

# ENVIRONMENTAL NOISE IMPACT ASSESSMENT

FOREST BREEZE ESTATES  
RESIDENTIAL DEVELOPMENT  
204 & 206 RYMAL RD WEST  
PART OF LOT 17, CONCESSION 8  
TOWNSHIP OF BARTON  
CITY OF HAMILTON

Prepared for:

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City of Hamilton 2016 AADT

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## 1.0 INTRODUCTION

dBA Acoustical Consultants Inc has been retained by URBEX Engineering Limited, 161 Rebecca Street, Hamilton ON to provide a noise impact study for the proposed “Forest Breeze Estates Residential Development” located at 204 & 206 Rymal Road West being Part of Lot 17, Concession 8, Township of Barton now in the City of Hamilton ON.

The purpose of the study is to determine the noise impact from Rymal Road West road traffic, for draft plan of subdivision approval for the City of Hamilton. This noise impact study will detail noise levels at the proposed development and recommend noise control measures necessary (if applicable) to meet MOE Publication-300 entitled “Stationary & Transportation Sources guidelines while satisfying the planning requirements of the City of Hamilton. There are no CP/CN rail within the proposed site development.

Vibration is not considered as there are no heavy industrial operations in the proposed development area. Aircraft is not a concern as the development is located outside the NEF 25 contour of John C. Munro Hamilton International Airport. See attached Figure 1 Key Plan.

## 2.0 SITE DESCRIPTION

Rymal Road West is a 4-lane vehicular roadway, and the main road noise source located approximately 20 metres south to the centerline of vehicular traffic, running east and west relative to the proposed site.

To the south, west, and east are existing single-family dwellings. To the north are vacant lands slated for future residential development. The proposed development consists of (44) forty-four single-family dwellings located on the north side of Rymal Road West. See Figure 2 Draft Plan of Subdivision.

## 3.0 NOISE IMPACT ASSESSMENT

### 3.1 NOISE CRITERIA

The Ministry of Environment (MOE) specifies limits for road and rail noise relative to new residential developments. The MOE Publication NPC-300 entitled “Stationary & Transportation Sources-Approval & Planning, specifies the criteria, summarized as follows:

TABLE1- Road Traffic Sound Levels Limits	
Time Period	Leq (dBA)
07:00 – 23:00 (16 hr.)	55 Outdoor Living area
	55 Plane of Window
23:00 – 07:00 (8 hr.)	50 Plane of Bedroom window

*The OLA refers to an outdoor patio, a backyard, a terrace or other area where outdoor passive recreation is expected. Noise levels are calculated at the upper storey bedroom window to represent nighttime (23:00-0700) periods.*

Where noise levels estimated in the Outdoor Living Area (OLA) and at an upper storey plane of window (POW) are equal to or less than the values listed in Table 1, no noise control measures are required.

Where noise levels exceed Table 1 values, the following action is required:

TABLE 2 –Noise Control Requirements		
Time Period	Noise Level Leq (dBA)	Action Required
07:00 - 23:00 Daytime (OLA)	55 to 60	Warning Clause Type “A”
	> 60	Barrier & Warning Clause Type “B”
07:00 – 23:00 Daytime (POW)	>55	Provision for A/C, Warning Clause “C”
	>65	Central A/C, Warning Clause “D”
	>65	Building Component Specification
23:00 to 07:00 Nighttime (POW)	> 50	Provision for A/C and Warning Clause Type “C”
	> 60	Building Component Specification
	> 60	Central Air and Warning Clause Type “D”

Where nighttime noise levels exceed 60 dBA, building components must be designed to meet Table 3 indoor sound level limits.

TABLE 3 - Indoor Road Sound Levels Limits		
Indoor Location	Leq(dBA)	
	Road	Rail
Living/Dining 7:00 – 23:00	45	N/A
Bedroom 23:00 - 07:00	40	N/A

### 3.2 ROAD NOISE

Road traffic noise levels were calculated for Rymal Road West, Hamilton On. Local traffic noise has no impact due to minimal vehicular volumes. Rymal Road traffic noise levels were separated in two segments as there was no current traffic data for the specific location. The Annual Average Daily Traffic (Forecasted to 2031 AADT) for Rymal Road West road traffic volumes were sourced through “The City of Hamilton Transportation Data Management System website.

The daytime/nighttime volume ratio relative to the roadway is typically calculated using a 90/10 split as required by the MOE. The percentage of annual growth was figured at 2.0% forecasted to year 2031. Local roadways have no acoustical impact due to minimal vehicular volumes and speeds.

Truck volumes were factored at 2% medium and 2% heavy of the total vehicle volumes for both segments of Rymal Road West with a level road gradient. Table 4 below, summarizes future traffic volumes to year 2031.

TABLE 4 – Future Road Traffic Volumes			
Rymal Rd West Eastbound	AADT 9547 Vehicles		
	Cars	Medium Trucks	Heavy Trucks
Day	8420	86	86

TABLE 4 – Future Road Traffic Volumes			
Night	936	10	10

TABLE 4 – Future Road Traffic Volumes			
Rymal Rd West West Bound	AADT <b>12513</b> Vehicles		
	Cars	Medium Trucks	Heavy Trucks
Day	11036	113	113
Night	1226	13	13

Table 5 represents the road traffic noise levels modeled at 4 specified receptor locations representative of the outdoor amenity space (OLAs) and the north building façades of R1 representing the worst-case scenario (See Figure 3 Receptor Locations)

TABLE 5 - Predicted Road Traffic Noise Levels-Free Field		
Rymal Road West	L <sub>eq</sub> (dBA)	
	07:00 - 23:00	23:00 - 07:00
R1- Lots 43 & 44 (Front Façade)	61 (1.5m)	55 (4.5m)
R2- Lots 43 & 44 (OLA)	47 (1.5m)	44 (4.5m)
R3- Lots 34-42 (OLA)	53 (1.5m)	51 (4.5m)
R4- Lots 21-30 (OLA)	55 (1.5m)	51 (4.5m)

## 4.0 RECOMMENDATIONS - NOISE CONTROL

### 4.1 OUTDOOR LIVING AREAS

Calculated daytime noise levels do not exceed the 55 dBA criteria outlined in Table 1 for the rear yard outdoor amenity areas (OLAs) for any residential Lots. Therefore, noise mitigation is not required.

### 4.2 INDOOR NOISE LEVELS

Calculated noise levels at the front façades exceed the nighttime 50 dBA criteria outlined in Table 1 for specific Lots. Building design specifications for all windows, walls and doors will require Ontario Building Code (OBC) for all Lots.

## 5.0 VENTILATION / WARNING CLAUSES

Ventilation and warning clause requirements are required for this project as noted in Table 6 below. It is recommended that the appropriate warning clauses be inserted into all Offers and Agreements of Purchase and Sale or Lease.

TABLE 6- Ventilation and Warning Clause Requirements		
LOCATION	VENTILATION	WARNING CLAUSE
R1- Lots 43 & 44	Provisions for Central Air Conditioning	Type "A" & "C"
R3 & R4 Lots 21-42	Provisions for Central Air Conditioning	Type "C"

**TYPE 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 Municipality’s and the Ministry of the Environment’s noise criteria.”

**TYPE C:**

“This dwelling unit had been fitted with a forced air heating system and the ducting, etc. was sized to accommodate central air conditioning. Installation of central air conditioning by the occupant will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the Municipality’s and the Ministry of the Environment’ noise criteria.

(Note: The location and installation of the outdoor air conditioning device should be done to comply with noise criteria of MOE Publication NPC-216, Residential Air Conditioning Devices and thus minimize the noise impacts both on and in the immediate vicinity of the subject property.)”

**6.0 SUMMARY OF RECOMMENDATIONS**

- Appropriate ventilation requirements and warning clauses be inserted into the Offers and Agreements of Purchase and Sale or Lease. (Section 5, Table 6)

It is recommended that a Qualified Acoustical Consultant certify that the required noise control measures have been incorporated into the builder’s plans, prior to issuance of a building permit.

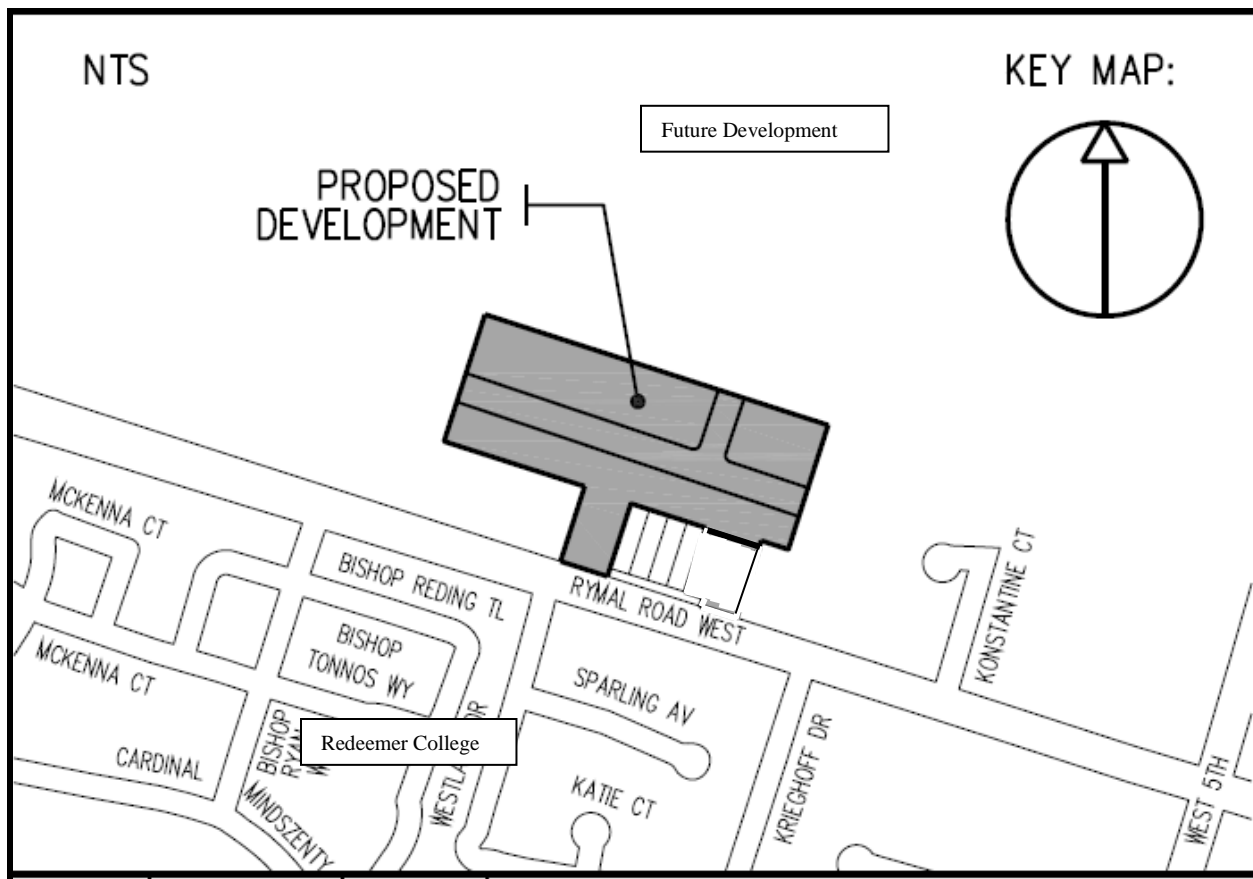
Prior to issuance of an occupancy permit, it is recommended the Qualified Acoustical Consultant certify that the approved noise control measures have been properly installed.

**7.0 CONCLUSIONS**

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FIGURE 1  
SITE LOCATION



### FIGURE 2 SITE PLAN

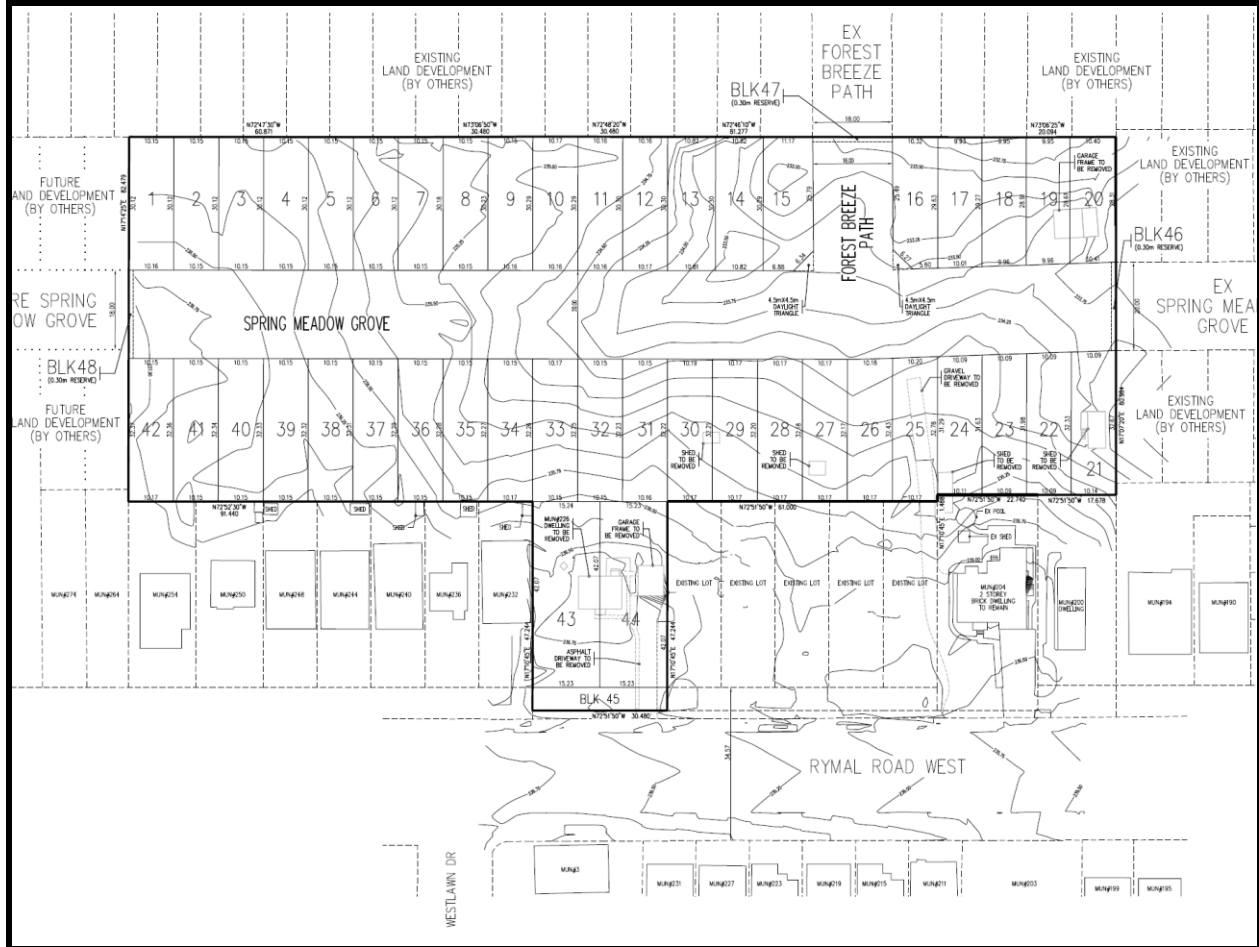
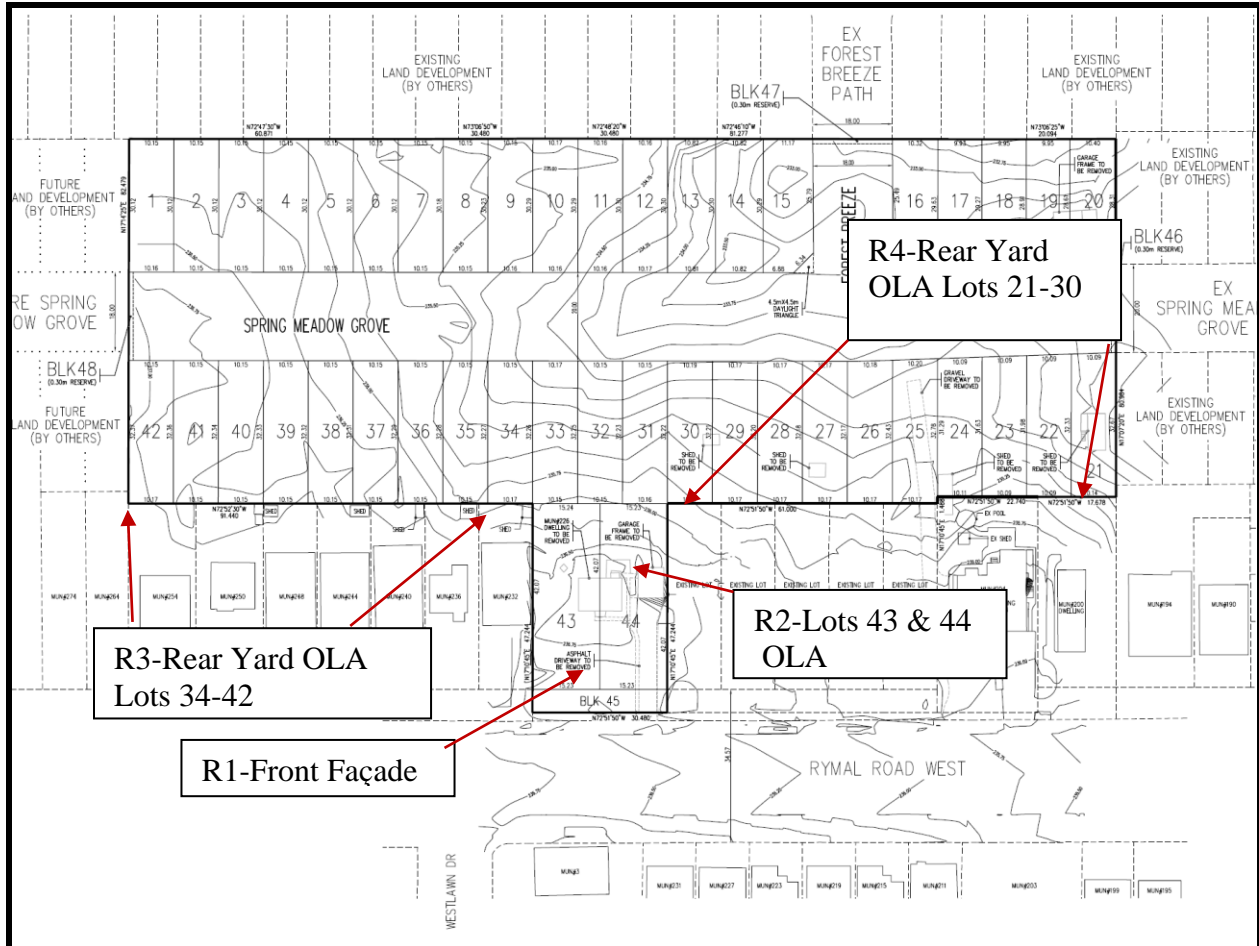










FIGURE 3  
RECEPTOR LOCATIONS



## CITY OF HAMILTON AADT (2031) TRAFFIC DATA



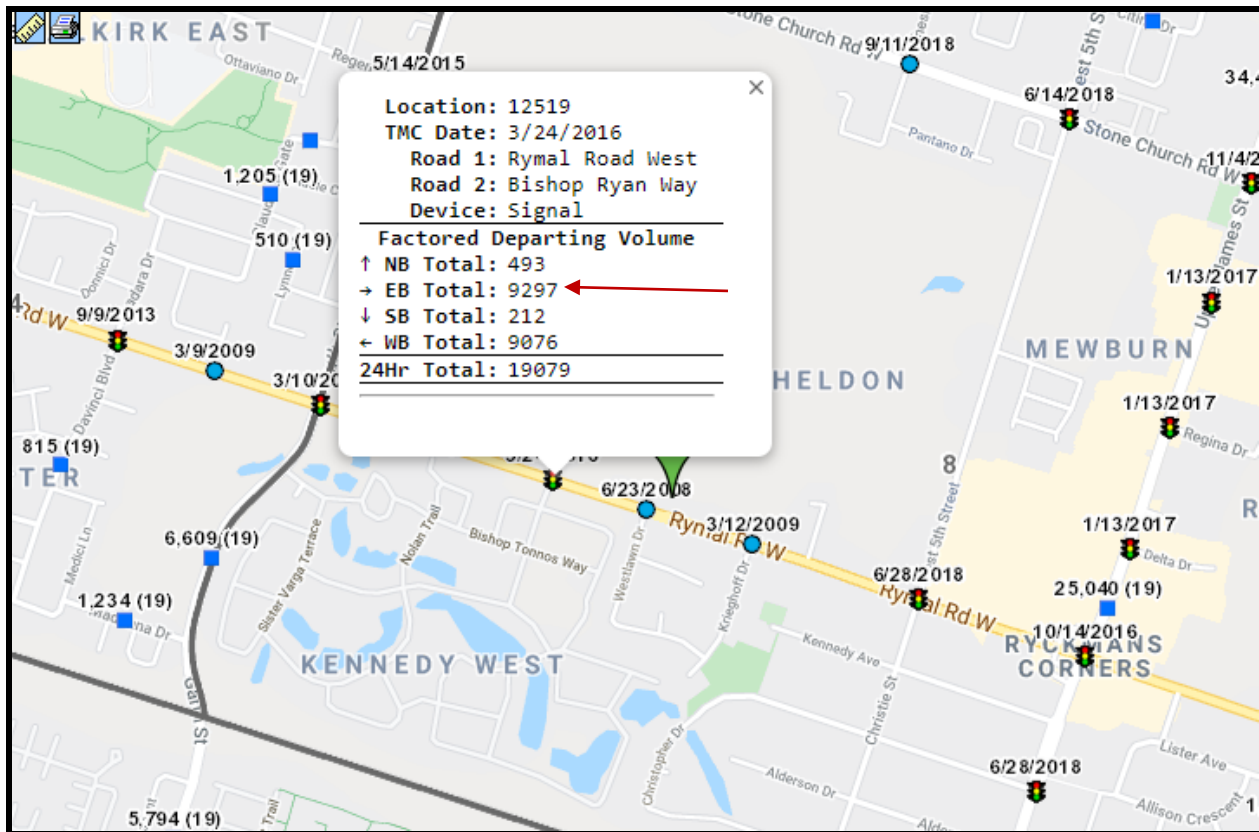
[TCDS User Guide](#) [Help](#) [Refresh](#)

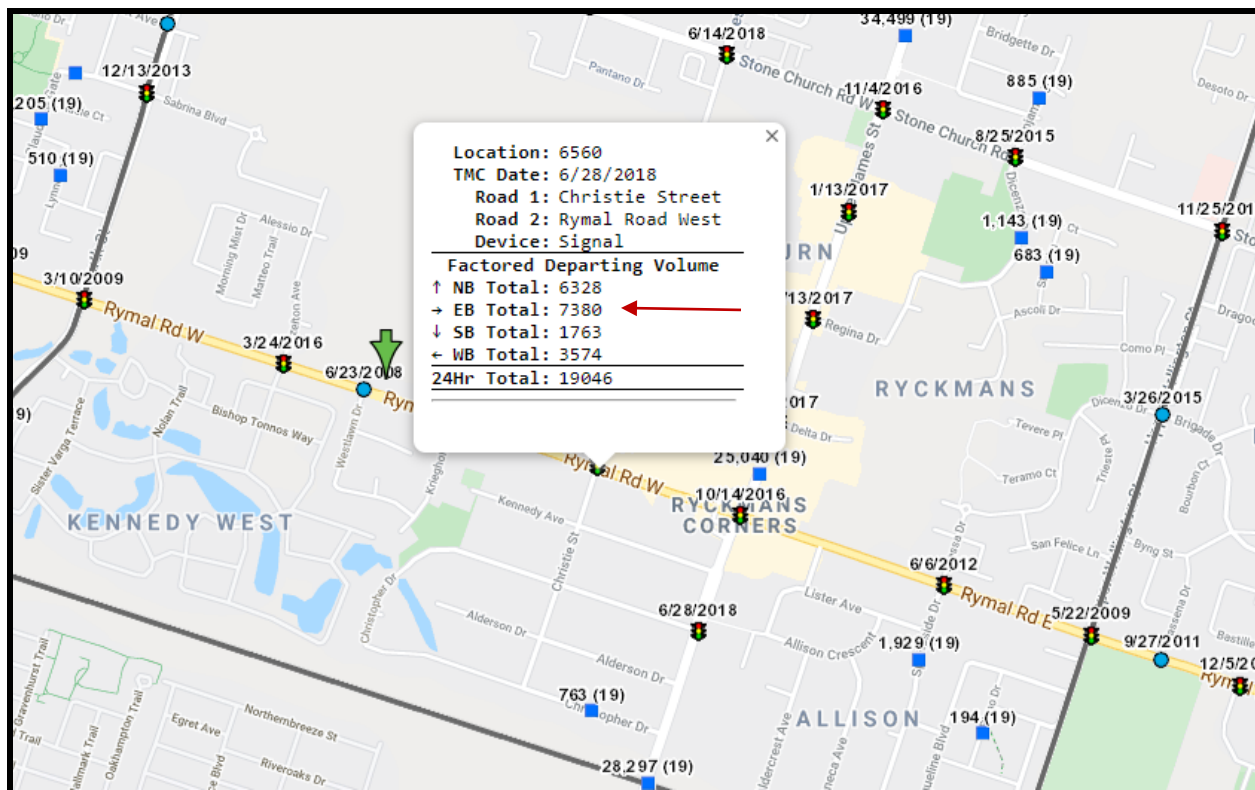
### Transportation Data Management System

Home
TMC
TCLS
TTDS
PMS
PMDS
RSMS
NMDS
WOTS
RTTV

Login
+ Locate
+ Locate All

[Auto-Locate OFF](#)





## STAMSON TRAFFIC CALCULATION SHEETS



## Result summary (day)

	! source ! height ! (m)	! Road ! Leq ! (dBA)	! Total ! Leq ! (dBA)
1.Rymal East	! 1.19	! 58.62	! 58.62
2.Rymal West	! 1.00	! 56.90	! 56.90
	Total		60.85 dBA

## Result summary (night)

	! source ! height ! (m)	! Road ! Leq ! (dBA)	! Total ! Leq ! (dBA)
1.Rymal East	! 1.19	! 52.45	! 52.45
2.Rymal West	! 1.01	! 50.85	! 50.85
	Total		54.73 dBA



## Result summary (day)

	! source ! height ! (m)	! Road ! Leq ! (dBA)	! Total ! Leq ! (dBA)
1.Rymal East	1.19	44.61	44.61
2.Rymal West	1.00	43.48	43.48
Total			47.09 dBA

## Result summary (night)

	! source ! height ! (m)	! Road ! Leq ! (dBA)	! Total ! Leq ! (dBA)
1.Rymal East	1.19	41.17	41.17
2.Rymal West	1.01	40.52	40.52
Total			43.87 dBA





## Result summary (day)

	! source ! height ! (m)	! Road ! Leq ! (dBA)	! Total ! Leq ! (dBA)
1.Rymal East	! 1.19	! 50.60	! 50.60
2.Rymal West	! 1.00	! 49.41	! 49.41
Total			53.06 dBA

## Result summary (night)

	! source ! height ! (m)	! Road ! Leq ! (dBA)	! Total ! Leq ! (dBA)
1.Rymal East	! 1.19	! 49.45	! 49.45
2.Rymal West	! 1.01	! 50.85	! 50.85
Total			51.43 dBA



## Result summary (day)

	! source ! height ! (m)	! Road ! Leq ! (dBA)	! Total ! Leq ! (dBA)
1.Rymal East	! 1.19	! 50.60	! 50.60
2.Rymal West	! 1.00	! 49.41	! 49.41
	Total		53.19 dBA

## Result summary (night)

	! source ! height ! (m)	! Road ! Leq ! (dBA)	! Total ! Leq ! (dBA)
1.Rymal East	! 1.19	! 49.45	! 49.45
2.Rymal West	! 1.01	! 48.85	! 48.85
	Total		51.23 dBA