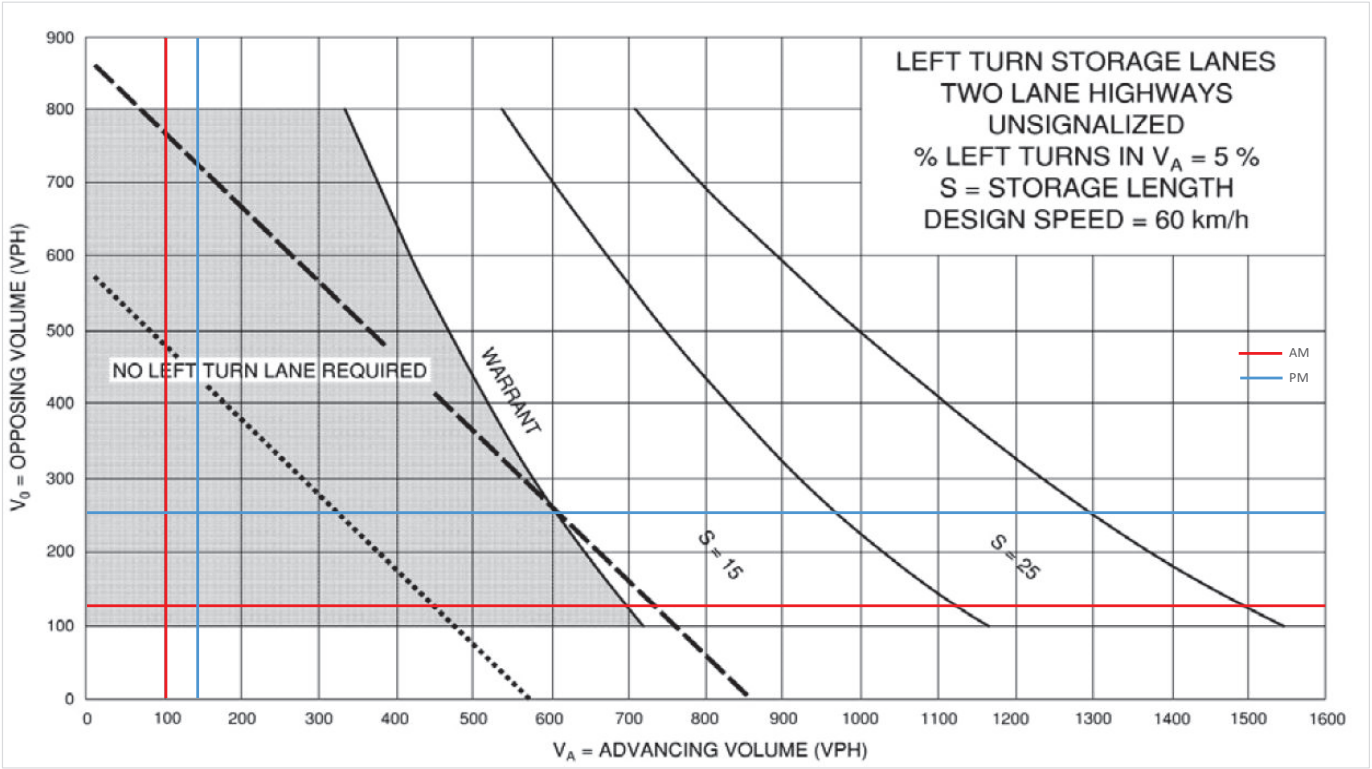
Access #2 @ Appleton Side Road

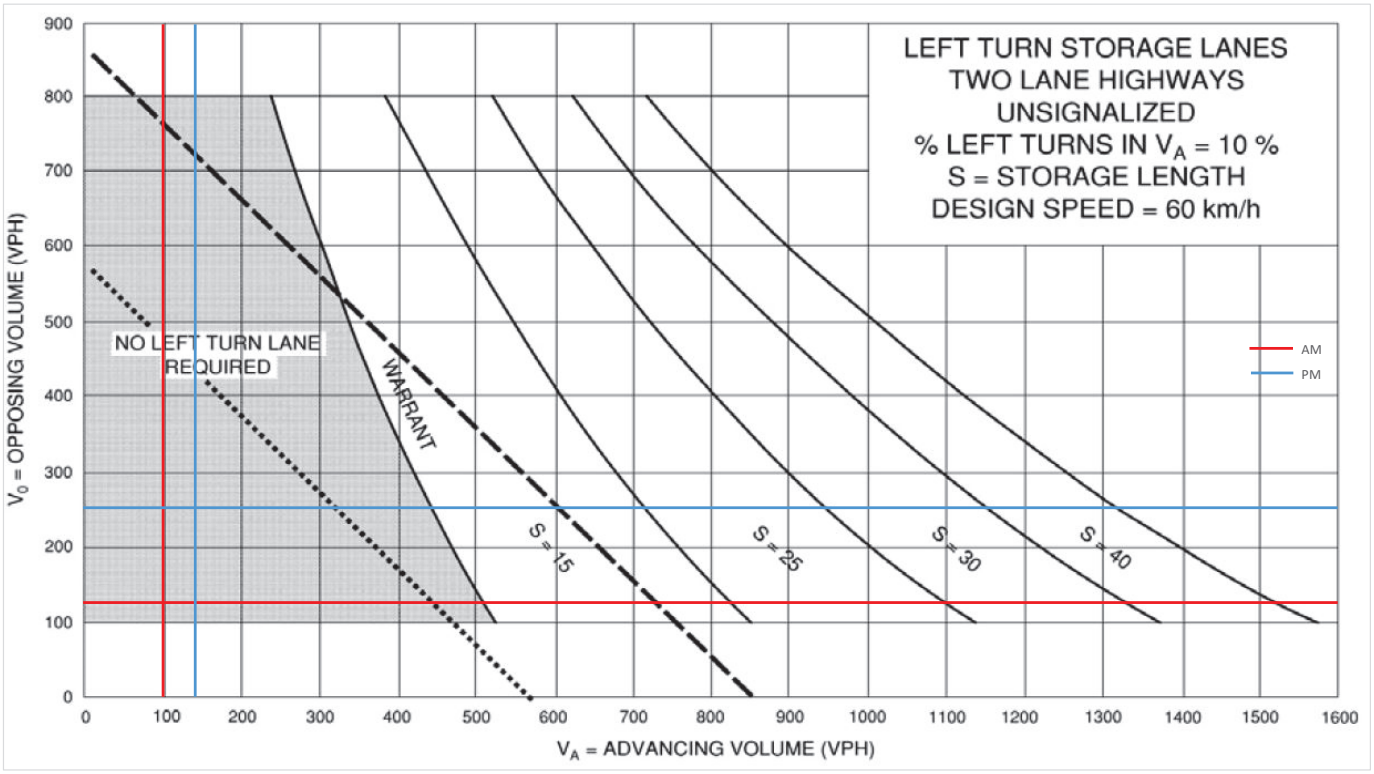
Future Total 2027

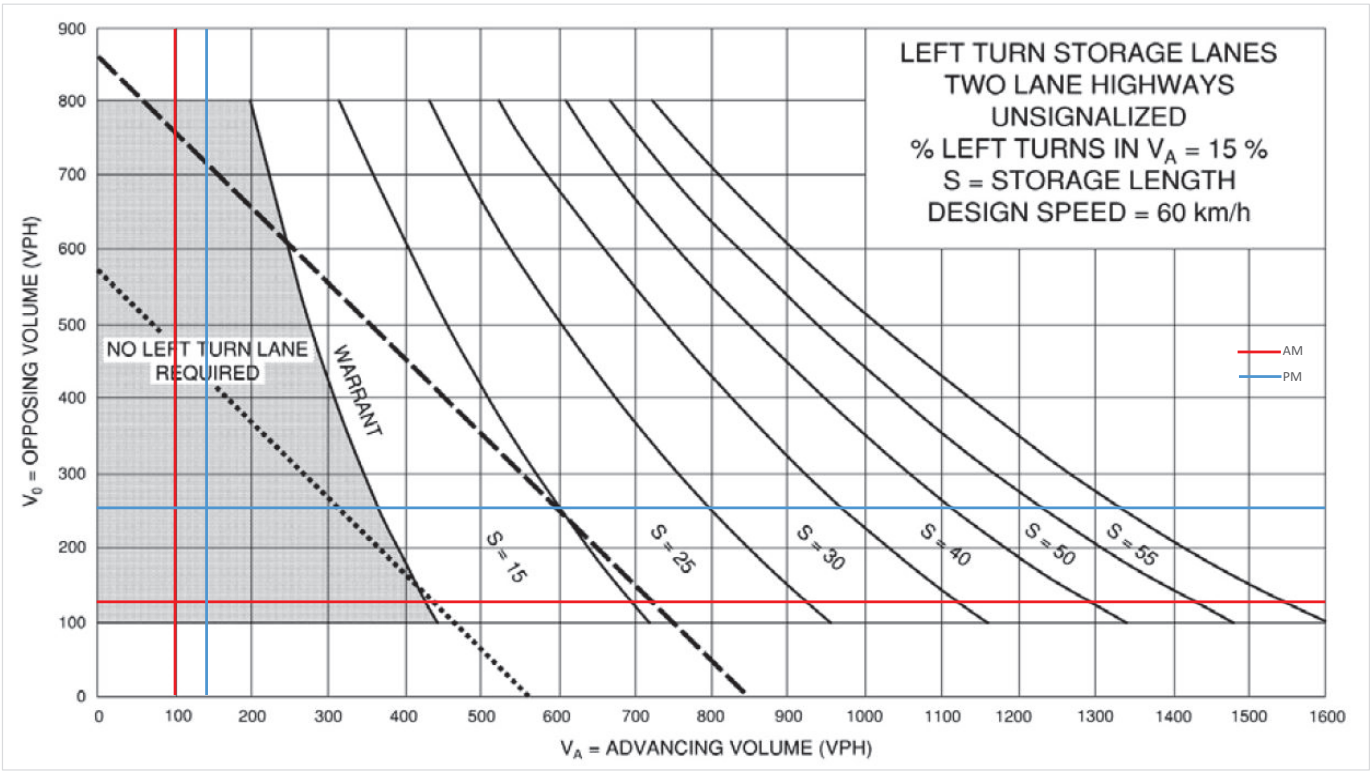
Design Speed								Yes								
60 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
	AM	98	0	18	0	0	0	7	87	0	0	84	36	7.4%	94	120
	PM	67	0	12	0	0	0	19	115	0	0	137	106	14.2%	134	243

Future Total 2032

Design Speed								Yes								
60 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
	AM	98	0	18	0	0	0	7	95	0	0	90	36	6.9%	102	126
	PM	67	0	12	0	0	0	19	124	0	0	147	106	13.3%	143	253


LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 5 %
S = STORAGE LENGTH
DESIGN SPEED = 60 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S = 15
S = 25
AM
PM
V_0 = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600


LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 10 %
S = STORAGE LENGTH
DESIGN SPEED = 60 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S = 15
S = 25
S = 30
S = 40
AM
PM
V_0 = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600


LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 15 %
S = STORAGE LENGTH
DESIGN SPEED = 60 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S = 15
S = 25
S = 30
S = 40
S = 50
S = 55
AM
PM
V_0 = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600