Appendix E

Noise and vibration impact assessment

Appendix E Noise and vibration impact assessment

Appendix E.1 – Traffic noise impact assessment (AECOM, 2020)

Appendix E.2 – Noise and vibration assessment (Renzo Tonin & Associates, 2017)

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City of Sydney
20-Nov-2020
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Green Square to Ashmore Precinct Connector Road

Road Traffic Noise Impact Assessment

Green Square to Ashmore Precinct Connector Road

Road Traffic Noise Impact Assessment

Client: City of Sydney

ABN: 29 143 862 138

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Quality Information

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Prepared by Jack Robinson

Reviewed by Gayle Greer

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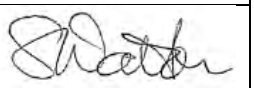
A	20-Aug-2020	Draft for internal review	Shani Walton Principal Environmental Consultant	
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Table of Contents

Executive Summary

The City of Sydney wishes to assess the potential road traffic noise impacts of a proposed transport corridor connecting Botany Road to Bowden Street, known as the Green Square to Ashmore Precinct Connector Road (GS2AC) (the Proposal).

This noise and vibration impact assessment forms part of the Review of Environmental Factors (REF) which assesses the potential impacts of the proposal on the environment. Relevant guidelines and assessment procedures have been followed to ensure all applicable State requirements have been considered.

A survey has been undertaken of the existing conditions throughout the proposal area. Receivers throughout the proposal area were identified using aerial photography and virtual ground-truthing, in conjunction with cadastral information to determine the classification of any residential, commercial, industrial, and recreational buildings, as well as other uses.

An operational road traffic noise assessment has been completed in accordance with the Environment Protection Authority's *NSW Road Noise Policy* and Transport for New South Wales' (TfNSW) *Noise Criteria Guideline* and *Noise Mitigation Guideline*.

Noise levels have been predicted at sensitive receiver locations throughout the proposal area for both the daytime and night-time scenarios for the 'Year of Opening' of 2022 and the 'Design Year' of 2032.

Exceedances of the applicable noise criteria have been identified. These exceedances are generated due to existing high noise levels throughout the proposal area, and the redistribution of bus traffic along Geddes Avenue due to the Proposal. Noise levels at a total of three residential receivers are eligible for the consideration of noise mitigation measures.

Noise mitigation in the form of noise barriers, and architectural treatments has been considered. Noise barriers were not considered appropriate due to the requirement to maintain road access to residents located on Geddes Avenue and Botany Road

Architectural treatment is recommended at all three sensitive receivers that were found eligible for the consideration of noise mitigation, however it was noted that these receivers are all under construction and therefore would have been designed recently, taking into account the existing road traffic noise levels.

It is likely that buses in operation in 2032 would be quieter than those assumed in the road traffic noise modelling. This is due to the increased use of electric buses in the City in line with the NSW Government's commitment to zero net emissions by 2050. This reduction in bus noise is likely to offset the predicted increase in noise levels due to increased numbers. However, it is recommended that a detailed review of these properties and their facades is undertaken during the detailed design phase to confirm whether noise mitigation is ultimately required.

1.0 Introduction

This technical impact assessment has been prepared by AECOM Australia Pty Ltd (AECOM) on behalf of the City of Sydney to assess the potential road traffic noise impacts of a proposed transport corridor connecting Botany Road to Bowden Street, Alexandria (the Site), known as the Green Square to Ashmore Precinct Connector Road (GS2AC) (the Proposal).

The City of Sydney (the City) is the proponent for the proposed Connector road and is also the "determining authority" for the Proposal under Part 5 of the *NSW Environmental Planning and Assessment Act 1979* (EP&A Act).

This technical report serves as part of the Review of Environmental Factors (REF) to assess the potential impacts of the proposal on the environment.

1.1 Overview of the proposal

The Green Square to Ashmore Connector Road (GS2AC) has long been considered as a transport solution to improve access to the Green Square Town Centre for pedestrians, cyclists, buses and vehicles.

The road was originally investigated in the Green Square Street Structural Masterplan 1997 and throughout the 2000's where a preliminary route alignment was suggested. In 2008, the Green Square Transport Management and Accessibility Plan further identified the proposed connector road to improve road access to the Town Centre. The proposed connector road is currently identified in the Sydney Development Control Plan 2012.

In 2017 a Review of Environmental Factors, *Green Square to Ashmore Connector Road between Botany Road and Bowden Street, Alexandria REF* (City of Sydney, 2017) (the 2017 REF) was prepared by the City and, following exhibition and consideration of issues raised in submissions, the REF was self-determined by the City under Division 5.1 *Environmental Planning and Assessment Act 1979* (EP&A Act) in December 2018.

In April 2019, the proposed design for the Proposal was taken to the City of Sydney Design Advisory Panel (DAP) for review. The DAP made several design recommendations, requiring amendments to the concept design presented in the 2017 REF.

A Consistency assessment undertaken by AECOM identified the requirement to prepare a new REF consistent with the amended concept design.

1.2 Key features of the proposal

The GS2AC comprises a 380 m road that runs from Botany Road to Bowden Street via O'Riordan Street and Bourke Road with two signalised intersections and upgrade works to the existing Botany Road/Geddes Avenue intersection.

Key features of the Proposal include:

- Single lane traffic in each direction with a public transport corridor (bus lanes) preventing through traffic in each section
- Coordination with detailed design of Geddes Avenue and new Green Square Town Centre where applicable
- Minor amendment to the southern boundary of the Site, on the Western block, with the footprint extending an approximate two metres further into Ausgrid owned property to allow for a landscape buffer along the boundary of the proposed road. Adjustment to adjoining property fence as required.
- Removal of trees affected by the proposed road
- Relocation of utilities and services as required

- Property access and service driveways for sites including 15 O'Riordan Street (Ausgrid) 330 – 338 Botany Road (Preferred affordable housing provider) and 338 Botany Road (Preferred community housing provider) and 9-13 O'Riordan Street (Taxis Combined)
- Other ancillary works as required to deliver the road.

Key road infrastructure relating to the proposal include:

- Service infrastructure (stormwater, connection of the Green Square Stormwater Trunk Drain, and lighting)
- Provision for electrical, telecommunications and gas infrastructure and other utilities required in the delivery of the Proposal
- Establishment of recycled water main to cater for the proposed affordable housing developments adjacent to the road corridor
- Landscaping and tree planting as well as street furniture
- Signage.

A bus route is yet to be formalised at this location (pending decision by TfNSW) and in the interim a staged approach is proposed comprising:

- Stage 1: Closure of the eastern ends of each block to ensure roadways only used for local access (closure would entail a continuous raised footpath treatment and kerb lines along O'Riordan Street and Botany Road, prior to any operating bus route along the corridor)
- Stage 2: Opening of eastern ends and implementation of a bus lane (but allowing only local access within each block) once the bus route has been formalised.

1.3 Purpose of this report

This technical report provides a noise and vibration impact assessment of the proposal and has been prepared to support the REF. The 2017 REF included a construction and operational noise and vibration impact assessment. As there are no major changes to the proposed construction this report addresses operational noise only. The operational phase of the proposal has been assessed using the relevant noise and vibration guidelines outlined in Section 1.5.

A glossary of acoustic terminology used in this report is shown in Appendix A.

1.4 Structure of this report

This report is structured as follows:

- Section 1 – Introduction. This section introduces the proposal and describes the proposal area
- Section 2 – Existing environment. This section provides a description of the existing noise environment within the study area
- Section 3 – Road traffic noise criteria. This section summarises the assessment criteria that applies to this assessment
- Section 4 – Road traffic noise assessment. This section provides the methodology, inputs, and results of the road traffic noise impact assessment
- Section 5 – Mitigation measures. This section outlines the recommended mitigation and management measures for potential construction and operational noise
- Section 6 – Conclusion. This section presents the conclusion to the report.

1.5 Relevant guidelines and policies

The following guidelines have been used for the noise and vibration assessment:

- *Environmental Assessment Standard Brief - Noise and Vibration Assessment* (Roads and Maritime 2014)
- *NSW Road Noise Policy* (RNP) (DECCW 2011a)
- *Noise Criteria Guideline* (NCG) (Roads and Maritime 2015a)
- *Noise Mitigation Guideline* (NMG) (Roads and Maritime 2015b)
- *Noise Model Validation Guideline* (Roads and Maritime 2016)
- *Application Notes – Noise Criteria Guideline* (Roads and Maritime 2015c)
- *Environmental Noise Management Manual* (Roads and Maritime 2001)
- *Procedure for Preparing an Operational Noise and Vibration Assessment* (Roads and Maritime 2011b)
- *Draft At-Receiver Treatment Guideline* (ARTG) (Roads and Maritime 2017).

The above policies and guidelines are detailed further in following sections, including how they have been applied for the purposes of this assessment.

2.0 Existing environment

2.1 Proposal area description

The Proposal is located within the City of Sydney Local Government Area (LGA) and within the Green Square Precinct, spanning through the suburbs of Alexandria and Zetland. The Proposal runs east to west, bounded by Bourke Road and Botany Road.

The regional context of the Proposal is illustrated in Figure 1 below.

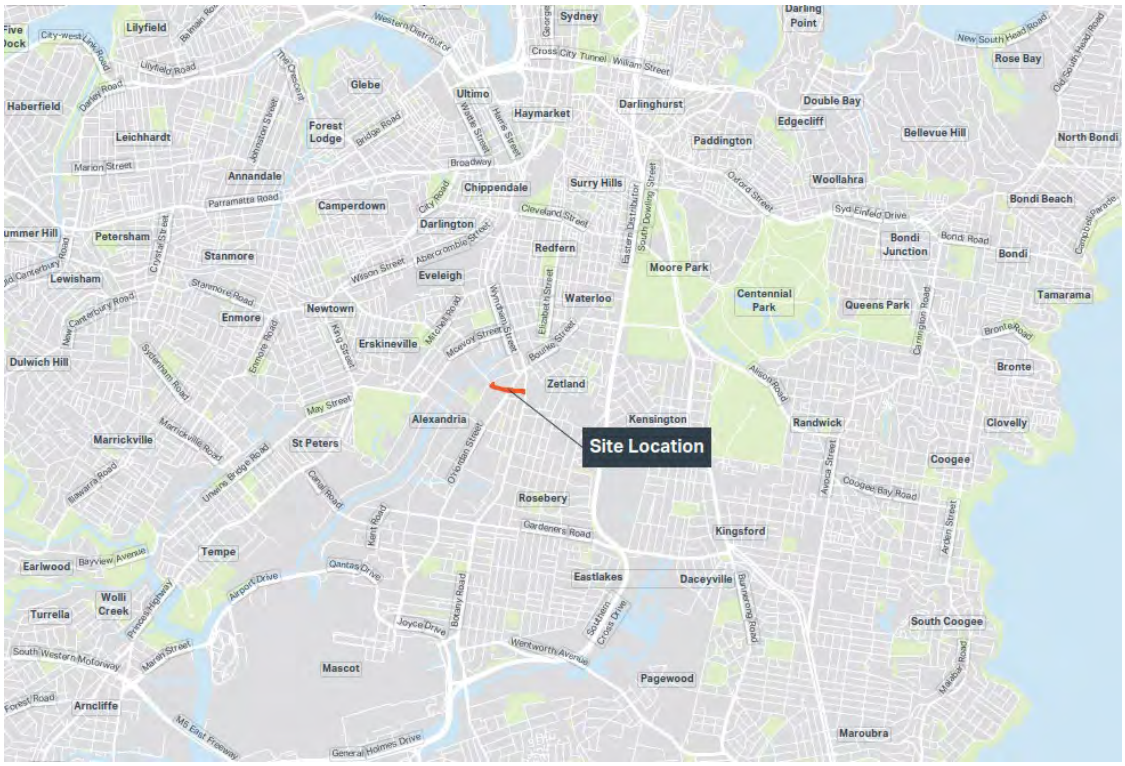

Figure 1 Regional context of proposed 2 Green Square to Ashmore Connector Road

The acoustic environment around the proposal area is considered to be urban and is dominated by road traffic noise from the existing road network, including Botany Road, Bourke Road, Epsom Road, and O'Riordan Street. Other key noise sources include aircraft movements from Sydney airport and industrial noise from nearby commercial/industrial premises.

The Proposal location is shown in Figure 2 below.

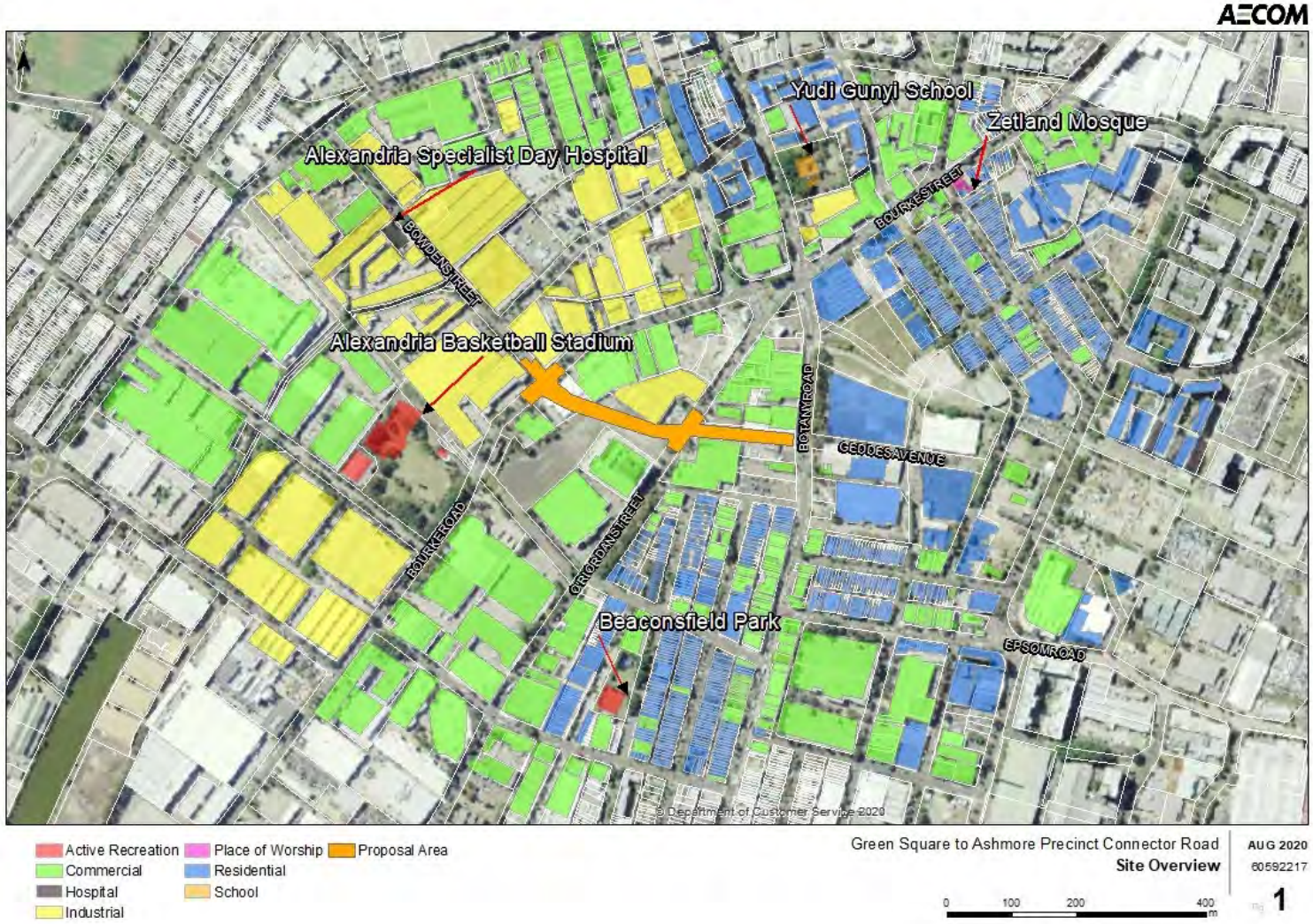

Figure 2 Green Square to Ashmore Connector Road location

2.2 Noise sensitive receivers

Noise sensitive receivers were identified using aerial photography and virtual ground-truthing, in conjunction with cadastral information to determine the classification of any residential, commercial, industrial, educational and recreational buildings, as well as other uses (such as unoccupied sheds). Sensitive receivers in this area are predominantly one and two storey residential properties with some multi-storey apartment buildings. Other non-residential noise sensitive receivers are listed in Table 1 below.

Table 1 Non-residential noise sensitive receivers

Receiver	Receiver type
Alexandria Specialist Day Hospital	Hospital
Zetland Mosque	Place of Worship
Alexandria Basketball Stadium	Active Recreation
Beaconsfield Park	Active Recreation
Yudi Gunyi School	School

3.0 Road traffic noise criteria

Noise criteria are assigned to sensitive receivers using the Noise Criteria Guideline (NCG). The NCG provides guidance on how to apply the Road Noise Policy (RNP). The RNP requires the consideration of two scenarios, the 'No Build' option (without the Proposal) and the 'Build' option (with the proposal). The 'No Build' option represents the scenario if the Proposal was not to proceed. The 'Build' option represents the scenario if the Proposal was to proceed. Each of these scenarios must be considered at two points in time, the year of opening and the design year which is typically ten years after opening. For this Proposal, the year 2022 has been assessed as the year of opening, and 2032 has been assessed as the design year.

The operational road traffic noise assessment area extends to where noise levels are dominated by other roads that are not being assessed as part of the Proposal, as detailed in the NCG. The RNP defines the study area width as '600 metres from the centre line of the outermost traffic lane on each side of the subject road'.

In addition, all roads considered to be potentially impacted by redistributed traffic as a result of the Proposal, and modelled by the AECOM traffic modelling team, have been considered. These roads include Bourke Road, Bowden Street, O'Riordan Street, Botany Road, Geddes Avenue and Epson Road. The roads were modelled either to their full extent (if less than 600 m) or up to 600 m from physical works as applicable.

Residential receivers may be assigned new, redeveloped, transition zone or relative increase criteria depending on how the proposal would influence their noise levels. For each façade of the residential receiver the most stringent applicable criteria are used in the assessment.

Criteria are based on the road development type which is affecting the residential receiver. Provided in Table 2 is the road traffic noise criteria for existing residential land use developments affected by noise from new freeway/arterial/sub-arterial road corridors. These criteria apply to all residential receivers within the study area. The external noise criteria are applied at one metre from the façade that is most exposed to traffic noise and at a height of 1.5 metres from the floor level. The criteria include an allowance for noise reflected from the façade.

Table 2 Road traffic noise assessment criteria for residential land use

Road category	Type of project/land use	Assessment criteria dB(A)	
		Day (7 am – 10 pm)	Night (10 pm – 7 am)
Freeway/ arterial/sub-arterial	Existing residences affected by noise from new freeway/arterial/sub-arterial road corridors	$L_{Aeq(15\ hr)}$ 55 (external)	$L_{Aeq(9\ hr)}$ 50 (external)

Traffic noise impacts from the proposed new road would also need to comply with the 'relative increase' criteria as discussed in Section 2.4 of the RNP. These criteria are primarily intended to protect existing quiet areas from excessive changes in amenity due to noise from a road project, and also apply to all residential receivers within the study area. These criteria are presented in Table 3 below.

Table 3 Relative increase criteria for residential land uses

Road category	Type of project/land use	Assessment criteria dB(A)	
		Day (7 am – 10 pm)	Night (10 pm – 7 am)
Freeway/ arterial/sub-arterial	New road corridor/redevelopment of existing road/land use development with the potential to generate additional traffic on existing road	Existing traffic $L_{Aeq(15\ hr)}$ + 12 dB (external)	Existing traffic $L_{Aeq(9\ hr)}$ + 12 dB (external)

The criteria for other relevant sensitive (non-residential) receivers are presented in Table 4.

For other sensitive receivers such as schools, places of worship and childcare facilities, the NCG criteria are based on internal noise levels. A conservative minimum outside-to-inside attenuation of 10 dB(A), on the basis of open windows for natural ventilation, has been assumed to allow for an external noise assessment at the other sensitive receivers. However, as details are not currently available to allow the building-specific façade noise reduction to be identified it is recommended that this should be investigated further at detailed design, if necessary.

Table 4 Road traffic noise assessment criteria for non-residential land use

Existing sensitive land use	Assessment criteria		Additional considerations
	Day (7am – 10pm)	Night (10pm – 7am)	
Hospital wards	$L_{Aeq(1\ hr)}$ 35 (internal)	$L_{Aeq(1\ hr)}$ 35 (internal)	In the case of buildings used for education or health care, noise level criteria for spaces other than classrooms and wards may be obtained by interpolation from the 'maximum' levels shown in Australian Standard 2107:2000 (Standards Australia 2000)
Places of worship	$L_{Aeq(1\ hr)}$ 40 (internal)	$L_{Aeq(1\ hr)}$ 40 (internal)	The criteria are internal, i.e. the inside of a church. Areas outside the place of worship, such as a churchyard or cemetery, may also be a place of worship. Therefore, in determining appropriate criteria for such external areas, it should be established what in these areas may be affected by road traffic noise. For example, if there is a church car park between a church and the road, compliance with the internal criteria inside the church may be sufficient. If, however, there are areas between the church and the road where outdoor services may take place such as weddings and funerals, external criteria for these areas are appropriate. As issues such as speech intelligibility may be a consideration in these cases, the passive recreation criteria (see row 5 Open space (passive use) of this table) may be applied.
Open space (active use)	$L_{Aeq(15\ hr)}$ 60	-	Active recreation is characterised by sporting activities and activities which generate their own noise or focus for participants, making them less sensitive to external noise intrusion. Passive recreation is characterised by contemplative activities that generate little noise and where benefits are compromised by external noise intrusion, e.g. playing chess, reading. In determining whether areas are used for active or passive recreation, the type of activity that occurs in that area and its sensitivity to noise intrusion should be established. For areas where there may be a mix of passive and active recreation, e.g. school playgrounds, the more stringent criteria apply. Open space may also be used as a buffer zone for more sensitive land uses.
Open space (passive use)	$L_{Aeq(15\ hr)}$ 55	-	

3.1 Guidance for the evaluation of feasible and reasonable noise mitigation measures

Where the NCG criteria are exceeded, the *Noise Mitigation Guideline* (NMG) provides further discussion of situations where provision of additional controls, such as noise barriers, architectural treatments and quieter pavements, would be considered 'feasible and reasonable'. It should be acknowledged that these considerations apply only if it can be demonstrated that all 'feasible and reasonable' traffic management and other road design opportunities for reduction of traffic noise at the source have been exhausted.

The NMG provides guidance on managing and controlling road traffic generated noise and describes the principles to be applied when reviewing noise mitigation options. The NMG recognises that the criteria recommended by the NCG are not always practicable and that is it not always feasible and/or reasonable to expect that they should be achieved.

The NMG provides two triggers where a receiver may qualify for consideration of noise mitigation (beyond the adoption of road design and traffic management measures). These are:

- The predicted build noise level exceeds the NCG controlling criterion and the noise level increase due to the proposal (i.e. the noise predictions for the build minus the no build) is greater than 2 dB(A), or
- The predicted build noise level is 5 dB(A) or more above the criteria (meets or exceeds the cumulative limit) and most of the noise is caused by the proposal (i.e. the contribution from the proposal adds 2 dB(A) or more to the total noise level), regardless of the incremental impact of the proposal.

In addition if the noise level contribution from the road proposal is acute (daytime $L_{Aeq(15\ hr)}$ 65 dB(A) or higher, or night-time $L_{Aeq(9\ hr)}$ 60 dB(A) or higher) then it qualifies for consideration of noise mitigation even if noise levels are dominated by another road.

The eligibility of receivers for consideration of additional noise mitigation, such as at-property treatments, is determined before the benefit of noise mitigation such as quieter pavement and noise barriers is included. If the NCG criterion cannot be satisfied with quieter pavement and noise barriers, then the receiver is eligible for consideration of at-property treatment.

3.2 Maximum noise levels

Maximum noise levels generated by road traffic noise have the potential to cause disturbance to sleep. Although noise goals are not provided in the RNP, it does include a review of internal sleep arousal research. The RNP concludes that there appears to be insufficient evidence to set new indicators for potential sleep disturbance due to road traffic noise. Nevertheless, TfNSW recognises the potential impacts and requires a broad assessment of maximum noise levels be made where impacts may occur during the night.

4.0 Road traffic noise assessment

The assessment of road traffic noise has been completed in accordance with the RNP, the NCG and the NMG. The NCG and the NMG provide details of the practical application of the criteria presented in the RNP.

To assess the potential impact of the proposal on noise sensitive receivers, the future road traffic noise levels have been modelled for the 'No Build' (without Proposal), and 'Build' (with Proposal) scenarios for the year of opening (2022) and design year (2032). Road traffic noise modelling methodology

Road traffic noise levels were calculated using SoundPLAN v8.0 software, which implements the Calculation of Road Traffic Noise (CoRTN) algorithm. The UK Department of Transport devised the CoRTN algorithm and with suitable corrections, this method has been shown to give accurate predictions of road traffic noise under Australian conditions.

The modelling parameters which are included in the model are detailed below in Table 5.

Table 5 Modelling noise parameters

Parameter	Comment
Traffic volumes and mix	The number of vehicles using the road and the percentage of heavy vehicles. A higher percentage of heavy vehicles would increase the road traffic noise levels. Predicted traffic volumes for the year of opening (2022) and for the design year (2032) were sourced from traffic modelling completed by AECOM and detailed in the traffic chapter of the REF.
Traffic speeds	An increase in speed generally causes an increase in road traffic noise. Traffic speeds have been based on posted road speeds for the existing roads (between 50 – 60 km/h) and for the new road (50 km/h).
Traffic noise source heights	Road traffic noise is generally considered to be generated at three main source heights: • Light vehicles: 0.5 metres • Truck tyres and engines: 1.5 metres • Truck exhausts: 3.6 metres. Corrections were made to the road traffic noise model to take account of the relative source contributions of the truck tyres and engines (-0.6 dB(A)) and truck exhausts (-8.6 dB(A)) compared with light vehicle sources.
Roadway gradient	Road traffic noise levels vary dependent on the gradient of the roadway compared with a flat roadway. CoRTN calculates this variation, however it does not take into account noise from heavy vehicle engine braking.
Road surface	Road surface characteristics determine the level of road/tyre interfacial noise created. Dense graded asphalt (DGA) is accepted as the standard road surface with other road surfaces such as open graded asphalt (OGA) being considered a 'low noise' surface. All surfaces are understood to be DGA, therefore no corrections were required for this assessment.
Ground absorption	Road traffic noise levels reduce with increasing distance from the noise source along the ground. A ground absorption factor of 0.5 was applied.
Terrain	Natural topographical features such as hills and valleys can shield sensitive receivers from road traffic noise. These effects are taken account of in the model which incorporates one metre terrain contours.

Parameter	Comment
Buildings	The height of receiver buildings in the study area affects the road traffic noise exposure. It can also affect the amount of acoustic shielding provided to other nearby buildings. The height of all buildings within the study area was determined through a ground-truthing exercise and the heights were then included in the road traffic noise model.
Noise barriers	No existing noise barriers were identified for this proposal.
Facade	A correction of 2.5 dB(A) was added to all road traffic noise levels to take account of façade reflection effects in accordance with the RNP. Noise levels have been calculated and assessed at each façade of each sensitive receiver location. Only the noise level at the most affected façade for each receiver is presented in this report.
Road network	For this Proposal noise levels at sensitive receiver locations are predominantly controlled by the proposal roads. This was verified by attended noise measurements throughout the study extent of the proposal. On this basis local roads have been excluded in the noise modelling.
Standard corrections	CoRTN provides L_{A10} road traffic noise levels. The industry standard correction of -3 dB(A) was applied to convert the L_{A10} levels to L_{Aeq} road traffic noise levels to allow assessment of the results against the RNP and NCG criteria.

4.1 Traffic noise model

The ‘Year of Opening’ (2022) and ‘Design Year’ (2032) traffic flows presented in Table 6 and Table 8 respectively were used in the road traffic noise model to provide the ‘Year of Opening’ and ‘Design Year’ road traffic noise models for the ‘Build’ and ‘No Build’ scenarios. These models are used to assess the potential road noise impacts and to identify potential mitigation.

The Proposal is expected to redistribute traffic throughout the local area. This redistribution has the potential to increase traffic on some non-project roads as a result of the Proposal. The NCG considers any project to be a traffic generating development if it is predicted to increase noise levels by greater than 2.0 dB(A) on any other road. Therefore, road noise contribution from non-project roads was also considered. The non-project roads considered are Bourke Road, Bowden Street, O’Riordan Street, Botany Road, Geddes Avenue, and Epsom Road.

Table 6 'Year of Opening' (2022) predicted traffic flows – No Build

Location	Direction	Daytime (7 am to 10 pm)			Night-time (10 pm to 7 am)		
		Traffic Volume	Vehicle Speed, km/h	Heavy vehicle ratio	Traffic Volume	Vehicle Speed, km/h	Heavy vehicle ratio
Bourke Road (South of Bowden St)	SW	6,865	50	5.8	1,211	50	5.8
Bourke Road (South of Bowden St)	NE	4,498	50	14.5	794	50	14.5
Bourke Road (North of Bowden St)	SW	5,263	50	5.6	929	50	5.6
Bourke Road (North of Bowden St)	NE	5,059	50	13.7	893	50	13.7
Bowden Street	SE	3,324	50	7.2	587	50	7.2
Bowden Street	NW	1,539	50	8.3	272	50	8.3
O'Riordan Street	N	10,085	60	10.0	1,780	60	10.0
O'Riordan Street	S	13,592	60	10.0	2,399	60	10.0
Botany Road (North of Geddes Ave)	N	16,690	50	7.5	2,945	50	7.5
Botany Road (North of Geddes Ave)	S	11,679	50	9.1	2,061	50	9.1
Botany Road (Between Geddes Ave and Epsom Rd)	S	11,870	50	9.0	2,095	50	9.0
Geddes Avenue	W	357	50	7.1	63	50	7.1
Geddes Avenue	E	221	50	11.5	39	50	11.5
Botany Road (Between Geddes Ave and Epsom Rd)	N	16,001	50	8.3	2,824	50	8.3
Botany Road (South of Epsom Rd)	S	10,646	50	8.0	1,879	50	8.0
Botany Road (South of Epsom Rd)	N	18,003	50	9.3	3,177	50	9.3
Epsom Road	W	4,070	50	7.0	718	50	7.0
Epsom Road	E	6,803	50	10.9	1,201	50	10.9

Table 7 'Year of Opening' (2022) predicted traffic flows – Build

Location	Direction	Daytime (7 am to 10 pm)			Night-time (10 pm to 7 am)		
		Traffic Volume	Vehicle Speed, km/h	Heavy vehicle ratio	Traffic Volume	Vehicle Speed, km/h	Heavy vehicle ratio
Bourke Road (South of Bowden St)	SW	6,875	50	5.8	1,213	50	5.8
Bourke Road (South of Bowden St)	NE	4,529	50	14.4	799	50	14.4
Bourke Road (North of Bowden St)	SW	5,263	50	5.6	929	50	5.6
Bourke Road (North of Bowden St)	NE	5,059	50	13.7	893	50	13.7
Bowden Street	SE	3,417	50	7.0	603	50	7.0
Bowden Street	NW	1,581	50	8.1	279	50	8.1
GS2AC (Between Bourke Rd and O'Riordan St)	NW	51	50	0.0	9	50	0.0
GS2AC (Between Bourke Rd and O'Riordan St)	SE	119	50	0.0	21	50	0.0
O'Riordan Street (North of GS2AC)	N	10,085	60	10.0	1,780	60	10.0
O'Riordan Street (North of GS2AC)	S	13,592	60	10.0	2,399	60	10.0
O'Riordan Street (South of GS2AC)	N	10,124	60	9.9	1,787	60	9.9
O'Riordan Street (South of GS2AC)	S	13,770	60	9.9	2,430	60	9.9
Botany Rd (North of Geddes Ave)	N	16,817	50	8.2	2,968	50	8.2
Botany Rd (North of Geddes Ave)	S	11,794	50	10.1	2,081	50	10.1
Botany Rd (Between Geddes Ave and Epsom Rd)	S	11,998	50	10.0	2,117	50	10.0
Geddes Avenue	W	357	50	7.1	63	50	7.1
GS2AC (Between O'Riordan St and Geddes Ave)	W	0	50	-	0	50	-
GS2AC (Between O'Riordan St and Geddes Ave)	E	0	50	-	0	50	-

Location	Direction	Daytime (7 am to 10 pm)			Night-time (10 pm to 7 am)		
		Traffic Volume	Vehicle Speed, km/h	Heavy vehicle ratio	Traffic Volume	Vehicle Speed, km/h	Heavy vehicle ratio
Geddes Avenue	E	221	50	11.5	39	50	11.5
Botany Road (Between Geddes Ave and Epsom Rd)	N	16,830	50	8.3	2,970	50	8.3
Botany Road (South of Epsom Rd)	S	10,774	50	9.1	1,901	50	9.1
Botany Road (South of Epsom Rd)	N	18,003	50	9.3	3,177	50	9.3
Epsom Road	W	4,070	50	7.0	718	50	7.0
Epsom Road	E	6,803	50	10.9	1,201	50	10.9

Table 8 'Design Year' (2032) predicted traffic flows – No build

Location	Direction	Daytime (7 am to 10 pm)			Night-time (10 pm to 7 am)		
		Traffic Volume	Vehicle Speed, km/h	Heavy vehicle ratio	Traffic Volume	Vehicle Speed, km/h	Heavy vehicle ratio
Bourke Road (South of Bowden St)	SW	7,660	50	5.9	1,352	50	5.9
Bourke Road (South of Bowden St)	NE	5,018	50	14.6	886	50	14.6
Bourke Road (North of Bowden St)	SW	5,885	50	5.7	1,039	50	5.7
Bourke Road (North of Bowden St)	NE	5,630	50	13.6	994	50	13.6
Bowden Street	SE	3,706	50	7.1	654	50	7.1
Bowden Street	NW	1,726	50	8.4	305	50	8.4
O'Riordan Street	N	11,246	60	10.0	1,985	60	10.0
O'Riordan Street	S	15,160	60	10.0	2,675	60	10.0
Botany Road (North of Geddes Ave)	N	18,628	50	7.5	3,287	50	7.5
Botany Road (North of Geddes Ave)	S	13,031	50	9.1	2,300	50	9.1
Botany Road (Between Geddes Ave and Epsom Rd)	S	13,260	50	9.1	2,340	50	9.1
Geddes Avenue	W	408	50	8.3	72	50	8.3
Geddes Avenue	E	264	50	12.9	47	50	12.9
Botany Road (Between Geddes Ave and Epsom Rd)	N	17,850	50	8.3	3,150	50	8.3
Botany Road (South of Epsom Rd)	S	11,896	50	8.1	2,099	50	8.1
Botany Road (South of Epsom Rd)	N	20,081	50	9.3	3,544	50	9.3
Epsom Road	W	4,539	50	7.0	801	50	7.0
Epsom Road	E	7,589	50	10.9	1,339	50	10.9

Table 9 'Design Year' (2032) predicted traffic flows – Build

Location	Direction	Daytime (7 am to 10 pm)			Night-time (10 pm to 7 am)		
		Traffic Volume	Vehicle Speed, km/h	Heavy vehicle ratio	Traffic Volume	Vehicle Speed, km/h	Heavy vehicle ratio
Bourke Road (South of Bowden St)	SW	7,670	50	5.9	1354	50	5.9
Bourke Road (South of Bowden St)	NE	5,059	50	14.5	893	50	14.5
Bourke Road (North of Bowden St)	SW	5,885	50	5.7	1039	50	5.7
Bourke Road (North of Bowden St)	NE	5,630	50	13.6	994	50	13.6
Bowden Street	SE	3,944	50	10.3	696	50	10.3
Bowden Street	NW	1,913	50	15.1	338	50	15.1
GS2AC (Between Bourke Rd and O'Riordan St)	NW	196	50	73.9	35	50	73.9
GS2AC (Between Bourke Rd and O'Riordan St)	SE	264	50	54.8	47	50	54.8
O'Riordan Street (North of GS2AC)	N	11,246	60	10.0	1,985	60	10.0
O'Riordan Street (North of GS2AC)	S	15,160	60	10.0	2,675	60	10.0
O'Riordan Street (South of GS2AC)	N	11,246	60	10.0	1,985	60	10.0
O'Riordan Street (South of GS2AC)	S	15,338	60	9.9	2,707	60	9.9
Botany Rd (North of Geddes Ave)	N	18,755	50	8.1	3,310	50	8.1
Botany Rd (North of Geddes Ave)	S	13,158	50	10.0	2,322	50	10.0
Botany Rd (Between Geddes Ave and Epsom Rd)	S	13,388	50	10.0	2,363	50	10.0
Geddes Avenue	W	519	50	27.9	92	50	27.9
GS2AC (Between O'Riordan St and Geddes Ave)	W	136	50	81.3	24	50	81.3
GS2AC (Between O'Riordan St and Geddes Ave)	E	111	50	100.0	20	50	100.0

Location	Direction	Daytime (7 am to 10 pm)			Night-time (10 pm to 7 am)		
		Traffic Volume	Vehicle Speed, km/h	Heavy vehicle ratio	Traffic Volume	Vehicle Speed, km/h	Heavy vehicle ratio
Geddes Avenue	E	374	50	38.6	66	50	38.6
Botany Road (Between Geddes Ave and Epsom Rd)	N	18,806	50	8.2	3,319	50	8.2
Botany Road (South of Epsom Rd)	S	12,023	50	9.1	2,122	50	9.1
Botany Road (South of Epsom Rd)	N	20,247	50	9.9	3,573	50	9.9
Epsom Road	W	4,549	50	7.0	803	50	7.0
Epsom Road	E	7,589	50	10.9	1,339	50	10.9

The above traffic flows have been derived from AM peak flows using conversion factors provided by the AECOM traffic modelling team. A summary of these conversion factors is presented in Table 10 below.

Table 10 AM peak to 15hr/9hr conversion factors (provided by AECOM traffic modelling team)

Road	AM peak to daily (24hr) factor	15hr Daytime traffic (7am to 10pm)	9hr Night-time traffic (10pm to 7am)
Botany Road	15	85%	15%
O'Riordan Street	15		
Bourke Road	12		
Geddes Avenue	10		
Epsom Road	12		
Bowden Street	10		
GS2AC (future with Proposal)	10		

4.2 Noise modelling results

Noise levels have been predicted for each assessment scenario across the extent of the proposal.

Table 11 and Table 12 below present a summary of all sensitive receivers where road traffic noise levels exceed the applicable noise criteria and are deemed eligible for consideration of noise mitigation. Noise levels at these properties have exceeded the applicable criteria predominantly due to redistributed bus traffic on Geddes Avenue in the 'Build' scenario. A detailed summary of all assessed sensitive receivers is shown in Appendix B.

Recommended noise mitigation measures for sensitive receivers are considered further in Section 5.0.

Table 11 Daytime noise impacts – residential receivers

ID	Address	Criteria $L_{Aeq(15h)}$	Year of opening			Design year			Exceeds RNP and increases by ≥ 2 dB	Eligible for consideration of mitigation
			No build	Build	Increase	No build	Build	Increase		
9656	377-495 Botany Road, Zetland	55	60	60	0.1	61	64	3.7	Yes	Yes
4862	499 Botany Road, Zetland	55	58	59	0.1	59	63	4.5	Yes	Yes
5553	23 Geddes Avenue, Zetland	55	57	57	0.1	57	62	4.7	Yes	Yes

Table 12 Night-time noise impacts

ID	Address	Criteria $L_{Aeq(9h)}$	Year of opening			Design year			Exceeds RNP and increases by ≥ 2 dB	Eligible for consideration of mitigation
			No build	Build	Increase	No build	Build	Increase		
9656	377-495 Botany Rd, Zetland	50	56	56	0	56	59	2.9	Yes	Yes
4862	499 Botany Rd, Zetland	50	54	55	0.1	55	58	3.4	Yes	Yes
5553	23 Geddes Ave, Zetland	50	53	53	0	57	62	4.7	Yes	Yes

4.2.1 Noise modelling results

Noise levels have been predicted for each assessment scenario across the extent of the proposal. Section 4.2 presents a summary of all sensitive receivers where road traffic noise levels exceed the applicable noise criteria. Recommended noise mitigation measures for sensitive receivers are considered further in Section 5.0.

Considering the impacts from the Project road in both Year 2022 and Year 2032, no sensitive receivers are predicted to exceed any applicable NCG criterion, relative increase criterion, or acute criterion during the daytime or night-time.

However, considering the impacts from redistributed traffic in 2032, it is noted that road traffic noise levels would exceed the applicable daytime and night-time noise criteria and are predicted to increase by more than 2 dB(A) at three sensitive receivers.

Therefore, these three sensitive receivers are considered to be eligible for the consideration of feasible and reasonable noise mitigation measures.

4.2.2 Maximum noise level assessment

As the nearest residential receivers are located further than 100 m away from the Proposal, sleep disturbance from maximum noise level events along GS2AC is considered unlikely. It should also be noted that the utilisation of GS2AC as a public transport corridor for buses may result in fewer bus movements on the surrounding road network, resulting in a decrease in L_{Amax} events for nearby residential receivers.

5.0 Mitigation measures

5.1 Management of operational impacts

Where feasible and reasonable, road traffic noise levels from the operation of redeveloped and new roads should be reduced to meet the noise criteria in accordance with Transport for NSW procedures. In many instances this may be achievable only through long-term strategies such as improved planning, design and construction of adjoining land-use developments, reduced vehicle emission levels through new vehicle standards and regulation of in-service vehicles, greater use of public transport, and alternative methods of freight haulage.

The hierarchy of noise mitigation is firstly to consider at-source noise mitigation measures such as road design and traffic management, then the use of quieter pavements. If these measures cannot be designed to meet the noise criteria the use of 'in corridor' mitigation measures should be considered, which are generally noise barriers and mounds. Finally, if the applicable noise criteria cannot be met by using a combination of all these methods, at-receiver mitigation measures can be considered such as architectural treatments and property boundary walls.

5.1.1 Recommended noise mitigation

A quieter road surface was considered within the proposal area. However as the three residential properties are affected by redistributed traffic on Geddes Avenue, no benefit would be provided by the use of a quieter road surface on GS2AC.

The assessment has identified that, predominantly due to the need to maintain access to apartment buildings along Geddes Avenue and Botany Road, noise barriers would not be a suitable solution to traffic generated noise impacts.

It is noted that the three receivers that are eligible for consideration of noise mitigation are multi-storey apartment buildings. Implementation of a noise barrier would not provide sufficient acoustic shielding from road traffic noise at higher floor levels. As a consequence, the residual receivers identified in 4.2.1 would be eligible for the consideration of at-property noise mitigation in accordance with the Draft At-Receiver Treatment Guideline (ARTG).

It should be noted that the three receivers eligible for consideration of noise mitigation are all currently under construction, and received Development Approval in 2016/2017. Therefore the facades would have been designed considering the existing road traffic noise levels and internal noise criteria in accordance of the Green Square Town Centre (GSTC) Development Control Plan (DCP) 2013. The GSTC DCP refers to road traffic criteria in the State Environmental Protection Policy (Infrastructure) 2007. It is noted that the increase of more than 2 dB(A) occurs at 2032. Since these exceedances are predominantly controlled by an increase in bus traffic due to redistribution along Geddes Avenue, it should be noted that it is likely that buses in operation in 2032 would be quieter than those assumed in the road traffic noise modelling. This is due to the increased use of electric buses in the City in line with the NSW Government's commitment to zero net emissions by 2050. This reduction in bus noise is likely to offset the predicted increase in noise levels due to increased numbers. However, it is recommended that a detailed review of these properties and their facades is undertaken during the detailed design phase to confirm whether noise mitigation is ultimately required.

6.0 Conclusion

The City of Sydney wishes to assess the potential road traffic noise impacts of a proposed transport corridor connecting Botany Road to Bowden Street, known as the Green Square to Ashmore Precinct Connector Road (GS2AC) (the Proposal).

An operational road traffic impact noise assessment has been completed in accordance with the RNP and the NCG and NMG.

Noise levels have been predicted at sensitive receiver locations throughout the proposal area for both the daytime and night-time scenarios for the 'Year of Opening' of 2022 and the 'Design Year' of 2032.

Exceedances of the applicable noise criteria have been identified for the year 2032. These exceedances are due to existing relatively high noise levels throughout the proposal area and the noise impacts of redistributed bus traffic along Geddes Avenue from the Proposal, in addition to the close proximity of receivers to Geddes Avenue. Noise levels at a total of three receivers are eligible for the consideration of noise mitigation measures.

Appropriate noise mitigation has been recommended to minimise impacts on the community from the proposal. Noise mitigation in the form of quieter road surfaces, noise barriers, and architectural treatments has been considered. The use of quieter noise pavements would not provide suitable noise reduction as the exceedances are occurring as a result of redistributed traffic on adjacent roads, not GS2AC. Noise barriers were not considered appropriate due to the requirement to maintain road access to residents, in addition to the height of these apartment buildings.

Architectural treatment is recommended at all three sensitive receivers that were found eligible for the consideration of noise mitigation, however it was noted that these receivers are all under construction and therefore would have been designed recently, taking into account the existing road traffic noise levels.

It is likely that buses in operation in 2032 would be quieter than those assumed in the road traffic noise modelling. This is due to the increased use of electric buses in the City in line with the NSW Government's commitment to zero net emissions by 2050. This reduction in bus noise is likely to offset the predicted increase in noise levels due to increased numbers. However, it is recommended that a detailed review of these properties and their facades is undertaken during the detailed design phase to confirm whether noise mitigation is ultimately required.

Appendix A

Acoustic terminology

Appendix A Acoustic terminology

The following is a brief description of acoustic terminology used in this report.

Sound power level	The total sound emitted by a source.
Sound pressure level	The amount of sound at a specified point.
Decibel [dB]	The measurement unit of sound.
A Weighted decibels [dB(A)]	The A weighting is a frequency filter applied to measured noise levels to represent how humans hear sounds. The A-weighting filter emphasises frequencies in the speech range (between 1kHz and 4 kHz) which the human ear is most sensitive to and places less emphasis on low frequencies at which the human ear is not so sensitive. When an overall sound level is A-weighted it is expressed in units of dB(A).
Decibel scale	The decibel scale is logarithmic in order to produce a better representation of the response of the human ear. A 3 dB increase in the sound pressure level corresponds to a doubling in the sound energy. A 10 dB increase in the sound pressure level corresponds to a perceived doubling in volume. Examples of decibel levels of common sounds are as follows:
	0 dB(A) Threshold of human hearing
	30 dB(A) A quiet country park
	40 dB(A) Whisper in a library
	50 dB(A) Open office space
	70 dB(A) Inside a car on a freeway
	80 dB(A) Outboard motor
	90 dB(A) Heavy vehicle pass-by
	100 dB(A) Jackhammer/Subway train
	110 dB(A) Rock Concert
	115 dB(A) Limit of sound permitted in industry
	120 dB(A) 747 take off at 250 metres
Frequency [f]	The repetition rate of the cycle measured in Hertz (Hz). The frequency corresponds to the pitch of the sound. A high frequency corresponds to a high-pitched sound and a low frequency to a low-pitched sound.
Equivalent continuous sound level [L_{eq}]	The constant sound level which, when occurring over the same period of time, would result in the receiver experiencing the same amount of sound energy.
L_{max}	The maximum sound pressure level measured over the measurement period.

L_{min}	The minimum sound pressure level measured over the measurement period.
L_{10}	The sound pressure level exceeded for 10% of the measurement period. For 10% of the measurement period it was louder than the L_{10}.
L_{90}	The sound pressure level exceeded for 90% of the measurement period. For 90% of the measurement period it was louder than the L_{90}.
Ambient noise	The all-encompassing noise at a point composed of sound from all sources near and far.
Background noise	The underlying level of noise present in the ambient noise when extraneous noise (such as transient traffic and dogs barking) is removed. The L_{90} sound pressure level is used to quantify background noise.
Traffic noise	The total noise resulting from road traffic. The L_{eq} sound pressure level is used to quantify traffic noise.
Day	The period from 0700 to 1800 h Monday to Saturday and 0800 to 1800 h Sundays and Public Holidays.
Evening	The period from 1800 to 2200 h Monday to Sunday and Public Holidays.
Night	The period from 2200 to 0700 h Monday to Saturday and 2200 to 0800 h Sundays and Public Holidays.
Assessment background level [ABL]	The overall background level for each day, evening and night period for each day of the noise monitoring.
Rating background level [RBL]	The overall background level for each day, evening and night period for the entire length of noise monitoring.
Acute noise level	A level of road traffic noise of 65 dB(A) or more for the daytime period of 7 am to 10 pm or 60 dB(A) or more for the night-time period of 10 pm to 7 am and measured as an equivalent continuous noise level (L_{Aeq}) 1 metre from the building facade.
Cumulative limit	A total noise level that is 5 dB(A) or more above the Noise Criteria Guideline criteria in the build year.

*Definitions of a number of terms have been adapted from Australian Standard AS1633:1985 “Acoustics – Glossary of terms and related symbols”, the EPA’s Noise Policy for Industry and the EPA’s Road Noise Policy

Appendix B

Road traffic noise assessment - Detailed results

Green Square to Ashmore Precinct Connector Road - Daytime Noise Impacts

ID	Address	Use	Criteria	Year of Opening				Design Year				Exceeds RNP and increases by ≥ 2 dB	Exceeds cumulative criterion	Eligible for consideration of mitigation
				No build	Build	Increase	Project Contribution	No build	Build	Increase	Project Contribution			
4746	7 RESERVE STREET BEACONSFIELD	Residential	55	69	68	-0.3	25	69	69	-0.3	39	No	No	No
4747	9 RESERVE STREET BEACONSFIELD	Residential	55	68	67	-0.2	23	68	68	-0.3	38	No	No	No
4748	11 RESERVE STREET BEACONSFIELD	Residential	55	68	67	-0.3	22	68	68	-0.2	37	No	No	No
4749	13 RESERVE STREET BEACONSFIELD	Residential	55	68	67	-0.3	22	68	68	-0.2	36	No	No	No
4750	15 RESERVE STREET BEACONSFIELD	Residential	55	68	67	-0.2	21	68	68	-0.2	36	No	No	No
4751	17 RESERVE STREET BEACONSFIELD	Residential	55	67	67	-0.3	20	68	68	-0.2	35	No	No	No
4752	18 QUEEN STREET BEACONSFIELD	Residential	55	61	61	-0.3	27	61	61	-0.3	41	No	No	No
4753	20 QUEEN STREET BEACONSFIELD	Residential	55	59	59	-0.3	26	60	59	-0.3	40	No	No	No
4754	22 QUEEN STREET BEACONSFIELD	Residential	55	58	58	-0.3	25	59	59	-0.3	39	No	No	No
4755	24 QUEEN STREET BEACONSFIELD	Residential	55	58	58	-0.3	24	59	59	-0.3	38	No	No	No
4756	26 QUEEN STREET BEACONSFIELD	Residential	55	54	53	-0.3	<20	54	54	-0.2	28	No	No	No
4757	28 QUEEN STREET BEACONSFIELD	Residential	55	57	57	-0.3	<20	57	57	-0.3	30	No	No	No
4758	28A QUEEN STREET BEACONSFIELD	Residential	55	57	56	-0.3	<20	57	57	-0.2	30	No	No	No
4759	30 QUEEN STREET BEACONSFIELD	Residential	55	57	56	-0.3	<20	57	57	-0.3	31	No	No	No
4760	30A QUEEN STREET BEACONSFIELD	Residential	55	54	54	-0.1	<20	55	55	-0.1	34	No	No	No
4761	32-48 QUEEN STREET BEACONSFIELD	Residential	55	60	60	-0.4	22	61	60	-0.3	36	No	No	No
4762	32-48 QUEEN STREET BEACONSFIELD	Residential	55	60	60	-0.3	21	60	60	-0.3	35	No	No	No
4763	32-48 QUEEN STREET BEACONSFIELD	Residential	55	60	60	-0.3	21	60	60	-0.3	35	No	No	No
4764	32-48 QUEEN STREET BEACONSFIELD	Residential	55	59	59	-0.3	21	60	60	-0.3	35	No	No	No
4765	32-48 QUEEN STREET BEACONSFIELD	Residential	55	59	59	-0.4	21	60	59	-0.3	35	No	No	No
4766	32-48 QUEEN STREET BEACONSFIELD	Residential	55	59	59	-0.3	20	59	59	-0.3	35	No	No	No
4767	32-48 QUEEN STREET BEACONSFIELD	Residential	55	59	59	-0.4	20	59	59	-0.3	34	No	No	No
4768	32-48 QUEEN STREET BEACONSFIELD	Residential	55	59	58	-0.3	<20	59	59	-0.3	34	No	No	No
4769	32-48 QUEEN STREET BEACONSFIELD	Residential	55	58	58	-0.3	<20	59	59	-0.3	34	No	No	No
4770	32-48 QUEEN STREET BEACONSFIELD	Residential	55	58	58	-0.3	<20	58	58	-0.3	33	No	No	No
4771	32-48 QUEEN STREET BEACONSFIELD	Residential	55	58	57	-0.3	<20	58	58	-0.3	33	No	No	No
4772	32-48 QUEEN STREET BEACONSFIELD	Residential	55	58	57	-0.3	<20	58	58	-0.2	33	No	No	No
4773	32-48 QUEEN STREET BEACONSFIELD	Residential	55	57	57	-0.3	<20	58	58	-0.2	32	No	No	No
4774	32-48 QUEEN STREET BEACONSFIELD	Residential	55	57	57	-0.3	<20	58	58	-0.3	32	No	No	No
4775	29 RESERVE STREET BEACONSFIELD	Residential	55	54	54	-0.3	<20	55	55	-0.3	24	No	No	No
4776	27 RESERVE STREET BEACONSFIELD	Residential	55	55	55	-0.2	<20	56	56	-0.3	24	No	No	No
4777	25 RESERVE STREET BEACONSFIELD	Residential	55	56	56	-0.3	<20	57	56	-0.3	28	No	No	No
4778	23 RESERVE STREET BEACONSFIELD	Residential	55	58	58	-0.3	<20	59	58	-0.2	28	No	No	No
4779	21 RESERVE STREET BEACONSFIELD	Residential	55	64	64	-0.3	<20	65	64	-0.2	34	No	No	No
4780	19 RESERVE STREET BEACONSFIELD	Residential	55	69	69	-0.3	<20	69	69	-0.3	35	No	No	No
4781	1 QUEEN STREET BEACONSFIELD	Residential	55	55	55	0	<20	56	56	0	32	No	No	No
4782	3-5 QUEEN STREET BEACONSFIELD	Residential	55	50	51	0.5	<20	51	51	0.6	36	No	No	No
4783	9 QUEEN STREET BEACONSFIELD	Residential	55	50	50	-0.3	<20	50	50	-0.2	29	No	No	No
4784	9 QUEEN STREET BEACONSFIELD	Residential	55	48	48	-0.1	<20	49	49	0	31	No	No	No
4785	63 QUEEN STREET BEACONSFIELD	Residential	55	54	54	0	<20	55	55	0	35	No	No	No
4786	63 QUEEN STREET BEACONSFIELD	Residential	55	47	47	0	<20	47	47	0.1	31	No	No	No
4787	13 QUEEN STREET BEACONSFIELD	Residential	55	55	54	-0.2	22	55	55	-0.2	36	No	No	No
4788	13 QUEEN STREET BEACONSFIELD	Residential	55	47	47	0.1	<20	47	47	0.2	32	No	No	No
4789	15 QUEEN STREET BEACONSFIELD	Residential	55	55	54	-0.3	23	55	55	-0.3	37	No	No	No
4790	15 QUEEN STREET BEACONSFIELD	Residential	55	47	47	0	<20	47	48	0.2	30	No	No	No
4791	17 QUEEN STREET BEACONSFIELD	Residential	55	53	53	-0.3	23	54	54	-0.1	38	No	No	No
4792	19 QUEEN STREET BEACONSFIELD	Residential	55	52	52	-0.2	23	52	52	-0.1	38	No	No	No
4793	21 QUEEN STREET BEACONSFIELD	Residential	55	51	51	-0.3	23	52	52	0	38	No	No	No
4794	25 QUEEN STREET BEACONSFIELD	Residential	55	51	50	-0.2	23	51	51	0	37	No	No	No
4795	25 QUEEN STREET BEACONSFIELD	Residential	55	49	50	0.2	<20	50	50	0.3	34	No	No	No

4796	29 QUEEN STREET BEACONSFIELD	Residential	55	51	50	-0.2	21	51	51	0	36	No	No	No
4797	31-41 QUEEN STREET BEACONSFIELD	Residential	55	50	50	-0.2	<20	51	51	-0.1	34	No	No	No
4798	31-41 QUEEN STREET BEACONSFIELD	Residential	55	50	50	-0.2	<20	51	50	-0.1	33	No	No	No
4799	31-41 QUEEN STREET BEACONSFIELD	Residential	55	50	49	-0.2	<20	50	50	-0.1	32	No	No	No
4800	31-41 QUEEN STREET BEACONSFIELD	Residential	55	49	49	-0.2	<20	49	49	-0.1	31	No	No	No
4801	31-41 QUEEN STREET BEACONSFIELD	Residential	55	48	48	-0.2	<20	49	49	-0.1	31	No	No	No
4802	31-41 QUEEN STREET BEACONSFIELD	Residential	55	49	49	0.2	<20	49	49	0.3	32	No	No	No
4803	31-41 QUEEN STREET BEACONSFIELD	Residential	55	48	49	0.2	<20	49	49	0.3	31	No	No	No
4804	31-41 QUEEN STREET BEACONSFIELD	Residential	55	48	48	0.2	<20	49	49	0.3	31	No	No	No
4805	31-41 QUEEN STREET BEACONSFIELD	Residential	55	48	48	0.2	<20	49	49	0.3	30	No	No	No
4806	31-41 QUEEN STREET BEACONSFIELD	Residential	55	48	48	0.2	<20	49	49	0.3	31	No	No	No
4807	53 QUEEN STREET BEACONSFIELD	Residential	55	51	51	0.2	<20	52	52	0.3	35	No	No	No
4814	40 VICTORIA STREET BEACONSFIELD	Residential	55	47	47	0.2	<20	48	48	0.4	32	No	No	No
4815	46 VICTORIA STREET BEACONSFIELD	Residential	55	47	47	0.2	<20	48	48	0.3	32	No	No	No
4816	48 VICTORIA STREET BEACONSFIELD	Residential	55	47	47	0.2	<20	48	48	0.4	33	No	No	No
4817	54 VICTORIA STREET BEACONSFIELD	Residential	55	47	47	0.2	<20	47	48	0.4	32	No	No	No
4818	56A VICTORIA STREET BEACONSFIELD	Residential	55	49	49	0.1	<20	49	49	0.3	31	No	No	No
4819	62 VICTORIA STREET BEACONSFIELD	Residential	55	47	47	0.3	<20	48	48	0.4	32	No	No	No
4821	82 VICTORIA STREET BEACONSFIELD	Residential	55	45	46	0.2	<20	46	46	0.3	25	No	No	No
4822	86 VICTORIA STREET BEACONSFIELD	Residential	55	53	53	0.1	<20	54	54	0.2	23	No	No	No
4823	1-7 VICTORIA STREET BEACONSFIELD	Residential	55	61	61	0.2	<20	61	61	0.3	41	No	No	No
4824	7 VICTORIA STREET BEACONSFIELD	Residential	55	52	52	0.3	<20	52	52	0.4	36	No	No	No
4825	7B VICTORIA STREET BEACONSFIELD	Residential	55	50	50	0.3	<20	50	50	0.4	32	No	No	No
4826	7C VICTORIA STREET BEACONSFIELD	Residential	55	49	50	0.3	<20	50	50	0.3	32	No	No	No
4827	9B VICTORIA STREET BEACONSFIELD	Residential	55	49	49	0.3	<20	50	50	0.4	31	No	No	No
4828	15 VICTORIA STREET BEACONSFIELD	Residential	55	52	52	0.2	<20	52	52	0.3	31	No	No	No
4829	19 VICTORIA STREET BEACONSFIELD	Residential	55	50	51	0.2	<20	51	51	0.2	28	No	No	No
4830	23 VICTORIA STREET BEACONSFIELD	Residential	55	51	51	0.2	<20	51	51	0.3	29	No	No	No
4831	27 VICTORIA STREET BEACONSFIELD	Residential	55	50	50	0.2	<20	51	51	0.3	28	No	No	No
4832	25A VICTORIA STREET BEACONSFIELD	Residential	55	51	51	0.2	<20	52	52	0.2	30	No	No	No
4833	29 VICTORIA STREET BEACONSFIELD	Residential	55	50	50	0.2	<20	51	51	0.2	28	No	No	No
4834	31 VICTORIA STREET BEACONSFIELD	Residential	55	48	48	0.1	<20	48	48	0.2	26	No	No	No
4835	33 VICTORIA STREET BEACONSFIELD	Residential	55	47	47	0.1	<20	48	48	0.2	27	No	No	No
4836	35 VICTORIA STREET BEACONSFIELD	Residential	55	47	47	0.2	<20	48	48	0.2	28	No	No	No
4837	37 VICTORIA STREET BEACONSFIELD	Residential	55	47	48	0.2	<20	48	48	0.2	28	No	No	No
4840	63-85 VICTORIA STREET BEACONSFIELD	Residential	55	59	59	0.2	<20	60	60	0.2	25	No	No	No
4841	344 BOTANY ROAD BEACONSFIELD	Residential	55	74	75	0.2	<20	75	75	0.2	34	No	No	No
4842	348 BOTANY ROAD BEACONSFIELD	Residential	55	76	76	0.2	<20	76	77	0.3	30	No	No	No
4843	350 BOTANY ROAD BEACONSFIELD	Residential	55	76	76	0.2	<20	76	77	0.3	23	No	No	No
4844	352 BOTANY ROAD BEACONSFIELD	Residential	55	76	76	0.3	<20	76	77	0.2	23	No	No	No
4845	354 BOTANY ROAD BEACONSFIELD	Residential	55	76	76	0.2	<20	76	77	0.2	23	No	No	No
4846	356 BOTANY ROAD BEACONSFIELD	Residential	55	76	76	0.2	<20	76	77	0.3	23	No	No	No
4862	499 BOTANY ROAD ZETLAND	Residential	55	58	59	0.1	25	59	63	4.5	47	Yes	No	Yes
4863	511C-515 BOTANY ROAD ZETLAND	Residential	55	66	67	0.2	24	67	67	0.2	46	No	No	No
4866	2 HANSARD STREET ZETLAND	Residential	55	61	61	0.2	<20	61	61	0.3	37	No	No	No
4867	6 HANSARD STREET ZETLAND	Residential	55	61	61	0.2	<20	61	61	0.2	37	No	No	No
4868	8 HANSARD STREET ZETLAND	Residential	55	60	60	0.3	<20	61	61	0.3	37	No	No	No
4869	10 HANSARD STREET ZETLAND	Residential	55	60	60	0.2	<20	60	60	0.2	37	No	No	No
4870	12 HANSARD STREET ZETLAND	Residential	55	59	59	0.3	<20	59	60	0.3	36	No	No	No
4871	14 HANSARD STREET ZETLAND	Residential	55	58	58	0.2	<20	58	59	0.3	34	No	No	No
4872	14A HANSARD STREET ZETLAND	Residential	55	57	57	0.2	<20	58	58	0.2	32	No	No	No
4873	16 HANSARD STREET ZETLAND	Residential	55	53	53	0.2	<20	54	54	0.3	24	No	No	No
4874	18 HANSARD STREET ZETLAND	Residential	55	53	53	0.2	<20	53	53	0.2	24	No	No	No
4875	20 HANSARD STREET ZETLAND	Residential	55	54	54	0.2	<20	54	54	0.2	29	No	No	No

4876 22 HANSARD STREET ZETLAND	Residential	55	53	53	0.3	<20	53	54	0.2	27 No	No	No
4877 24 HANSARD STREET ZETLAND	Residential	55	52	52	0.2	<20	52	53	0.2	26 No	No	No
4878 26 HANSARD STREET ZETLAND	Residential	55	52	52	0.2	<20	52	52	0.3	25 No	No	No
4879 28 HANSARD STREET ZETLAND	Residential	55	52	52	0.2	<20	52	52	0.3	24 No	No	No
4880 28A HANSARD STREET ZETLAND	Residential	55	51	51	0.2	<20	52	52	0.2	24 No	No	No
4881 30 HANSARD STREET ZETLAND	Residential	55	51	51	0.3	<20	52	52	0.3	23 No	No	No
4882 32 HANSARD STREET ZETLAND	Residential	55	51	51	0.2	<20	51	51	0.3	23 No	No	No
4883 32 HANSARD STREET ZETLAND	Residential	55	50	51	0.2	<20	51	51	0.3	23 No	No	No
4884 34 HANSARD STREET ZETLAND	Residential	55	50	50	0.2	<20	50	50	0.3	22 No	No	No
4885 32A HANSARD STREET ZETLAND	Residential	55	50	50	0.2	<20	50	51	0.3	23 No	No	No
4886 36A HANSARD STREET ZETLAND	Residential	55	49	50	0.2	<20	50	50	0.3	21 No	No	No
4887 36 HANSARD STREET ZETLAND	Residential	55	51	51	0.1	<20	51	51	0.1	<20 No	No	No
4893 1 HANSARD STREET ZETLAND	Residential	55	59	59	0.2	<20	59	60	0.3	27 No	No	No
4894 3 HANSARD STREET ZETLAND	Residential	55	58	59	0.2	<20	59	59	0.3	30 No	No	No
4895 5 HANSARD STREET ZETLAND	Residential	55	58	58	0.2	<20	58	59	0.3	30 No	No	No
4896 5A HANSARD STREET ZETLAND	Residential	55	57	57	0.2	<20	58	58	0.2	30 No	No	No
4897 7 HANSARD STREET ZETLAND	Residential	55	48	48	0.1	<20	49	49	0.1	24 No	No	No
4898 9 HANSARD STREET ZETLAND	Residential	55	49	49	0.1	<20	50	50	0.1	28 No	No	No
4899 11-13 HANSARD STREET ZETLAND	Residential	55	55	55	0.2	<20	55	55	0.2	29 No	No	No
4900 11-13 HANSARD STREET ZETLAND	Residential	55	54	55	0.2	<20	55	55	0.3	29 No	No	No
4901 15 HANSARD STREET ZETLAND	Residential	55	49	49	0.1	<20	50	50	0.1	27 No	No	No
4902 15 HANSARD STREET ZETLAND	Residential	55	54	54	0.2	<20	54	54	0.2	29 No	No	No
4903 17 HANSARD STREET ZETLAND	Residential	55	49	49	0.1	<20	49	49	0.1	23 No	No	No
4904 17 HANSARD STREET ZETLAND	Residential	55	48	48	0.1	<20	48	49	0.3	29 No	No	No
4905 19 HANSARD STREET ZETLAND	Residential	55	47	47	0.2	<20	48	48	0.2	26 No	No	No
4906 21 HANSARD STREET ZETLAND	Residential	55	50	50	0.2	<20	50	50	0.2	26 No	No	No
4907 23 HANSARD STREET ZETLAND	Residential	55	49	49	0.2	<20	50	50	0.2	26 No	No	No
4908 25 HANSARD STREET ZETLAND	Residential	55	49	49	0.1	<20	49	49	0.2	25 No	No	No
4909 27 HANSARD STREET ZETLAND	Residential	55	49	49	0.2	<20	49	49	0.2	25 No	No	No
4910 29 HANSARD STREET ZETLAND	Residential	55	49	50	0.2	<20	50	50	0.3	25 No	No	No
4911 31 HANSARD STREET ZETLAND	Residential	55	50	50	0.2	<20	51	51	0.2	27 No	No	No
4912 33 HANSARD STREET ZETLAND	Residential	55	50	50	0.2	<20	51	51	0.2	27 No	No	No
4913 35 HANSARD STREET ZETLAND	Residential	55	48	49	0.2	<20	49	49	0.3	24 No	No	No
4914 37 HANSARD STREET ZETLAND	Residential	55	49	49	0.2	<20	49	49	0.2	23 No	No	No
4915 39 HANSARD STREET ZETLAND	Residential	55	48	48	0.2	<20	49	49	0.2	23 No	No	No
4916 41 HANSARD STREET ZETLAND	Residential	55	48	48	0.2	<20	49	49	0.2	23 No	No	No
4917 43 HANSARD STREET ZETLAND	Residential	55	48	48	0.1	<20	48	48	0.2	23 No	No	No
4918 45 HANSARD STREET ZETLAND	Residential	55	53	53	0	<20	54	54	0.1	23 No	No	No
4919 47 HANSARD STREET ZETLAND	Residential	55	50	50	0	<20	51	51	0.1	22 No	No	No
4920 49 HANSARD STREET ZETLAND	Residential	55	46	46	0.1	<20	46	46	0.1	21 No	No	No
4921 51 HANSARD STREET ZETLAND	Residential	55	46	46	0.2	<20	47	47	0.2	<20 No	No	No
4922 53 HANSARD STREET ZETLAND	Residential	55	46	46	0.1	<20	46	46	0.1	<20 No	No	No
4923 55 HANSARD STREET ZETLAND	Residential	55	45	45	0	<20	46	46	0.1	<20 No	No	No
4924 57 HANSARD STREET ZETLAND	Residential	55	47	47	0	<20	47	47	0	<20 No	No	No
4925 59 HANSARD STREET ZETLAND	Residential	55	50	50	0	<20	50	50	0	<20 No	No	No
4927 1 JOYNTON AVENUE ZETLAND	Residential	55	59	59	0	<20	60	60	0	<20 No	No	No
4928 2 EPSOM ROAD ZETLAND	Residential	55	72	72	0	<20	73	73	0	<20 No	No	No
4929 4 EPSOM ROAD ZETLAND	Residential	55	69	69	0	<20	69	69	0	<20 No	No	No
4930 6 EPSOM ROAD ZETLAND	Residential	55	71	71	0	<20	71	71	0	<20 No	No	No
4931 8 EPSOM ROAD ZETLAND	Residential	55	71	71	0	<20	71	71	0	<20 No	No	No
4932 20 EPSOM ROAD ZETLAND	Residential	55	67	67	0	<20	68	68	0	<20 No	No	No
4933 18 EPSOM ROAD ZETLAND	Residential	55	69	69	0	<20	69	69	0	<20 No	No	No
4934 10-16 EPSOM ROAD ZETLAND	Residential	55	70	70	0	<20	71	71	0	<20 No	No	No
4935 22 EPSOM ROAD ZETLAND	Residential	55	70	70	0	<20	70	70	0	<20 No	No	No

4936 24 EPSOM ROAD ZETLAND	Residential	55	69	69	0	<20	69	69	0	<20	No	No	No
4937 26-30 EPSOM ROAD ZETLAND	Residential	55	53	54	0.2	<20	54	54	0.2	33	No	No	No
4938 26-30 EPSOM ROAD ZETLAND	Residential	55	71	71	0	<20	72	72	0	<20	No	No	No
4939 32 EPSOM ROAD ZETLAND	Residential	55	69	69	0	<20	69	69	0	<20	No	No	No
4940 34 EPSOM ROAD ZETLAND	Residential	55	68	68	0	<20	69	69	0	<20	No	No	No
4941 36 EPSOM ROAD ZETLAND	Residential	55	69	69	0	<20	70	70	0	<20	No	No	No
4942 38 EPSOM ROAD ZETLAND	Residential	55	68	68	0	<20	69	69	0	<20	No	No	No
4943 40 EPSOM ROAD ZETLAND	Residential	55	70	70	0	<20	70	70	0	<20	No	No	No
4944 42-44 EPSOM ROAD ZETLAND	Residential	55	70	70	0	<20	70	70	0	<20	No	No	No
4945 46 EPSOM ROAD ZETLAND	Residential	55	72	72	0	<20	73	73	0	<20	No	No	No
4977 1 MADDOX STREET ALEXANDRIA	Open active	60	54	54	0	<20	54	54	0	29	No	No	No
4978 53-57 MADDOX STREET ALEXANDRIA	Open active	60	52	52	0	<20	52	52	0	31	No	No	No
4980 1 MADDOX STREET ALEXANDRIA	Open active	60	59	59	0	<20	60	60	0	33	No	No	No
5031 151-163 WYNDHAM STREET ALEXANDRIA	Residential	55	45	44	-0.2	<20	45	45	-0.2	22	No	No	No
5032 151-163 WYNDHAM STREET ALEXANDRIA	Residential	55	45	45	-0.1	<20	45	45	0	27	No	No	No
5038 240-250 WYNDHAM STREET ALEXANDRIA	Residential	55	54	54	0.2	<20	55	55	0.2	26	No	No	No
5039 1A MANDIBLE STREET ALEXANDRIA	Residential	55	63	63	0.2	<20	64	64	0.2	<20	No	No	No
5040 68A MCEVOY STREET ALEXANDRIA	Residential	55	55	56	0.2	<20	56	56	0.2	<20	No	No	No
5043 252 BOTANY ROAD ALEXANDRIA	Residential	55	74	74	0.2	<20	75	75	0.2	<20	No	No	No
5044 274A BOTANY ROAD ALEXANDRIA	Residential	55	76	76	0.2	<20	76	76	0.2	<20	No	No	No
5045 2 ALLEN STREET WATERLOO	Residential	55	71	71	0.2	<20	71	72	0.2	<20	No	No	No
5046 8 ALLEN STREET WATERLOO	Residential	55	49	49	0.2	<20	49	49	0.2	<20	No	No	No
5047 8 ALLEN STREET WATERLOO	Residential	55	57	57	0.3	<20	57	57	0.2	22	No	No	No
5049 219-231 BOTANY ROAD WATERLOO	Residential	55	58	58	0.2	<20	58	59	0.3	22	No	No	No
5050 8 ALLEN STREET WATERLOO	Residential	55	45	45	0.2	<20	45	45	0.2	<20	No	No	No
5051 356-368 GEORGE STREET WATERLOO	Residential	55	44	44	0.1	<20	44	45	0.1	<20	No	No	No
5052 356-368 GEORGE STREET WATERLOO	Residential	55	50	50	0.1	<20	51	51	0.2	23	No	No	No
5053 356-368 GEORGE STREET WATERLOO	Residential	55	51	51	0	<20	51	51	0	27	No	No	No
5054 356-368 GEORGE STREET WATERLOO	Residential	55	56	56	0.1	<20	56	57	0.1	29	No	No	No
5055 233-235 BOTANY ROAD WATERLOO	Residential	55	71	72	0.3	<20	72	72	0.2	<20	No	No	No
5069 2-6 MANDIBLE STREET ALEXANDRIA	Residential	55	59	59	-0.1	<20	60	60	-0.1	34	No	No	No
5070 4 MANDIBLE STREET ALEXANDRIA	Residential	55	55	55	0.2	<20	56	56	0.2	21	No	No	No
5071 6 MANDIBLE STREET ALEXANDRIA	Residential	55	60	60	0	<20	61	61	0	33	No	No	No
5072 282-288 BOTANY ROAD ALEXANDRIA	Residential	55	76	77	0.2	<20	77	77	0.2	<20	No	No	No
5073 4 MANDIBLE STREET ALEXANDRIA	Residential	55	52	52	0.1	<20	52	52	0	21	No	No	No
5089 370-376 GEORGE STREET WATERLOO	Residential	55	55	55	0.1	<20	56	56	0.1	29	No	No	No
5092 237-271 BOTANY ROAD WATERLOO	School	40	56	56	0.3	<20	56	57	0.2	<20	No	No	No
5093 237-271 BOTANY ROAD WATERLOO	School	40	55	55	0.3	<20	55	55	0.2	<20	No	No	No
5094 370-376 GEORGE STREET WATERLOO	Residential	55	60	60	-0.3	<20	61	60	-0.3	30	No	No	No
5101 848 ELIZABETH STREET WATERLOO	Residential	55	42	42	-0.3	<20	42	42	-0.2	20	No	No	No
5102 856 ELIZABETH STREET WATERLOO	Residential	55	46	46	-0.3	<20	47	46	-0.3	20	No	No	No
5103 11 HAWKSLEY STREET WATERLOO	Residential	55	38	38	-0.1	<20	38	38	-0.1	<20	No	No	No
5104 7 HAWKSLEY STREET WATERLOO	Residential	55	38	38	-0.1	<20	38	38	-0.1	<20	No	No	No
5105 1 HAWKSLEY STREET WATERLOO	Residential	55	37	37	0	<20	38	38	0	<20	No	No	No
5106 1011 BOURKE STREET WATERLOO	Residential	55	58	58	-0.1	<20	58	58	-0.1	<20	No	No	No
5107 1007 BOURKE STREET WATERLOO	Residential	55	58	57	-0.1	<20	58	58	-0.2	<20	No	No	No
5108 1007 BOURKE STREET WATERLOO	Residential	55	56	56	-0.3	<20	56	56	-0.3	<20	No	No	No
5109 1003 BOURKE STREET WATERLOO	Residential	55	57	57	-0.1	<20	58	57	-0.1	<20	No	No	No
5110 1003 BOURKE STREET WATERLOO	Residential	55	57	57	-0.1	<20	57	57	-0.1	<20	No	No	No
5111 1001 BOURKE STREET WATERLOO	Residential	55	39	39	-0.1	<20	39	39	0	<20	No	No	No
5112 999 BOURKE STREET WATERLOO	Residential	55	56	56	-0.1	<20	56	56	-0.2	<20	No	No	No
5116 8 KINGSBOROUGH WAY ZETLAND	Residential	55	53	52	-0.2	<20	53	53	-0.2	<20	No	No	No
5117 8 KINGSBOROUGH WAY ZETLAND	Residential	55	46	46	-0.1	<20	47	47	-0.1	<20	No	No	No
5122 932 BOURKE STREET ZETLAND	Worship	40	53	53	-0.3	<20	54	54	-0.3	<20	No	No	No

5123 930 BOURKE STREET ZETLAND	Residential	55	44	44	-0.1	<20	44	44	-0.1	<20	No	No	No
5124 924 BOURKE STREET ZETLAND	Residential	55	42	42	0	<20	42	42	0	<20	No	No	No
5125 920 BOURKE STREET ZETLAND	Residential	55	51	51	0.1	<20	52	52	0.2	<20	No	No	No
5126 914 BOURKE STREET ZETLAND	Residential	55	48	48	0.1	<20	49	49	0.1	<20	No	No	No
5127 922 BOURKE STREET ZETLAND	Residential	55	41	41	-0.1	<20	42	42	-0.1	<20	No	No	No
5128 932 BOURKE STREET ZETLAND	Residential	55	56	56	-0.4	<20	57	56	-0.3	<20	No	No	No
5129 924 BOURKE STREET ZETLAND	Residential	55	41	41	-0.1	<20	42	42	-0.1	<20	No	No	No
5130 908 BOURKE STREET ZETLAND	Residential	55	40	40	0	<20	41	41	0	<20	No	No	No
5131 1 MCPHERSON LANE ZETLAND	Residential	55	43	43	-0.2	<20	44	44	-0.1	<20	No	No	No
5132 1 LAMOND LANE ZETLAND	Residential	55	36	36	0	<20	36	37	0.6	<20	No	No	No
5133 8 KINGSBOROUGH WAY ZETLAND	Residential	55	43	43	-0.2	<20	43	43	-0.2	<20	No	No	No
5135 2-6 TILFORD STREET ZETLAND	Residential	55	39	39	-0.2	<20	40	40	0.1	<20	No	No	No
5137 1-9 WILLIAM STREET ALEXANDRIA	Residential	55	65	65	-0.3	20	66	65	-0.3	35	No	No	No
5138 1-9 WILLIAM STREET ALEXANDRIA	Residential	55	62	62	-0.3	<20	63	63	-0.3	27	No	No	No
5139 9 WILLIAM STREET ALEXANDRIA	Residential	55	53	52	-0.3	<20	53	53	-0.2	26	No	No	No
5145 15-17 WILLIAM STREET ALEXANDRIA	Residential	55	52	51	-0.2	<20	52	52	-0.3	21	No	No	No
5146 21-27 WILLIAM STREET ALEXANDRIA	Residential	55	54	54	-0.3	<20	54	54	-0.2	<20	No	No	No
5152 6D WILLIAM STREET BEACONSFIELD	Residential	55	50	50	-0.1	<20	51	51	-0.1	<20	No	No	No
5155 13 GRANDSTAND PARADE ZETLAND	Residential	55	39	39	0	<20	39	39	0	<20	No	No	No
5156 30 GADIGAL AVENUE ZETLAND	Residential	55	39	39	-0.1	<20	39	39	0	<20	No	No	No
5157 19 GRANDSTAND PARADE ZETLAND	Residential	55	47	47	0.1	<20	48	48	0.5	<20	No	No	No
5158 19 GRANDSTAND PARADE ZETLAND	Residential	55	47	47	0	<20	48	48	0.4	<20	No	No	No
5159 19 GRANDSTAND PARADE ZETLAND	Residential	55	48	48	0.1	<20	49	49	0.3	26	No	No	No
5160 7 VICTORIA PARK PARADE ZETLAND	Residential	55	45	45	0	<20	46	46	0	<20	No	No	No
5161 7 VICTORIA PARK PARADE ZETLAND	Residential	55	44	44	0	<20	45	45	0	<20	No	No	No
5162 7 VICTORIA PARK PARADE ZETLAND	Residential	55	40	40	0	<20	41	41	0	<20	No	No	No
5165 50 HANSARD STREET ZETLAND	Residential	55	51	51	0	<20	51	51	0	<20	No	No	No
5170 84 EPSOM ROAD ZETLAND	Residential	55	55	55	0	<20	56	56	0	<20	No	No	No
5171 1 DUNNING AVENUE ROSEBERY	Residential	55	70	70	0	<20	71	71	0	22	No	No	No
5172 33 EPSOM ROAD ROSEBERY	Residential	55	70	70	0	<20	71	71	0	<20	No	No	No
5173 19 GRANDSTAND PARADE ZETLAND	Residential	55	47	47	0.1	<20	48	48	0.7	<20	No	No	No
5174 876 ELIZABETH STREET ZETLAND	Residential	55	53	52	-0.4	<20	53	53	-0.3	<20	No	No	No
5175 878 ELIZABETH STREET ZETLAND	Residential	55	52	51	-0.4	<20	52	52	-0.3	<20	No	No	No
5176 880 ELIZABETH STREET ZETLAND	Residential	55	51	50	-0.4	<20	51	51	-0.3	<20	No	No	No
5177 882 ELIZABETH STREET ZETLAND	Residential	55	50	50	-0.3	<20	51	50	-0.3	<20	No	No	No
5178 884 ELIZABETH STREET ZETLAND	Residential	55	50	50	-0.3	<20	50	50	-0.3	<20	No	No	No
5179 886 ELIZABETH STREET ZETLAND	Residential	55	50	49	-0.3	<20	50	50	-0.3	<20	No	No	No
5180 888 ELIZABETH STREET ZETLAND	Residential	55	49	49	-0.4	<20	50	49	-0.3	<20	No	No	No
5181 890 ELIZABETH STREET ZETLAND	Residential	55	48	48	-0.3	<20	49	49	-0.3	<20	No	No	No
5182 892 ELIZABETH STREET ZETLAND	Residential	55	48	48	-0.3	<20	48	48	-0.3	<20	No	No	No
5183 894 ELIZABETH STREET ZETLAND	Residential	55	47	47	-0.3	<20	48	48	-0.3	<20	No	No	No
5184 896 ELIZABETH STREET ZETLAND	Residential	55	46	46	-0.3	<20	46	46	-0.3	<20	No	No	No
5185 896A ELIZABETH STREET ZETLAND	Residential	55	46	45	-0.3	<20	46	46	-0.2	<20	No	No	No
5186 898 ELIZABETH STREET ZETLAND	Residential	55	45	45	-0.3	<20	46	45	-0.2	<20	No	No	No
5187 900 ELIZABETH STREET ZETLAND	Residential	55	45	45	-0.3	<20	45	45	-0.3	<20	No	No	No
5188 902 ELIZABETH STREET ZETLAND	Residential	55	46	45	-0.3	<20	46	46	-0.2	<20	No	No	No
5189 904 ELIZABETH STREET ZETLAND	Residential	55	45	45	-0.3	<20	46	46	-0.2	<20	No	No	No
5190 906 ELIZABETH STREET ZETLAND	Residential	55	45	45	-0.3	<20	45	45	-0.3	<20	No	No	No
5191 908 ELIZABETH STREET ZETLAND	Residential	55	43	43	-0.3	<20	44	44	-0.2	<20	No	No	No
5192 910 ELIZABETH STREET ZETLAND	Residential	55	43	43	-0.3	<20	44	43	-0.3	<20	No	No	No
5193 912A ELIZABETH STREET ZETLAND	Residential	55	44	44	-0.3	<20	44	44	-0.2	<20	No	No	No
5194 914 ELIZABETH STREET ZETLAND	Residential	55	44	43	-0.3	<20	44	44	-0.2	<20	No	No	No
5195 914A ELIZABETH STREET ZETLAND	Residential	55	44	43	-0.3	<20	44	44	-0.2	<20	No	No	No
5196 916 ELIZABETH STREET ZETLAND	Residential	55	43	43	-0.2	<20	44	44	-0.2	<20	No	No	No

5197 918 ELIZABETH STREET ZETLAND	Residential	55	43	43	-0.2	<20	43	43	-0.2	<20 No	No	No
5198 920 ELIZABETH STREET ZETLAND	Residential	55	42	42	-0.3	<20	43	43	-0.1	<20 No	No	No
5199 922 ELIZABETH STREET ZETLAND	Residential	55	42	42	-0.2	<20	42	42	-0.1	<20 No	No	No
5200 924 ELIZABETH STREET ZETLAND	Residential	55	42	42	-0.2	<20	42	42	-0.1	<20 No	No	No
5201 928 ELIZABETH STREET ZETLAND	Residential	55	40	40	-0.1	<20	40	40	0	<20 No	No	No
5202 934 ELIZABETH STREET ZETLAND	Residential	55	39	39	-0.2	<20	40	40	0	<20 No	No	No
5203 936A ELIZABETH STREET ZETLAND	Residential	55	40	40	-0.2	<20	41	41	0.1	<20 No	No	No
5204 938 ELIZABETH STREET ZETLAND	Residential	55	40	40	-0.2	<20	41	41	0.1	<20 No	No	No
5205 938A ELIZABETH STREET ZETLAND	Residential	55	40	40	-0.2	<20	41	41	0.1	<20 No	No	No
5206 940 ELIZABETH STREET ZETLAND	Residential	55	40	40	-0.2	<20	40	41	0.2	<20 No	No	No
5207 940A ELIZABETH STREET ZETLAND	Residential	55	40	40	-0.1	<20	40	41	0.1	<20 No	No	No
5208 942B ELIZABETH STREET ZETLAND	Residential	55	40	40	-0.1	<20	40	41	0.1	<20 No	No	No
5209 942A ELIZABETH STREET ZETLAND	Residential	55	40	40	-0.1	<20	40	41	0.2	<20 No	No	No
5210 944 ELIZABETH STREET ZETLAND	Residential	55	40	40	-0.1	<20	41	41	0.1	<20 No	No	No
5211 944A ELIZABETH STREET ZETLAND	Residential	55	40	40	-0.1	<20	41	41	0.1	<20 No	No	No
5212 946 ELIZABETH STREET ZETLAND	Residential	55	40	40	-0.1	<20	40	41	0.1	<20 No	No	No
5213 948 ELIZABETH STREET ZETLAND	Residential	55	40	40	-0.1	<20	40	40	0.1	<20 No	No	No
5214 950 ELIZABETH STREET ZETLAND	Residential	55	40	40	-0.1	<20	40	40	0.2	<20 No	No	No
5215 952 ELIZABETH STREET ZETLAND	Residential	55	40	40	-0.1	<20	40	41	0.6	<20 No	No	No
5216 956 ELIZABETH STREET ZETLAND	Residential	55	41	41	-0.1	<20	41	42	0.6	<20 No	No	No
5217 958 ELIZABETH STREET ZETLAND	Residential	55	41	41	-0.1	<20	41	42	0.5	<20 No	No	No
5218 960 ELIZABETH STREET ZETLAND	Residential	55	41	41	-0.1	<20	41	41	0.4	<20 No	No	No
5219 962 ELIZABETH STREET ZETLAND	Residential	55	41	41	-0.1	<20	41	41	0.2	<20 No	No	No
5221 3 TILFORD STREET ZETLAND	Residential	55	39	39	-0.2	<20	40	40	0.1	<20 No	No	No
5222 5 TILFORD STREET ZETLAND	Residential	55	39	39	-0.2	<20	39	39	0.1	<20 No	No	No
5223 7 TILFORD STREET ZETLAND	Residential	55	39	39	-0.1	<20	39	39	0.1	<20 No	No	No
5224 9 TILFORD STREET ZETLAND	Residential	55	39	38	-0.2	<20	39	39	0.1	<20 No	No	No
5225 11 TILFORD STREET ZETLAND	Residential	55	38	38	-0.1	<20	39	39	0.1	<20 No	No	No
5226 13 TILFORD STREET ZETLAND	Residential	55	38	38	-0.2	<20	39	39	0.1	<20 No	No	No
5227 15 TILFORD STREET ZETLAND	Residential	55	38	38	-0.1	<20	39	39	0	<20 No	No	No
5228 17 TILFORD STREET ZETLAND	Residential	55	38	38	-0.2	<20	38	39	0.1	<20 No	No	No
5229 19 TILFORD STREET ZETLAND	Residential	55	38	38	-0.1	<20	38	38	0.1	<20 No	No	No
5230 21 TILFORD STREET ZETLAND	Residential	55	38	38	-0.1	<20	38	38	0.1	<20 No	No	No
5231 23 TILFORD STREET ZETLAND	Residential	55	38	38	-0.1	<20	38	38	0.1	<20 No	No	No
5232 25 TILFORD STREET ZETLAND	Residential	55	38	37	-0.1	<20	38	38	0	<20 No	No	No
5233 25A TILFORD STREET ZETLAND	Residential	55	37	37	-0.1	<20	38	38	0.1	<20 No	No	No
5234 27 TILFORD STREET ZETLAND	Residential	55	37	37	-0.2	<20	38	38	0.1	<20 No	No	No
5235 29 TILFORD STREET ZETLAND	Residential	55	37	37	-0.1	<20	38	38	0	<20 No	No	No
5236 31 TILFORD STREET ZETLAND	Residential	55	38	38	-0.1	<20	38	38	0.1	<20 No	No	No
5237 35 TILFORD STREET ZETLAND	Residential	55	38	38	-0.1	<20	39	39	0	<20 No	No	No
5238 37 TILFORD STREET ZETLAND	Residential	55	36	36	-0.1	<20	36	36	0	<20 No	No	No
5239 41 TILFORD STREET ZETLAND	Residential	55	34	34	-0.1	<20	34	34	-0.1	<20 No	No	No
5240 43 TILFORD STREET ZETLAND	Residential	55	34	34	-0.1	<20	35	35	0	<20 No	No	No
5241 43 TILFORD STREET ZETLAND	Residential	55	35	35	-0.1	<20	35	35	-0.1	<20 No	No	No
5242 48 COOK LANE ZETLAND	Residential	55	35	35	-0.1	<20	36	36	-0.1	<20 No	No	No
5243 48 COOK LANE ZETLAND	Residential	55	37	37	-0.1	<20	37	37	-0.1	<20 No	No	No
5244 11 JOYNTON AVENUE ZETLAND	Residential	55	37	37	0	<20	37	37	-0.1	<20 No	No	No
5245 11 JOYNTON AVENUE ZETLAND	Residential	55	39	39	0	<20	39	39	-0.1	<20 No	No	No
5246 301 BOTANY ROAD ZETLAND	Residential	55	76	76	-0.5	<20	77	76	-0.5	23 No	No	No
5254 739 ELIZABETH STREET ZETLAND	Residential	55	50	50	-0.3	<20	51	50	-0.3	<20 No	No	No
5255 741 ELIZABETH STREET ZETLAND	Residential	55	46	45	-0.4	<20	46	46	-0.3	<20 No	No	No
5256 743 ELIZABETH STREET ZETLAND	Residential	55	47	47	-0.3	<20	48	47	-0.3	<20 No	No	No
5257 745 ELIZABETH STREET ZETLAND	Residential	55	47	46	-0.3	<20	47	47	-0.3	<20 No	No	No
5258 747 ELIZABETH STREET ZETLAND	Residential	55	46	46	-0.3	<20	47	46	-0.3	<20 No	No	No

5259 747A ELIZABETH STREET ZETLAND	Residential	55	46	46	-0.3	<20	47	46	-0.3	<20	No	No	No
5260 749 ELIZABETH STREET ZETLAND	Residential	55	46	46	-0.3	<20	46	46	-0.3	<20	No	No	No
5261 751 ELIZABETH STREET ZETLAND	Residential	55	45	45	-0.3	<20	46	46	-0.3	<20	No	No	No
5262 755 ELIZABETH STREET ZETLAND	Residential	55	45	45	-0.3	<20	45	45	-0.3	<20	No	No	No
5264 765 ELIZABETH STREET ZETLAND	Residential	55	40	40	-0.3	<20	40	40	-0.3	<20	No	No	No
5265 769 ELIZABETH STREET ZETLAND	Residential	55	39	39	-0.3	<20	39	39	-0.2	<20	No	No	No
5266 771 ELIZABETH STREET ZETLAND	Residential	55	42	42	-0.3	<20	43	43	-0.2	<20	No	No	No
5267 771A ELIZABETH STREET ZETLAND	Residential	55	42	42	-0.3	<20	43	42	-0.2	<20	No	No	No
5268 771B ELIZABETH STREET ZETLAND	Residential	55	42	42	-0.3	<20	42	42	-0.1	<20	No	No	No
5269 773 ELIZABETH STREET ZETLAND	Residential	55	40	40	-0.3	<20	41	41	-0.3	<20	No	No	No
5270 775 ELIZABETH STREET ZETLAND	Residential	55	40	40	-0.3	<20	40	40	-0.2	<20	No	No	No
5271 777 ELIZABETH STREET ZETLAND	Residential	55	41	41	-0.2	<20	42	42	-0.2	<20	No	No	No
5272 779 ELIZABETH STREET ZETLAND	Residential	55	41	41	-0.2	<20	42	42	-0.1	<20	No	No	No
5274 787 ELIZABETH STREET ZETLAND	Residential	55	40	39	-0.2	<20	40	40	-0.1	<20	No	No	No
5275 789 ELIZABETH STREET ZETLAND	Residential	55	39	39	-0.2	<20	40	40	0	<20	No	No	No
5276 791 ELIZABETH STREET ZETLAND	Residential	55	39	39	-0.2	<20	40	40	0	<20	No	No	No
5277 793 ELIZABETH STREET ZETLAND	Residential	55	39	39	-0.2	<20	40	39	-0.1	<20	No	No	No
5278 795 ELIZABETH STREET ZETLAND	Residential	55	39	39	-0.2	<20	39	39	0	<20	No	No	No
5283 805 ELIZABETH STREET ZETLAND	Residential	55	36	36	0	<20	37	37	0.3	<20	No	No	No
5284 807 ELIZABETH STREET ZETLAND	Residential	55	37	37	0	<20	37	39	2.1	<20	No	No	No
5285 8 EBSWORTH STREET ZETLAND	Residential	55	75	75	-0.5	<20	76	75	-0.5	22	No	No	No
5286 2 PORTMAN STREET ZETLAND	Residential	55	61	60	-0.4	<20	61	61	-0.5	<20	No	No	No
5287 4 PORTMAN STREET ZETLAND	Residential	55	60	59	-0.4	<20	60	60	-0.4	<20	No	No	No
5288 6 PORTMAN STREET ZETLAND	Residential	55	59	58	-0.4	<20	59	59	-0.4	<20	No	No	No
5289 8 PORTMAN STREET ZETLAND	Residential	55	58	57	-0.4	<20	58	58	-0.5	<20	No	No	No
5290 10 PORTMAN STREET ZETLAND	Residential	55	57	57	-0.4	<20	57	57	-0.4	<20	No	No	No
5291 12 PORTMAN STREET ZETLAND	Residential	55	56	56	-0.4	<20	57	56	-0.4	<20	No	No	No
5292 14 PORTMAN STREET ZETLAND	Residential	55	55	55	-0.3	<20	56	55	-0.4	<20	No	No	No
5293 16 PORTMAN STREET ZETLAND	Residential	55	54	54	-0.4	<20	55	54	-0.3	<20	No	No	No
5294 18 PORTMAN STREET ZETLAND	Residential	55	54	53	-0.4	<20	54	54	-0.3	<20	No	No	No
5295 20 PORTMAN STREET ZETLAND	Residential	55	53	53	-0.4	<20	54	53	-0.3	<20	No	No	No
5296 22 PORTMAN STREET ZETLAND	Residential	55	53	52	-0.4	<20	53	53	-0.4	<20	No	No	No
5297 24 PORTMAN STREET ZETLAND	Residential	55	52	52	-0.4	<20	52	52	-0.3	<20	No	No	No
5298 26 PORTMAN STREET ZETLAND	Residential	55	51	51	-0.3	<20	52	52	-0.4	<20	No	No	No
5299 28 PORTMAN STREET ZETLAND	Residential	55	51	51	-0.4	<20	51	51	-0.4	<20	No	No	No
5300 30 PORTMAN STREET ZETLAND	Residential	55	50	50	-0.3	<20	51	51	-0.4	<20	No	No	No
5301 32 PORTMAN STREET ZETLAND	Residential	55	50	50	-0.4	<20	51	50	-0.4	<20	No	No	No
5302 34 PORTMAN STREET ZETLAND	Residential	55	50	49	-0.3	<20	50	50	-0.4	<20	No	No	No
5303 36 PORTMAN STREET ZETLAND	Residential	55	49	49	-0.3	<20	50	49	-0.4	<20	No	No	No
5304 38 PORTMAN STREET ZETLAND	Residential	55	49	49	-0.3	<20	49	49	-0.3	<20	No	No	No
5305 40 PORTMAN STREET ZETLAND	Residential	55	49	48	-0.3	<20	49	49	-0.3	<20	No	No	No
5306 42 PORTMAN STREET ZETLAND	Residential	55	48	48	-0.3	<20	49	48	-0.3	<20	No	No	No
5307 44 PORTMAN STREET ZETLAND	Residential	55	48	48	-0.3	<20	49	48	-0.3	<20	No	No	No
5308 46 PORTMAN STREET ZETLAND	Residential	55	48	47	-0.3	<20	48	48	-0.3	<20	No	No	No
5309 48 PORTMAN STREET ZETLAND	Residential	55	47	47	-0.3	<20	48	48	-0.3	<20	No	No	No
5310 50 PORTMAN STREET ZETLAND	Residential	55	47	47	-0.3	<20	48	47	-0.3	<20	No	No	No
5311 52 PORTMAN STREET ZETLAND	Residential	55	47	47	-0.4	<20	47	47	-0.3	<20	No	No	No
5312 54 PORTMAN STREET ZETLAND	Residential	55	47	47	-0.3	<20	47	47	-0.2	<20	No	No	No
5313 54A PORTMAN STREET ZETLAND	Residential	55	47	46	-0.3	<20	47	47	-0.3	<20	No	No	No
5314 54B PORTMAN STREET ZETLAND	Residential	55	47	46	-0.3	<20	47	47	-0.3	<20	No	No	No
5315 56 PORTMAN STREET ZETLAND	Residential	55	46	46	-0.3	<20	47	47	-0.2	<20	No	No	No
5316 60 PORTMAN STREET ZETLAND	Residential	55	46	46	-0.3	<20	46	46	-0.3	<20	No	No	No
5317 58 PORTMAN STREET ZETLAND	Residential	55	46	46	-0.3	<20	47	46	-0.3	<20	No	No	No
5318 14 EBSWORTH STREET ZETLAND	Residential	55	76	76	-0.6	<20	77	76	-0.6	21	No	No	No

5319 1 PORTMAN STREET ZETLAND	Residential	55	60	59	-0.4	<20	60	60	-0.5	<20 No	No	No
5320 3 PORTMAN STREET ZETLAND	Residential	55	59	58	-0.4	<20	59	59	-0.4	<20 No	No	No
5321 5 PORTMAN STREET ZETLAND	Residential	55	58	58	-0.4	<20	58	58	-0.4	<20 No	No	No
5322 7 PORTMAN STREET ZETLAND	Residential	55	57	57	-0.4	<20	58	57	-0.3	<20 No	No	No
5323 9 PORTMAN STREET ZETLAND	Residential	55	56	56	-0.3	<20	57	56	-0.4	<20 No	No	No
5324 11 PORTMAN STREET ZETLAND	Residential	55	56	56	-0.4	<20	57	57	-0.4	<20 No	No	No
5325 13 PORTMAN STREET ZETLAND	Residential	55	56	55	-0.4	<20	56	56	-0.4	<20 No	No	No
5326 15 PORTMAN STREET ZETLAND	Residential	55	55	55	-0.3	<20	56	55	-0.4	<20 No	No	No
5327 17 PORTMAN STREET ZETLAND	Residential	55	55	54	-0.4	<20	55	55	-0.4	<20 No	No	No
5328 19 PORTMAN STREET ZETLAND	Residential	55	54	54	-0.3	<20	55	54	-0.4	<20 No	No	No
5329 21 PORTMAN STREET ZETLAND	Residential	55	54	53	-0.3	<20	54	54	-0.4	<20 No	No	No
5330 23 PORTMAN STREET ZETLAND	Residential	55	53	52	-0.3	<20	53	53	-0.4	<20 No	No	No
5331 27A PORTMAN STREET ZETLAND	Residential	55	52	52	-0.4	<20	52	52	-0.3	<20 No	No	No
5332 29 PORTMAN STREET ZETLAND	Residential	55	52	51	-0.4	<20	52	52	-0.4	<20 No	No	No
5333 31 PORTMAN STREET ZETLAND	Residential	55	51	51	-0.4	<20	52	51	-0.3	<20 No	No	No
5334 33 PORTMAN STREET ZETLAND	Residential	55	51	50	-0.4	<20	51	51	-0.4	<20 No	No	No
5335 35 PORTMAN STREET ZETLAND	Residential	55	50	50	-0.4	<20	51	50	-0.3	<20 No	No	No
5336 37 PORTMAN STREET ZETLAND	Residential	55	50	49	-0.4	<20	50	50	-0.3	<20 No	No	No
5337 39 PORTMAN STREET ZETLAND	Residential	55	49	49	-0.4	<20	50	50	-0.3	<20 No	No	No
5338 41 PORTMAN STREET ZETLAND	Residential	55	49	49	-0.3	<20	50	49	-0.4	<20 No	No	No
5339 43 PORTMAN STREET ZETLAND	Residential	55	49	48	-0.4	<20	49	49	-0.3	<20 No	No	No
5340 45 PORTMAN STREET ZETLAND	Residential	55	48	48	-0.3	<20	49	49	-0.3	<20 No	No	No
5341 47 PORTMAN STREET ZETLAND	Residential	55	48	48	-0.3	<20	49	48	-0.4	<20 No	No	No
5342 49 PORTMAN STREET ZETLAND	Residential	55	48	47	-0.3	<20	48	48	-0.4	<20 No	No	No
5343 51 PORTMAN STREET ZETLAND	Residential	55	48	47	-0.4	<20	48	48	-0.3	<20 No	No	No
5344 53 PORTMAN STREET ZETLAND	Residential	55	47	47	-0.3	<20	48	47	-0.4	<20 No	No	No
5345 55 PORTMAN STREET ZETLAND	Residential	55	47	47	-0.3	<20	47	47	-0.3	<20 No	No	No
5346 55 PORTMAN STREET ZETLAND	Residential	55	47	46	-0.4	<20	47	47	-0.3	<20 No	No	No
5347 57 PORTMAN STREET ZETLAND	Residential	55	46	46	-0.3	<20	47	47	-0.3	<20 No	No	No
5348 59 PORTMAN STREET ZETLAND	Residential	55	46	46	-0.3	<20	47	46	-0.3	<20 No	No	No
5349 62 PORTMAN STREET ZETLAND	Residential	55	45	45	-0.2	<20	46	45	-0.2	<20 No	No	No
5350 64 PORTMAN STREET ZETLAND	Residential	55	45	45	-0.3	<20	45	45	-0.2	<20 No	No	No
5351 66 PORTMAN STREET ZETLAND	Residential	55	45	44	-0.3	<20	45	45	-0.2	<20 No	No	No
5352 68 PORTMAN STREET ZETLAND	Residential	55	45	44	-0.3	<20	45	45	-0.1	<20 No	No	No
5353 70 PORTMAN STREET ZETLAND	Residential	55	45	44	-0.2	<20	45	45	-0.1	<20 No	No	No
5354 72 PORTMAN STREET ZETLAND	Residential	55	45	44	-0.2	<20	45	45	0	<20 No	No	No
5355 74 PORTMAN STREET ZETLAND	Residential	55	45	44	-0.2	<20	45	45	0.3	<20 No	No	No
5356 76 PORTMAN STREET ZETLAND	Residential	55	45	44	-0.2	<20	45	46	0.6	<20 No	No	No
5357 78 PORTMAN STREET ZETLAND	Residential	55	45	45	-0.1	<20	45	46	0.9	<20 No	No	No
5358 80 PORTMAN STREET ZETLAND	Residential	55	45	45	-0.2	<20	45	46	1.2	<20 No	No	No
5359 82-84 PORTMAN STREET ZETLAND	Residential	55	45	45	-0.1	<20	45	46	1.3	<20 No	No	No
5360 82A PORTMAN STREET ZETLAND	Residential	55	45	44	-0.1	<20	45	46	1.4	<20 No	No	No
5361 84 PORTMAN STREET ZETLAND	Residential	55	45	44	-0.2	<20	45	46	1.5	<20 No	No	No
5362 84A PORTMAN STREET ZETLAND	Residential	55	44	44	-0.1	<20	45	46	1.6	<20 No	No	No
5363 86 PORTMAN STREET ZETLAND	Residential	55	44	44	-0.1	<20	45	46	1.6	<20 No	No	No
5364 88 PORTMAN STREET ZETLAND	Residential	55	44	44	-0.1	<20	45	46	1.8	<20 No	No	No
5365 90 PORTMAN STREET ZETLAND	Residential	55	44	44	-0.1	<20	44	46	1.9	<20 No	No	No
5366 92 PORTMAN STREET ZETLAND	Residential	55	44	44	-0.1	<20	45	46	1.8	<20 No	No	No
5367 94 PORTMAN STREET ZETLAND	Residential	55	45	45	0	<20	45	47	1.7	<20 No	No	No
5368 61 PORTMAN STREET ZETLAND	Residential	55	43	43	0	<20	43	45	2	<20 No	No	No
5369 63 PORTMAN STREET ZETLAND	Residential	55	46	46	0.1	<20	46	48	1.4	<20 No	No	No
5370 65 PORTMAN STREET ZETLAND	Residential	55	48	48	0.1	<20	48	49	1.1	<20 No	No	No
5371 67 PORTMAN STREET ZETLAND	Residential	55	49	49	0.1	<20	49	50	0.8	<20 No	No	No
5372 69 PORTMAN STREET ZETLAND	Residential	55	50	50	0.1	<20	51	51	0.6	<20 No	No	No

5373 71 PORTMAN STREET ZETLAND	Residential	55	51	51	0.1	<20	52	52	0.6	<20 No	No	No
5374 75 PORTMAN STREET ZETLAND	Residential	55	51	51	0.1	<20	52	52	0.7	<20 No	No	No
5375 73 PORTMAN STREET ZETLAND	Residential	55	51	51	0.1	<20	52	52	0.6	<20 No	No	No
5376 8 EBSWORTH STREET ZETLAND	Residential	55	58	58	-0.2	<20	59	59	-0.3	<20 No	No	No
5377 28 EBSWORTH STREET ZETLAND	Residential	55	58	58	0.1	<20	58	58	0.1	31 No	No	No
5378 28 EBSWORTH STREET ZETLAND	Residential	55	57	57	0	<20	57	57	0.2	31 No	No	No
5380 75 QUEEN STREET BEACONSFIELD	Residential	55	52	52	0	<20	52	53	0.1	27 No	No	No
5381 77 QUEEN STREET BEACONSFIELD	Residential	55	47	47	0.1	<20	48	48	0.2	26 No	No	No
5382 79 QUEEN STREET BEACONSFIELD	Residential	55	47	47	0.1	<20	48	48	0.2	26 No	No	No
5383 81 QUEEN STREET BEACONSFIELD	Residential	55	47	47	0.1	<20	48	48	0.2	26 No	No	No
5384 81A QUEEN STREET BEACONSFIELD	Residential	55	48	48	0.1	<20	48	48	0.3	26 No	No	No
5385 83 QUEEN STREET BEACONSFIELD	Residential	55	48	48	0.1	<20	48	48	0.2	26 No	No	No
5386 85 QUEEN STREET BEACONSFIELD	Residential	55	48	48	0.1	<20	48	48	0.2	26 No	No	No
5387 89 QUEEN STREET BEACONSFIELD	Residential	55	48	48	0.1	<20	48	49	0.2	26 No	No	No
5388 91 QUEEN STREET BEACONSFIELD	Residential	55	48	48	0.1	<20	48	49	0.2	26 No	No	No
5389 93 QUEEN STREET BEACONSFIELD	Residential	55	48	48	0.2	<20	48	49	0.2	25 No	No	No
5390 95 QUEEN STREET BEACONSFIELD	Residential	55	48	48	0.1	<20	48	49	0.2	25 No	No	No
5391 97 QUEEN STREET BEACONSFIELD	Residential	55	48	48	0.1	<20	48	49	0.2	25 No	No	No
5392 99 QUEEN STREET BEACONSFIELD	Residential	55	48	48	0.1	<20	48	49	0.2	25 No	No	No
5393 101 QUEEN STREET BEACONSFIELD	Residential	55	50	50	0.2	<20	50	50	0.2	26 No	No	No
5394 105 QUEEN STREET BEACONSFIELD	Residential	55	48	48	0.2	<20	48	48	0.2	24 No	No	No
5395 107 QUEEN STREET BEACONSFIELD	Residential	55	48	48	0.2	<20	48	49	0.2	24 No	No	No
5396 109 QUEEN STREET BEACONSFIELD	Residential	55	48	48	0.1	<20	49	49	0.2	24 No	No	No
5397 117 QUEEN STREET BEACONSFIELD	Residential	55	48	48	0.2	<20	49	49	0.2	24 No	No	No
5398 117 QUEEN STREET BEACONSFIELD	Residential	55	48	48	0.1	<20	48	48	0.2	24 No	No	No
5399 119 QUEEN STREET BEACONSFIELD	Residential	55	48	48	0.2	<20	48	48	0.2	24 No	No	No
5400 121 QUEEN STREET BEACONSFIELD	Residential	55	48	48	0.1	<20	48	49	0.3	24 No	No	No
5401 123 QUEEN STREET BEACONSFIELD	Residential	55	48	48	0.1	<20	48	49	0.3	24 No	No	No
5402 123B QUEEN STREET BEACONSFIELD	Residential	55	48	48	0.1	<20	48	48	0.3	24 No	No	No
5403 125 QUEEN STREET BEACONSFIELD	Residential	55	48	48	0.2	<20	48	48	0.2	23 No	No	No
5406 139A QUEEN STREET BEACONSFIELD	Residential	55	48	48	0.1	<20	48	48	0.3	23 No	No	No
5407 141 QUEEN STREET BEACONSFIELD	Residential	55	48	48	0.1	<20	48	48	0.2	23 No	No	No
5408 143 QUEEN STREET BEACONSFIELD	Residential	55	48	48	0.1	<20	48	49	0.3	23 No	No	No
5409 145 QUEEN STREET BEACONSFIELD	Residential	55	48	48	0.1	<20	48	49	0.2	23 No	No	No
5411 9C COLLINS STREET BEACONSFIELD	Residential	55	52	52	0.1	<20	52	53	0.2	<20 No	No	No
5412 88 VICTORIA STREET BEACONSFIELD	Residential	55	55	55	0.1	<20	55	55	0.2	28 No	No	No
5413 90 VICTORIA STREET BEACONSFIELD	Residential	55	54	54	0.2	<20	55	55	0.3	28 No	No	No
5414 92 VICTORIA STREET BEACONSFIELD	Residential	55	54	54	0.1	<20	54	55	0.2	28 No	No	No
5415 94 VICTORIA STREET BEACONSFIELD	Residential	55	52	52	0.1	<20	52	52	0.3	28 No	No	No
5416 96 VICTORIA STREET BEACONSFIELD	Residential	55	49	49	0.1	<20	50	50	0.2	28 No	No	No
5417 98 VICTORIA STREET BEACONSFIELD	Residential	55	49	49	0.2	<20	49	50	0.2	28 No	No	No
5418 100 VICTORIA STREET BEACONSFIELD	Residential	55	49	49	0.2	<20	49	49	0.2	27 No	No	No
5419 102 VICTORIA STREET BEACONSFIELD	Residential	55	49	49	0.2	<20	49	49	0.3	27 No	No	No
5420 104 VICTORIA STREET BEACONSFIELD	Residential	55	49	49	0.1	<20	49	49	0.2	27 No	No	No
5421 106 VICTORIA STREET BEACONSFIELD	Residential	55	49	49	0.1	<20	49	49	0.3	27 No	No	No
5422 108 VICTORIA STREET BEACONSFIELD	Residential	55	48	49	0.2	<20	49	49	0.3	27 No	No	No
5423 110 VICTORIA STREET BEACONSFIELD	Residential	55	48	49	0.2	<20	49	49	0.3	27 No	No	No
5424 112 VICTORIA STREET BEACONSFIELD	Residential	55	49	49	0.1	<20	49	49	0.2	27 No	No	No
5425 114 VICTORIA STREET BEACONSFIELD	Residential	55	49	49	0.2	<20	49	49	0.3	27 No	No	No
5426 116 VICTORIA STREET BEACONSFIELD	Residential	55	49	49	0.2	<20	49	49	0.3	27 No	No	No
5427 118 VICTORIA STREET BEACONSFIELD	Residential	55	49	49	0.2	<20	49	50	0.3	26 No	No	No
5428 120 VICTORIA STREET BEACONSFIELD	Residential	55	49	49	0.1	<20	50	50	0.2	26 No	No	No
5429 122 VICTORIA STREET BEACONSFIELD	Residential	55	49	49	0.2	<20	50	50	0.3	26 No	No	No
5431 128 VICTORIA STREET BEACONSFIELD	Residential	55	50	50	0.1	<20	50	50	0.2	26 No	No	No

5432 130 VICTORIA STREET BEACONSFIELD	Residential	55	50	50	0.2	<20	50	51	0.3	26	No	No	No
5433 132 VICTORIA STREET BEACONSFIELD	Residential	55	50	50	0.2	<20	50	51	0.3	26	No	No	No
5434 134 VICTORIA STREET BEACONSFIELD	Residential	55	50	50	0.2	<20	51	51	0.3	26	No	No	No
5435 136 VICTORIA STREET BEACONSFIELD	Residential	55	50	50	0.2	<20	51	51	0.3	26	No	No	No
5436 138 VICTORIA STREET BEACONSFIELD	Residential	55	50	51	0.1	<20	51	51	0.3	25	No	No	No
5437 140 VICTORIA STREET BEACONSFIELD	Residential	55	50	51	0.2	<20	51	51	0.3	25	No	No	No
5438 142 VICTORIA STREET BEACONSFIELD	Residential	55	51	51	0.2	<20	51	51	0.3	25	No	No	No
5439 144 VICTORIA STREET BEACONSFIELD	Residential	55	51	51	0.2	<20	51	52	0.3	25	No	No	No
5440 146 VICTORIA STREET BEACONSFIELD	Residential	55	51	51	0.2	<20	51	52	0.3	25	No	No	No
5441 148 VICTORIA STREET BEACONSFIELD	Residential	55	51	51	0.2	<20	51	52	0.3	25	No	No	No
5442 150 VICTORIA STREET BEACONSFIELD	Residential	55	50	51	0.2	<20	51	51	0.3	25	No	No	No
5443 152 VICTORIA STREET BEACONSFIELD	Residential	55	50	50	0.1	<20	51	51	0.3	25	No	No	No
5444 154 VICTORIA STREET BEACONSFIELD	Residential	55	50	50	0.2	<20	50	51	0.3	24	No	No	No
5445 156 VICTORIA STREET BEACONSFIELD	Residential	55	50	50	0.2	<20	50	50	0.3	24	No	No	No
5446 158 VICTORIA STREET BEACONSFIELD	Residential	55	50	50	0.2	<20	50	50	0.3	24	No	No	No
5447 160 VICTORIA STREET BEACONSFIELD	Residential	55	49	50	0.1	<20	50	50	0.2	24	No	No	No
5448 162 VICTORIA STREET BEACONSFIELD	Residential	55	49	49	0.2	<20	50	50	0.3	24	No	No	No
5449 164 VICTORIA STREET BEACONSFIELD	Residential	55	49	49	0.1	<20	50	50	0.2	24	No	No	No
5450 166 VICTORIA STREET BEACONSFIELD	Residential	55	49	49	0.1	<20	49	50	0.3	24	No	No	No
5451 168 VICTORIA STREET BEACONSFIELD	Residential	55	49	49	0.1	<20	49	49	0.2	24	No	No	No
5452 170 VICTORIA STREET BEACONSFIELD	Residential	55	49	49	0.1	<20	49	49	0.2	24	No	No	No
5453 172 VICTORIA STREET BEACONSFIELD	Residential	55	49	49	0.2	<20	49	49	0.3	24	No	No	No
5454 174-176 VICTORIA STREET BEACONSFIELD	Residential	55	51	51	0.1	<20	52	52	0.2	24	No	No	No
5455 174-176 VICTORIA STREET BEACONSFIELD	Residential	55	55	55	0.2	<20	55	55	0.2	24	No	No	No
5456 54-98 QUEEN STREET BEACONSFIELD	Open active	60	46	46	-0.1	<20	47	47	-0.1	22	No	No	No
5457 91 VICTORIA STREET BEACONSFIELD	Residential	55	57	57	0.2	<20	58	58	0.3	22	No	No	No
5458 95 VICTORIA STREET BEACONSFIELD	Residential	55	47	47	0.2	<20	47	47	0.2	<20	No	No	No
5459 95 VICTORIA STREET BEACONSFIELD	Residential	55	47	47	0.1	<20	47	48	0.3	20	No	No	No
5460 97 VICTORIA STREET BEACONSFIELD	Residential	55	47	47	0.1	<20	47	47	0.3	21	No	No	No
5461 99 VICTORIA STREET BEACONSFIELD	Residential	55	47	47	0.2	<20	47	47	0.2	21	No	No	No
5462 101 VICTORIA STREET BEACONSFIELD	Residential	55	46	47	0.2	<20	47	47	0.2	21	No	No	No
5463 103 VICTORIA STREET BEACONSFIELD	Residential	55	46	47	0.1	<20	47	47	0.2	21	No	No	No
5464 105 VICTORIA STREET BEACONSFIELD	Residential	55	46	47	0.2	<20	47	47	0.3	21	No	No	No
5465 107 VICTORIA STREET BEACONSFIELD	Residential	55	46	47	0.1	<20	47	47	0.3	21	No	No	No
5466 109 VICTORIA STREET BEACONSFIELD	Residential	55	46	47	0.1	<20	47	47	0.2	21	No	No	No
5467 111 VICTORIA STREET BEACONSFIELD	Residential	55	46	47	0.2	<20	47	47	0.3	21	No	No	No
5468 113 VICTORIA STREET BEACONSFIELD	Residential	55	47	47	0.1	<20	47	47	0.2	21	No	No	No
5469 115 VICTORIA STREET BEACONSFIELD	Residential	55	49	49	0.1	<20	50	50	0.2	22	No	No	No
5470 115 VICTORIA STREET BEACONSFIELD	Residential	55	49	50	0.2	<20	50	50	0.2	22	No	No	No
5471 117 VICTORIA STREET BEACONSFIELD	Residential	55	49	50	0.2	<20	50	50	0.3	21	No	No	No
5472 119 VICTORIA STREET BEACONSFIELD	Residential	55	49	50	0.1	<20	50	50	0.3	22	No	No	No
5473 119 VICTORIA STREET BEACONSFIELD	Residential	55	49	50	0.2	<20	50	50	0.3	22	No	No	No
5474 123 VICTORIA STREET BEACONSFIELD	Residential	55	50	50	0.2	<20	50	50	0.3	21	No	No	No
5475 125 VICTORIA STREET BEACONSFIELD	Residential	55	50	50	0.2	<20	50	50	0.3	22	No	No	No
5476 127 VICTORIA STREET BEACONSFIELD	Residential	55	47	47	0.2	<20	47	47	0.3	<20	No	No	No
5477 129 VICTORIA STREET BEACONSFIELD	Residential	55	47	47	0.2	<20	47	48	0.3	<20	No	No	No
5478 131 VICTORIA STREET BEACONSFIELD	Residential	55	47	47	0.2	<20	47	47	0.2	21	No	No	No
5479 133 VICTORIA STREET BEACONSFIELD	Residential	55	47	47	0.2	<20	48	48	0.2	21	No	No	No
5480 135 VICTORIA STREET BEACONSFIELD	Residential	55	48	48	0.1	<20	48	48	0.2	21	No	No	No
5481 137 VICTORIA STREET BEACONSFIELD	Residential	55	48	48	0.1	<20	49	49	0.2	21	No	No	No
5482 139 VICTORIA STREET BEACONSFIELD	Residential	55	49	49	0.2	<20	50	50	0.3	20	No	No	No
5483 141 VICTORIA STREET BEACONSFIELD	Residential	55	50	50	0.1	<20	50	51	0.2	20	No	No	No
5484 143 VICTORIA STREET BEACONSFIELD	Residential	55	50	50	0.1	<20	51	51	0.2	21	No	No	No
5485 145 VICTORIA STREET BEACONSFIELD	Residential	55	50	51	0.2	<20	51	51	0.3	20	No	No	No

5486 147 VICTORIA STREET BEACONSFIELD	Residential	55	51	51	0.1	<20	51	51	0.3	20	No	No	No
5487 149 VICTORIA STREET BEACONSFIELD	Residential	55	51	51	0.1	<20	51	51	0.2	20	No	No	No
5488 151 VICTORIA STREET BEACONSFIELD	Residential	55	51	51	0.1	<20	52	52	0.2	20	No	No	No
5489 155 VICTORIA STREET BEACONSFIELD	Residential	55	51	52	0.2	<20	52	52	0.3	20	No	No	No
5490 9 COLLINS STREET BEACONSFIELD	Residential	55	58	58	0.1	<20	58	59	0.3	<20	No	No	No
5491 1 COLLINS STREET BEACONSFIELD	Residential	55	60	60	0.1	<20	61	61	0.2	<20	No	No	No
5492 3 COLLINS STREET BEACONSFIELD	Residential	55	60	60	0.1	<20	60	60	0.2	<20	No	No	No
5493 5 COLLINS STREET BEACONSFIELD	Residential	55	59	59	0.1	<20	60	60	0.2	<20	No	No	No
5494 7 COLLINS STREET BEACONSFIELD	Residential	55	58	59	0.2	<20	59	59	0.2	<20	No	No	No
5496 416 BOTANY ROAD BEACONSFIELD	Residential	55	77	77	0.1	<20	77	78	0.3	<20	No	No	No
5497 418 BOTANY ROAD BEACONSFIELD	Residential	55	77	77	0.1	<20	77	78	0.2	<20	No	No	No
5498 420 BOTANY ROAD BEACONSFIELD	Residential	55	77	77	0	<20	77	78	0.2	<20	No	No	No
5510 450 BOTANY ROAD BEACONSFIELD	Residential	55	74	74	0.1	<20	75	75	0.2	<20	No	No	No
5511 452 BOTANY ROAD BEACONSFIELD	Residential	55	75	75	0.1	<20	75	75	0.2	<20	No	No	No
5512 454 BOTANY ROAD BEACONSFIELD	Residential	55	75	75	0.1	<20	75	75	0.2	<20	No	No	No
5513 454A BOTANY ROAD BEACONSFIELD	Residential	55	75	75	0.1	<20	75	76	0.2	<20	No	No	No
5514 456 BOTANY ROAD BEACONSFIELD	Residential	55	75	75	0.1	<20	75	76	0.2	<20	No	No	No
5515 458 BOTANY ROAD BEACONSFIELD	Residential	55	75	75	0.1	<20	76	76	0.2	<20	No	No	No
5516 460 BOTANY ROAD BEACONSFIELD	Residential	55	75	75	0	<20	76	76	0.3	<20	No	No	No
5517 462 BOTANY ROAD BEACONSFIELD	Residential	55	75	75	0.1	<20	76	76	0.2	<20	No	No	No
5518 464 BOTANY ROAD BEACONSFIELD	Residential	55	75	75	0.1	<20	76	76	0.2	20	No	No	No
5519 466 BOTANY ROAD BEACONSFIELD	Residential	55	75	75	0.1	<20	76	76	0.2	20	No	No	No
5520 468 BOTANY ROAD BEACONSFIELD	Residential	55	75	75	0.1	<20	76	76	0.3	20	No	No	No
5521 470 BOTANY ROAD BEACONSFIELD	Residential	55	75	75	0.1	<20	76	76	0.2	20	No	No	No
5522 472 BOTANY ROAD BEACONSFIELD	Residential	55	75	75	0.1	<20	76	76	0.2	20	No	No	No
5523 474 BOTANY ROAD BEACONSFIELD	Residential	55	75	75	0.1	<20	76	76	0.3	20	No	No	No
5524 476 BOTANY ROAD BEACONSFIELD	Residential	55	75	75	0	<20	76	76	0.2	20	No	No	No
5525 478 BOTANY ROAD BEACONSFIELD	Residential	55	75	75	0	<20	76	76	0.2	<20	No	No	No
5526 480 BOTANY ROAD BEACONSFIELD	Residential	55	75	75	0	<20	76	76	0.2	20	No	No	No
5527 482 BOTANY ROAD BEACONSFIELD	Residential	55	75	75	0.1	<20	76	76	0.2	<20	No	No	No
5528 484 BOTANY ROAD BEACONSFIELD	Residential	55	75	75	0.1	<20	76	76	0.2	<20	No	No	No
5540 651 BOTANY ROAD ROSEBERY	Residential	55	76	76	0.2	<20	76	76	0.2	22	No	No	No
5545 14 CRESSY STREET ROSEBERY	Residential	55	52	52	0.1	<20	52	53	0.2	26	No	No	No
5549 2 ROTHSCHILD AVENUE ROSEBERY	Residential	55	54	54	0	<20	54	55	0.1	25	No	No	No
5550 4A ROTHSCHILD AVENUE ROSEBERY	Residential	55	58	58	0	<20	58	58	0	<20	No	No	No
5552 105-115 PORTMAN STREET ZETLAND	Residential	55	52	52	0.1	<20	53	53	0.1	<20	No	No	No
5553 23 GEDDES AVENUE ZETLAND	Residential	55	57	57	0.1	<20	57	62	4.7	39	Yes	No	Yes
5554 50 HANSARD STREET ZETLAND	Residential	55	53	53	0	<20	54	54	0	<20	No	No	No
5555 147 WYNDHAM STREET ALEXANDRIA	Residential	55	40	40	-0.2	<20	41	41	-0.1	<20	No	No	No
5556 84 EPSOM ROAD ZETLAND	Residential	55	68	68	0	<20	68	68	0	<20	No	No	No
9656 377-495 BOTANY ROAD ZETLAND	Residential	55	60	60	0.1	<20	61	64	3.7	42	Yes	No	Yes
9658 811 ELIZABETH STREET ZETLAND	Residential	55	51	51	0	<20	51	52	0.7	<20	No	No	No

Green Square to Ashmore Precinct Connector Road - Night-time Noise Impacts

ID	Address	Use	Criteria	Year of Opening				Design Year				Exceeds RNP and increases by ≥ 2 dB	Exceeds cumulative criterion	Eligible for consideration of mitigation
				No build	Build	Increase	Project Contribution	No build	Build	Increase	Project Contribution			
4746	7 RESERVE STREET BEACONSFIELD	Residential	50	63	63	-0.2	<20	64	63	-0.3	34	No	No	No
4747	9 RESERVE STREET BEACONSFIELD	Residential	50	62	62	-0.3	<20	63	63	-0.3	32	No	No	No
4748	11 RESERVE STREET BEACONSFIELD	Residential	50	62	62	-0.2	<20	63	63	-0.2	32	No	No	No
4749	13 RESERVE STREET BEACONSFIELD	Residential	50	62	62	-0.3	<20	63	62	-0.2	31	No	No	No
4750	15 RESERVE STREET BEACONSFIELD	Residential	50	62	62	-0.3	<20	63	63	-0.2	31	No	No	No
4751	17 RESERVE STREET BEACONSFIELD	Residential	50	62	62	-0.2	<20	63	62	-0.2	30	No	No	No
4752	18 QUEEN STREET BEACONSFIELD	Residential	50	56	55	-0.3	22	56	56	-0.3	36	No	No	No
4753	20 QUEEN STREET BEACONSFIELD	Residential	50	54	53	-0.3	20	54	54	-0.3	35	No	No	No
4754	22 QUEEN STREET BEACONSFIELD	Residential	50	53	53	-0.3	<20	54	53	-0.3	34	No	No	No
4755	24 QUEEN STREET BEACONSFIELD	Residential	50	53	53	-0.3	<20	54	53	-0.3	33	No	No	No
4756	26 QUEEN STREET BEACONSFIELD	Residential	50	48	48	-0.2	<20	49	49	-0.2	23	No	No	No
4757	28 QUEEN STREET BEACONSFIELD	Residential	50	51	51	-0.3	<20	52	52	-0.3	25	No	No	No
4758	28A QUEEN STREET BEACONSFIELD	Residential	50	51	51	-0.3	<20	52	52	-0.2	25	No	No	No
4759	30 QUEEN STREET BEACONSFIELD	Residential	50	51	51	-0.3	<20	52	52	-0.3	26	No	No	No
4760	30A QUEEN STREET BEACONSFIELD	Residential	50	49	49	-0.1	<20	50	50	-0.1	29	No	No	No
4761	32-48 QUEEN STREET BEACONSFIELD	Residential	50	55	55	-0.3	<20	55	55	-0.3	30	No	No	No
4762	32-48 QUEEN STREET BEACONSFIELD	Residential	50	55	54	-0.3	<20	55	55	-0.3	30	No	No	No
4763	32-48 QUEEN STREET BEACONSFIELD	Residential	50	54	54	-0.3	<20	55	55	-0.3	30	No	No	No
4764	32-48 QUEEN STREET BEACONSFIELD	Residential	50	54	54	-0.3	<20	55	54	-0.3	30	No	No	No
4765	32-48 QUEEN STREET BEACONSFIELD	Residential	50	54	53	-0.3	<20	54	54	-0.3	30	No	No	No
4766	32-48 QUEEN STREET BEACONSFIELD	Residential	50	54	53	-0.3	<20	54	54	-0.2	29	No	No	No
4767	32-48 QUEEN STREET BEACONSFIELD	Residential	50	54	53	-0.3	<20	54	54	-0.3	29	No	No	No
4768	32-48 QUEEN STREET BEACONSFIELD	Residential	50	53	53	-0.3	<20	54	54	-0.3	29	No	No	No
4769	32-48 QUEEN STREET BEACONSFIELD	Residential	50	53	53	-0.3	<20	53	53	-0.2	28	No	No	No
4770	32-48 QUEEN STREET BEACONSFIELD	Residential	50	53	52	-0.3	<20	53	53	-0.3	28	No	No	No
4771	32-48 QUEEN STREET BEACONSFIELD	Residential	50	52	52	-0.3	<20	53	53	-0.3	28	No	No	No
4772	32-48 QUEEN STREET BEACONSFIELD	Residential	50	52	52	-0.2	<20	53	53	-0.2	28	No	No	No
4773	32-48 QUEEN STREET BEACONSFIELD	Residential	50	52	52	-0.3	<20	52	52	-0.2	27	No	No	No
4774	32-48 QUEEN STREET BEACONSFIELD	Residential	50	52	52	-0.3	<20	53	52	-0.3	27	No	No	No
4775	29 RESERVE STREET BEACONSFIELD	Residential	50	49	49	-0.3	<20	50	49	-0.3	<20	No	No	No
4776	27 RESERVE STREET BEACONSFIELD	Residential	50	50	50	-0.3	<20	51	50	-0.3	<20	No	No	No
4777	25 RESERVE STREET BEACONSFIELD	Residential	50	51	50	-0.2	<20	51	51	-0.2	23	No	No	No
4778	23 RESERVE STREET BEACONSFIELD	Residential	50	53	53	-0.2	<20	53	53	-0.2	23	No	No	No
4779	21 RESERVE STREET BEACONSFIELD	Residential	50	59	59	-0.2	<20	59	59	-0.2	29	No	No	No
4780	19 RESERVE STREET BEACONSFIELD	Residential	50	64	63	-0.3	<20	64	64	-0.3	30	No	No	No
4781	1 QUEEN STREET BEACONSFIELD	Residential	50	50	50	0	<20	50	50	0	27	No	No	No
4782	3-5 QUEEN STREET BEACONSFIELD	Residential	50	45	45	0.5	<20	45	46	0.6	30	No	No	No
4783	9 QUEEN STREET BEACONSFIELD	Residential	50	45	44	-0.2	<20	45	45	-0.2	24	No	No	No
4784	9 QUEEN STREET BEACONSFIELD	Residential	50	43	43	-0.1	<20	43	43	0	26	No	No	No
4785	63 QUEEN STREET BEACONSFIELD	Residential	50	49	49	0	<20	49	49	0	29	No	No	No
4786	63 QUEEN STREET BEACONSFIELD	Residential	50	41	41	0	<20	42	42	0	25	No	No	No
4787	13 QUEEN STREET BEACONSFIELD	Residential	50	49	49	-0.3	<20	50	50	-0.2	31	No	No	No
4788	13 QUEEN STREET BEACONSFIELD	Residential	50	41	41	0.1	<20	42	42	0.2	26	No	No	No
4789	15 QUEEN STREET BEACONSFIELD	Residential	50	49	49	-0.3	<20	50	49	-0.3	32	No	No	No
4790	15 QUEEN STREET BEACONSFIELD	Residential	50	42	42	0	<20	42	42	0	25	No	No	No
4791	17 QUEEN STREET BEACONSFIELD	Residential	50	48	48	-0.2	<20	48	48	-0.1	32	No	No	No
4792	19 QUEEN STREET BEACONSFIELD	Residential	50	46	46	-0.2	<20	47	47	-0.1	32	No	No	No
4793	21 QUEEN STREET BEACONSFIELD	Residential	50	46	46	-0.2	<20	47	47	0	32	No	No	No
4794	25 QUEEN STREET BEACONSFIELD	Residential	50	45	45	-0.2	<20	46	46	0	32	No	No	No
4795	25 QUEEN STREET BEACONSFIELD	Residential	50	44	44	0.2	<20	45	45	0.3	28	No	No	No

4796	29 QUEEN STREET BEACONSFIELD	Residential	50	45	45	-0.2	<20	46	46	0	31	No	No	No
4797	31-41 QUEEN STREET BEACONSFIELD	Residential	50	45	45	-0.2	<20	46	45	-0.2	29	No	No	No
4798	31-41 QUEEN STREET BEACONSFIELD	Residential	50	45	45	-0.1	<20	45	45	-0.1	28	No	No	No
4799	31-41 QUEEN STREET BEACONSFIELD	Residential	50	44	44	-0.2	<20	45	45	-0.2	27	No	No	No
4800	31-41 QUEEN STREET BEACONSFIELD	Residential	50	44	43	-0.1	<20	44	44	-0.1	26	No	No	No
4801	31-41 QUEEN STREET BEACONSFIELD	Residential	50	43	43	-0.2	<20	44	44	-0.1	25	No	No	No
4802	31-41 QUEEN STREET BEACONSFIELD	Residential	50	43	44	0.3	<20	44	44	0.3	27	No	No	No
4803	31-41 QUEEN STREET BEACONSFIELD	Residential	50	43	43	0.2	<20	44	44	0.3	26	No	No	No
4804	31-41 QUEEN STREET BEACONSFIELD	Residential	50	43	43	0.3	<20	43	44	0.3	26	No	No	No
4805	31-41 QUEEN STREET BEACONSFIELD	Residential	50	43	43	0.2	<20	43	44	0.3	25	No	No	No
4806	31-41 QUEEN STREET BEACONSFIELD	Residential	50	43	43	0.2	<20	43	44	0.3	25	No	No	No
4807	53 QUEEN STREET BEACONSFIELD	Residential	50	46	46	0.1	<20	46	47	0.3	29	No	No	No
4814	40 VICTORIA STREET BEACONSFIELD	Residential	50	42	42	0.3	<20	42	43	0.3	27	No	No	No
4815	46 VICTORIA STREET BEACONSFIELD	Residential	50	42	42	0.2	<20	42	43	0.3	27	No	No	No
4816	48 VICTORIA STREET BEACONSFIELD	Residential	50	42	42	0.2	<20	42	43	0.4	27	No	No	No
4817	54 VICTORIA STREET BEACONSFIELD	Residential	50	41	42	0.2	<20	42	42	0.3	27	No	No	No
4818	56A VICTORIA STREET BEACONSFIELD	Residential	50	43	43	0.1	<20	44	44	0.2	26	No	No	No
4819	62 VICTORIA STREET BEACONSFIELD	Residential	50	42	42	0.2	<20	42	43	0.4	27	No	No	No
4821	82 VICTORIA STREET BEACONSFIELD	Residential	50	40	40	0.3	<20	41	41	0.3	<20	No	No	No
4822	86 VICTORIA STREET BEACONSFIELD	Residential	50	48	48	0.1	<20	48	48	0.2	<20	No	No	No
4823	1-7 VICTORIA STREET BEACONSFIELD	Residential	50	55	56	0.3	<20	56	56	0.2	36	No	No	No
4824	7 VICTORIA STREET BEACONSFIELD	Residential	50	46	47	0.3	<20	47	47	0.4	30	No	No	No
4825	7B VICTORIA STREET BEACONSFIELD	Residential	50	44	45	0.4	<20	45	45	0.4	27	No	No	No
4826	7C VICTORIA STREET BEACONSFIELD	Residential	50	44	44	0.3	<20	45	45	0.3	26	No	No	No
4827	9B VICTORIA STREET BEACONSFIELD	Residential	50	44	44	0.3	<20	44	45	0.3	26	No	No	No
4828	15 VICTORIA STREET BEACONSFIELD	Residential	50	46	47	0.3	<20	47	47	0.2	25	No	No	No
4829	19 VICTORIA STREET BEACONSFIELD	Residential	50	45	45	0.2	<20	46	46	0.1	23	No	No	No
4830	23 VICTORIA STREET BEACONSFIELD	Residential	50	45	46	0.2	<20	46	46	0.1	24	No	No	No
4831	27 VICTORIA STREET BEACONSFIELD	Residential	50	45	45	0.2	<20	46	46	0.1	23	No	No	No
4832	25A VICTORIA STREET BEACONSFIELD	Residential	50	46	46	0.2	<20	46	47	0.2	25	No	No	No
4833	29 VICTORIA STREET BEACONSFIELD	Residential	50	45	45	0.2	<20	45	46	0.1	22	No	No	No
4834	31 VICTORIA STREET BEACONSFIELD	Residential	50	42	43	0.2	<20	43	43	0.1	20	No	No	No
4835	33 VICTORIA STREET BEACONSFIELD	Residential	50	42	42	0.2	<20	43	43	0.1	22	No	No	No
4836	35 VICTORIA STREET BEACONSFIELD	Residential	50	42	42	0.1	<20	42	42	0.2	22	No	No	No
4837	37 VICTORIA STREET BEACONSFIELD	Residential	50	42	42	0.1	<20	43	43	0.1	23	No	No	No
4840	63-85 VICTORIA STREET BEACONSFIELD	Residential	50	54	54	0.2	<20	54	55	0.2	20	No	No	No
4841	344 BOTANY ROAD BEACONSFIELD	Residential	50	69	69	0.3	<20	70	70	0.2	28	No	No	No
4842	348 BOTANY ROAD BEACONSFIELD	Residential	50	71	71	0.2	<20	71	71	0.1	24	No	No	No
4843	350 BOTANY ROAD BEACONSFIELD	Residential	50	71	71	0.2	<20	71	71	0.1	<20	No	No	No
4844	352 BOTANY ROAD BEACONSFIELD	Residential	50	71	71	0.2	<20	71	71	0.1	<20	No	No	No
4845	354 BOTANY ROAD BEACONSFIELD	Residential	50	71	71	0.3	<20	71	71	0.2	<20	No	No	No
4846	356 BOTANY ROAD BEACONSFIELD	Residential	50	71	71	0.2	<20	71	71	0.1	<20	No	No	No
4862	499 BOTANY ROAD ZETLAND	Residential	50	54	55	0.1	<20	55	58	3.4	41	Yes	No	Yes
4863	511C-515 BOTANY ROAD ZETLAND	Residential	50	61	61	0.2	<20	62	62	0.2	40	No	No	No
4866	2 HANSARD STREET ZETLAND	Residential	50	55	56	0.2	<20	56	56	0.1	31	No	No	No
4867	6 HANSARD STREET ZETLAND	Residential	50	55	56	0.3	<20	56	56	0.2	31	No	No	No
4868	8 HANSARD STREET ZETLAND	Residential	50	55	55	0.2	<20	55	55	0.1	31	No	No	No
4869	10 HANSARD STREET ZETLAND	Residential	50	54	55	0.3	<20	55	55	0.2	31	No	No	No
4870	12 HANSARD STREET ZETLAND	Residential	50	54	54	0.2	<20	54	54	0.1	30	No	No	No
4871	14 HANSARD STREET ZETLAND	Residential	50	53	53	0.2	<20	53	53	0.2	28	No	No	No
4872	14A HANSARD STREET ZETLAND	Residential	50	52	52	0.3	<20	52	53	0.2	26	No	No	No
4873	16 HANSARD STREET ZETLAND	Residential	50	48	48	0.2	<20	48	48	0.1	<20	No	No	No
4874	18 HANSARD STREET ZETLAND	Residential	50	47	48	0.2	<20	48	48	0.1	<20	No	No	No
4875	20 HANSARD STREET ZETLAND	Residential	50	48	49	0.3	<20	49	49	0.2	23	No	No	No

4876 22 HANSARD STREET ZETLAND	Residential	50	48	48	0.2	<20	48	48	0.2	22 No	No	No
4877 24 HANSARD STREET ZETLAND	Residential	50	47	47	0.3	<20	47	47	0.2	21 No	No	No
4878 26 HANSARD STREET ZETLAND	Residential	50	46	46	0.2	<20	47	47	0.1	<20 No	No	No
4879 28 HANSARD STREET ZETLAND	Residential	50	46	46	0.2	<20	47	47	0.1	<20 No	No	No
4880 28A HANSARD STREET ZETLAND	Residential	50	46	46	0.3	<20	46	47	0.2	<20 No	No	No
4881 30 HANSARD STREET ZETLAND	Residential	50	46	46	0.2	<20	46	46	0.1	<20 No	No	No
4882 32 HANSARD STREET ZETLAND	Residential	50	45	46	0.3	<20	46	46	0.2	<20 No	No	No
4883 32 HANSARD STREET ZETLAND	Residential	50	45	45	0.2	<20	46	46	0.3	<20 No	No	No
4884 34 HANSARD STREET ZETLAND	Residential	50	44	45	0.2	<20	45	45	0.3	<20 No	No	No
4885 32A HANSARD STREET ZETLAND	Residential	50	45	45	0.2	<20	45	45	0.3	<20 No	No	No
4886 36A HANSARD STREET ZETLAND	Residential	50	44	44	0.2	<20	45	45	0.3	<20 No	No	No
4887 36 HANSARD STREET ZETLAND	Residential	50	45	45	0.1	<20	46	46	0.1	<20 No	No	No
4893 1 HANSARD STREET ZETLAND	Residential	50	54	54	0.2	<20	54	54	0.1	22 No	No	No
4894 3 HANSARD STREET ZETLAND	Residential	50	53	53	0.2	<20	54	54	0.1	25 No	No	No
4895 5 HANSARD STREET ZETLAND	Residential	50	53	53	0.2	<20	53	53	0.1	24 No	No	No
4896 5A HANSARD STREET ZETLAND	Residential	50	52	52	0.3	<20	52	52	0.2	24 No	No	No
4897 7 HANSARD STREET ZETLAND	Residential	50	43	43	0.2	<20	44	44	0.1	<20 No	No	No
4898 9 HANSARD STREET ZETLAND	Residential	50	44	44	0.2	<20	44	44	0.1	23 No	No	No
4899 11-13 HANSARD STREET ZETLAND	Residential	50	49	50	0.3	<20	50	50	0.2	24 No	No	No
4900 11-13 HANSARD STREET ZETLAND	Residential	50	49	49	0.2	<20	50	50	0.1	24 No	No	No
4901 15 HANSARD STREET ZETLAND	Residential	50	44	44	0.2	<20	44	45	0.1	22 No	No	No
4902 15 HANSARD STREET ZETLAND	Residential	50	48	49	0.3	<20	49	49	0.2	24 No	No	No
4903 17 HANSARD STREET ZETLAND	Residential	50	44	44	0.1	<20	44	44	0.1	<20 No	No	No
4904 17 HANSARD STREET ZETLAND	Residential	50	43	43	0.2	<20	43	43	0.1	24 No	No	No
4905 19 HANSARD STREET ZETLAND	Residential	50	42	42	0.2	<20	42	43	0.1	21 No	No	No
4906 21 HANSARD STREET ZETLAND	Residential	50	44	45	0.2	<20	45	45	0.2	20 No	No	No
4907 23 HANSARD STREET ZETLAND	Residential	50	44	44	0.2	<20	44	45	0.2	20 No	No	No
4908 25 HANSARD STREET ZETLAND	Residential	50	44	44	0.2	<20	44	44	0.1	20 No	No	No
4909 27 HANSARD STREET ZETLAND	Residential	50	43	44	0.2	<20	44	44	0.1	<20 No	No	No
4910 29 HANSARD STREET ZETLAND	Residential	50	44	44	0.2	<20	45	45	0.1	<20 No	No	No
4911 31 HANSARD STREET ZETLAND	Residential	50	45	45	0.2	<20	45	46	0.1	22 No	No	No
4912 33 HANSARD STREET ZETLAND	Residential	50	45	45	0.2	<20	45	46	0.2	22 No	No	No
4913 35 HANSARD STREET ZETLAND	Residential	50	43	43	0.2	<20	44	44	0.1	<20 No	No	No
4914 37 HANSARD STREET ZETLAND	Residential	50	43	44	0.2	<20	44	44	0.2	<20 No	No	No
4915 39 HANSARD STREET ZETLAND	Residential	50	43	43	0.1	<20	43	44	0.2	<20 No	No	No
4916 41 HANSARD STREET ZETLAND	Residential	50	43	43	0.2	<20	43	43	0.2	<20 No	No	No
4917 43 HANSARD STREET ZETLAND	Residential	50	42	43	0.2	<20	43	43	0.1	<20 No	No	No
4918 45 HANSARD STREET ZETLAND	Residential	50	48	48	0.1	<20	48	48	0	<20 No	No	No
4919 47 HANSARD STREET ZETLAND	Residential	50	45	45	0.1	<20	45	45	0.1	<20 No	No	No
4920 49 HANSARD STREET ZETLAND	Residential	50	41	41	0	<20	41	41	0	<20 No	No	No
4921 51 HANSARD STREET ZETLAND	Residential	50	41	41	0.1	<20	41	41	0.1	<20 No	No	No
4922 53 HANSARD STREET ZETLAND	Residential	50	41	41	0.1	<20	41	41	0.1	<20 No	No	No
4923 55 HANSARD STREET ZETLAND	Residential	50	40	40	0	<20	40	40	0	<20 No	No	No
4924 57 HANSARD STREET ZETLAND	Residential	50	42	42	0	<20	42	42	0.1	<20 No	No	No
4925 59 HANSARD STREET ZETLAND	Residential	50	44	44	0	<20	45	45	0	<20 No	No	No
4927 1 JOYNTON AVENUE ZETLAND	Residential	50	54	54	0	<20	54	54	0	<20 No	No	No
4928 2 EPSOM ROAD ZETLAND	Residential	50	67	67	0	<20	68	68	0	<20 No	No	No
4929 4 EPSOM ROAD ZETLAND	Residential	50	63	63	0	<20	64	64	0	<20 No	No	No
4930 6 EPSOM ROAD ZETLAND	Residential	50	66	66	0	<20	66	66	0	<20 No	No	No
4931 8 EPSOM ROAD ZETLAND	Residential	50	65	65	0	<20	66	66	0	<20 No	No	No
4932 20 EPSOM ROAD ZETLAND	Residential	50	62	62	0	<20	63	63	0	<20 No	No	No
4933 18 EPSOM ROAD ZETLAND	Residential	50	63	63	0	<20	64	64	0	<20 No	No	No
4934 10-16 EPSOM ROAD ZETLAND	Residential	50	65	65	0	<20	65	65	0	<20 No	No	No
4935 22 EPSOM ROAD ZETLAND	Residential	50	64	64	0	<20	65	65	0	<20 No	No	No

4936 24 EPSOM ROAD ZETLAND	Residential	50	64	64	0	<20	64	64	0	<20	No	No	No
4937 26-30 EPSOM ROAD ZETLAND	Residential	50	48	48	0.1	<20	49	49	0.2	28	No	No	No
4938 26-30 EPSOM ROAD ZETLAND	Residential	50	66	66	0	<20	66	66	0	<20	No	No	No
4939 32 EPSOM ROAD ZETLAND	Residential	50	64	64	0	<20	64	64	0	<20	No	No	No
4940 34 EPSOM ROAD ZETLAND	Residential	50	63	63	0	<20	63	63	0	<20	No	No	No
4941 36 EPSOM ROAD ZETLAND	Residential	50	64	64	0	<20	64	64	0	<20	No	No	No
4942 38 EPSOM ROAD ZETLAND	Residential	50	63	63	0	<20	63	63	0	<20	No	No	No
4943 40 EPSOM ROAD ZETLAND	Residential	50	64	64	0	<20	65	65	0	<20	No	No	No
4944 42-44 EPSOM ROAD ZETLAND	Residential	50	64	64	0	<20	65	65	0	<20	No	No	No
4945 46 EPSOM ROAD ZETLAND	Residential	50	67	67	0	<20	67	67	0	<20	No	No	No
4977 1 MADDOX STREET ALEXANDRIA	Open active	0	49	49	0	<20	49	49	0.1	24	No	No	No
4978 53-57 MADDOX STREET ALEXANDRIA	Open active	0	47	47	0	<20	47	47	0.1	26	No	No	No
4980 1 MADDOX STREET ALEXANDRIA	Open active	0	54	54	0	<20	54	54	0	27	No	No	No
5031 151-163 WYNDHAM STREET ALEXANDRIA	Residential	50	39	39	-0.2	<20	40	40	-0.2	<20	No	No	No
5032 151-163 WYNDHAM STREET ALEXANDRIA	Residential	50	39	39	-0.1	<20	40	40	0	22	No	No	No
5038 240-250 WYNDHAM STREET ALEXANDRIA	Residential	50	49	49	0.3	<20	49	49	0.1	21	No	No	No
5039 1A MANDIBLE STREET ALEXANDRIA	Residential	50	58	58	0.4	<20	58	59	0.2	<20	No	No	No
5040 68A MCEVOY STREET ALEXANDRIA	Residential	50	50	50	0.4	<20	51	51	0.2	<20	No	No	No
5043 252 BOTANY ROAD ALEXANDRIA	Residential	50	69	69	0.3	<20	69	69	0.1	<20	No	No	No
5044 274A BOTANY ROAD ALEXANDRIA	Residential	50	70	71	0.3	<20	71	71	0.1	<20	No	No	No
5045 2 ALLEN STREET WATERLOO	Residential	50	66	66	0.4	<20	66	66	0.2	<20	No	No	No
5046 8 ALLEN STREET WATERLOO	Residential	50	43	43	0.3	<20	44	44	0.1	<20	No	No	No
5047 8 ALLEN STREET WATERLOO	Residential	50	51	52	0.4	<20	52	52	0.2	<20	No	No	No
5049 219-231 BOTANY ROAD WATERLOO	Residential	50	53	53	0.4	<20	53	53	0.2	<20	No	No	No
5050 8 ALLEN STREET WATERLOO	Residential	50	39	40	0.4	<20	40	40	0.2	<20	No	No	No
5051 356-368 GEORGE STREET WATERLOO	Residential	50	39	39	0.2	<20	39	39	0.1	<20	No	No	No
5052 356-368 GEORGE STREET WATERLOO	Residential	50	45	45	0.3	<20	45	46	0.1	<20	No	No	No
5053 356-368 GEORGE STREET WATERLOO	Residential	50	45	45	-0.1	<20	46	46	-0.1	22	No	No	No
5054 356-368 GEORGE STREET WATERLOO	Residential	50	51	51	0.2	<20	51	51	0.1	24	No	No	No
5055 233-235 BOTANY ROAD WATERLOO	Residential	50	66	66	0.4	<20	67	67	0.1	<20	No	No	No
5069 2-6 MANDIBLE STREET ALEXANDRIA	Residential	50	54	54	0	<20	54	54	-0.2	28	No	No	No
5070 4 MANDIBLE STREET ALEXANDRIA	Residential	50	50	50	0.4	<20	50	51	0.2	<20	No	No	No
5071 6 MANDIBLE STREET ALEXANDRIA	Residential	50	55	55	0.1	<20	56	56	0	28	No	No	No
5072 282-288 BOTANY ROAD ALEXANDRIA	Residential	50	71	71	0.4	<20	72	72	0.2	<20	No	No	No
5073 4 MANDIBLE STREET ALEXANDRIA	Residential	50	46	47	0.2	<20	47	47	0	<20	No	No	No
5089 370-376 GEORGE STREET WATERLOO	Residential	50	50	50	0.3	<20	50	51	0.1	23	No	No	No
5092 237-271 BOTANY ROAD WATERLOO	School	0	51	51	0.3	<20	51	51	0.1	<20	No	No	No
5093 237-271 BOTANY ROAD WATERLOO	School	0	49	50	0.4	<20	50	50	0.2	<20	No	No	No
5094 370-376 GEORGE STREET WATERLOO	Residential	50	55	55	-0.2	<20	55	55	-0.3	24	No	No	No
5101 848 ELIZABETH STREET WATERLOO	Residential	50	37	36	-0.2	<20	37	37	-0.2	<20	No	No	No
5102 856 ELIZABETH STREET WATERLOO	Residential	50	41	40	-0.3	<20	41	41	-0.3	<20	No	No	No
5103 11 HAWKSLEY STREET WATERLOO	Residential	50	32	32	-0.1	<20	33	33	-0.1	<20	No	No	No
5104 7 HAWKSLEY STREET WATERLOO	Residential	50	32	32	0	<20	33	33	-0.1	<20	No	No	No
5105 1 HAWKSLEY STREET WATERLOO	Residential	50	32	32	0	<20	32	32	0	<20	No	No	No
5106 1011 BOURKE STREET WATERLOO	Residential	50	52	52	-0.1	<20	53	53	-0.1	<20	No	No	No
5107 1007 BOURKE STREET WATERLOO	Residential	50	52	52	-0.1	<20	53	53	-0.1	<20	No	No	No
5108 1007 BOURKE STREET WATERLOO	Residential	50	51	50	-0.3	<20	51	51	-0.3	<20	No	No	No
5109 1003 BOURKE STREET WATERLOO	Residential	50	52	52	-0.1	<20	52	52	-0.1	<20	No	No	No
5110 1003 BOURKE STREET WATERLOO	Residential	50	52	52	-0.1	<20	52	52	-0.1	<20	No	No	No
5111 1001 BOURKE STREET WATERLOO	Residential	50	33	33	0.1	<20	34	34	0	<20	No	No	No
5112 999 BOURKE STREET WATERLOO	Residential	50	51	50	-0.2	<20	51	51	-0.2	<20	No	No	No
5116 8 KINGSBOROUGH WAY ZETLAND	Residential	50	47	47	-0.2	<20	48	47	-0.2	<20	No	No	No
5117 8 KINGSBOROUGH WAY ZETLAND	Residential	50	41	41	-0.1	<20	41	41	-0.1	<20	No	No	No
5122 932 BOURKE STREET ZETLAND	Worship	40	48	48	-0.3	<20	49	48	-0.3	<20	No	No	No

5123 930 BOURKE STREET ZETLAND	Residential	50	39	38	-0.1	<20	39	39	-0.1	<20 No	No	No
5124 924 BOURKE STREET ZETLAND	Residential	50	36	36	0	<20	37	37	0	<20 No	No	No
5125 920 BOURKE STREET ZETLAND	Residential	50	46	46	0.1	<20	46	47	0.2	<20 No	No	No
5126 914 BOURKE STREET ZETLAND	Residential	50	43	43	0	<20	43	43	0	<20 No	No	No
5127 922 BOURKE STREET ZETLAND	Residential	50	36	36	-0.1	<20	37	37	-0.1	<20 No	No	No
5128 932 BOURKE STREET ZETLAND	Residential	50	51	50	-0.3	<20	51	51	-0.3	<20 No	No	No
5129 924 BOURKE STREET ZETLAND	Residential	50	36	36	-0.1	<20	36	36	-0.1	<20 No	No	No
5130 908 BOURKE STREET ZETLAND	Residential	50	35	35	0	<20	35	35	0	<20 No	No	No
5131 1 MCPHERSON LANE ZETLAND	Residential	50	38	38	-0.1	<20	38	38	-0.1	<20 No	No	No
5132 1 LAMOND LANE ZETLAND	Residential	50	31	31	0	<20	31	32	0.5	<20 No	No	No
5133 8 KINGSBOROUGH WAY ZETLAND	Residential	50	38	37	-0.2	<20	38	38	-0.2	<20 No	No	No
5135 2-6 TILFORD STREET ZETLAND	Residential	50	34	34	-0.1	<20	34	34	0.1	<20 No	No	No
5137 1-9 WILLIAM STREET ALEXANDRIA	Residential	50	60	60	-0.3	<20	60	60	-0.3	29 No	No	No
5138 1-9 WILLIAM STREET ALEXANDRIA	Residential	50	57	57	-0.3	<20	58	57	-0.3	22 No	No	No
5139 9 WILLIAM STREET ALEXANDRIA	Residential	50	47	47	-0.2	<20	48	48	-0.2	21 No	No	No
5145 15-17 WILLIAM STREET ALEXANDRIA	Residential	50	46	46	-0.3	<20	47	47	-0.3	<20 No	No	No
5146 21-27 WILLIAM STREET ALEXANDRIA	Residential	50	49	48	-0.2	<20	49	49	-0.2	<20 No	No	No
5152 6D WILLIAM STREET BEACONSFIELD	Residential	50	45	45	-0.1	<20	45	45	0	<20 No	No	No
5155 13 GRANDSTAND PARADE ZETLAND	Residential	50	33	33	0	<20	34	34	0	<20 No	No	No
5156 30 GADIGAL AVENUE ZETLAND	Residential	50	34	34	-0.1	<20	34	34	-0.1	<20 No	No	No
5157 19 GRANDSTAND PARADE ZETLAND	Residential	50	42	42	0	<20	42	43	0.4	<20 No	No	No
5158 19 GRANDSTAND PARADE ZETLAND	Residential	50	42	42	0	<20	43	43	0.3	<20 No	No	No
5159 19 GRANDSTAND PARADE ZETLAND	Residential	50	43	43	0.1	<20	43	44	0.2	20 No	No	No
5160 7 VICTORIA PARK PARADE ZETLAND	Residential	50	40	40	0	<20	40	40	0	<20 No	No	No
5161 7 VICTORIA PARK PARADE ZETLAND	Residential	50	39	39	0	<20	39	39	0	<20 No	No	No
5162 7 VICTORIA PARK PARADE ZETLAND	Residential	50	35	35	0	<20	35	35	0	<20 No	No	No
5165 50 HANSARD STREET ZETLAND	Residential	50	46	46	0	<20	46	46	0	<20 No	No	No
5170 84 EPSOM ROAD ZETLAND	Residential	50	50	50	0	<20	50	50	0	<20 No	No	No
5171 1 DUNNING AVENUE ROSEBERY	Residential	50	65	65	0	<20	65	65	0	<20 No	No	No
5172 33 EPSOM ROAD ROSEBERY	Residential	50	65	65	0	<20	65	65	0	<20 No	No	No
5173 19 GRANDSTAND PARADE ZETLAND	Residential	50	42	42	0.1	<20	42	43	0.6	<20 No	No	No
5174 876 ELIZABETH STREET ZETLAND	Residential	50	47	47	-0.3	<20	48	48	-0.3	<20 No	No	No
5175 878 ELIZABETH STREET ZETLAND	Residential	50	46	46	-0.3	<20	47	47	-0.3	<20 No	No	No
5176 880 ELIZABETH STREET ZETLAND	Residential	50	45	45	-0.3	<20	46	45	-0.3	<20 No	No	No
5177 882 ELIZABETH STREET ZETLAND	Residential	50	45	44	-0.3	<20	45	45	-0.3	<20 No	No	No
5178 884 ELIZABETH STREET ZETLAND	Residential	50	44	44	-0.3	<20	45	45	-0.3	<20 No	No	No
5179 886 ELIZABETH STREET ZETLAND	Residential	50	44	44	-0.3	<20	45	44	-0.3	<20 No	No	No
5180 888 ELIZABETH STREET ZETLAND	Residential	50	44	44	-0.3	<20	44	44	-0.3	<20 No	No	No
5181 890 ELIZABETH STREET ZETLAND	Residential	50	43	43	-0.3	<20	44	43	-0.3	<20 No	No	No
5182 892 ELIZABETH STREET ZETLAND	Residential	50	42	42	-0.3	<20	43	43	-0.3	<20 No	No	No
5183 894 ELIZABETH STREET ZETLAND	Residential	50	42	42	-0.3	<20	43	42	-0.3	<20 No	No	No
5184 896 ELIZABETH STREET ZETLAND	Residential	50	41	40	-0.3	<20	41	41	-0.3	<20 No	No	No
5185 896A ELIZABETH STREET ZETLAND	Residential	50	40	40	-0.2	<20	41	40	-0.2	<20 No	No	No
5186 898 ELIZABETH STREET ZETLAND	Residential	50	40	40	-0.2	<20	40	40	-0.2	<20 No	No	No
5187 900 ELIZABETH STREET ZETLAND	Residential	50	40	39	-0.3	<20	40	40	-0.3	<20 No	No	No
5188 902 ELIZABETH STREET ZETLAND	Residential	50	40	40	-0.3	<20	41	41	-0.3	<20 No	No	No
5189 904 ELIZABETH STREET ZETLAND	Residential	50	40	40	-0.2	<20	40	40	-0.2	<20 No	No	No
5190 906 ELIZABETH STREET ZETLAND	Residential	50	40	39	-0.3	<20	40	40	-0.3	<20 No	No	No
5191 908 ELIZABETH STREET ZETLAND	Residential	50	38	38	-0.3	<20	39	38	-0.3	<20 No	No	No
5192 910 ELIZABETH STREET ZETLAND	Residential	50	38	38	-0.3	<20	38	38	-0.3	<20 No	No	No
5193 912A ELIZABETH STREET ZETLAND	Residential	50	39	38	-0.3	<20	39	39	-0.2	<20 No	No	No
5194 914 ELIZABETH STREET ZETLAND	Residential	50	38	38	-0.3	<20	39	39	-0.2	<20 No	No	No
5195 914A ELIZABETH STREET ZETLAND	Residential	50	38	38	-0.2	<20	39	38	-0.2	<20 No	No	No
5196 916 ELIZABETH STREET ZETLAND	Residential	50	38	38	-0.2	<20	38	38	-0.2	<20 No	No	No

5197 918 ELIZABETH STREET ZETLAND	Residential	50	38	37	-0.2	<20	38	38	-0.2	<20 No	No	No
5198 920 ELIZABETH STREET ZETLAND	Residential	50	37	37	-0.3	<20	38	37	-0.2	<20 No	No	No
5199 922 ELIZABETH STREET ZETLAND	Residential	50	37	36	-0.2	<20	37	37	-0.1	<20 No	No	No
5200 924 ELIZABETH STREET ZETLAND	Residential	50	36	36	-0.2	<20	37	37	-0.1	<20 No	No	No
5201 928 ELIZABETH STREET ZETLAND	Residential	50	34	34	-0.2	<20	35	35	0	<20 No	No	No
5202 934 ELIZABETH STREET ZETLAND	Residential	50	34	34	-0.2	<20	34	34	-0.1	<20 No	No	No
5203 936A ELIZABETH STREET ZETLAND	Residential	50	35	35	-0.2	<20	35	35	0.1	<20 No	No	No
5204 938 ELIZABETH STREET ZETLAND	Residential	50	35	35	-0.2	<20	35	35	0.1	<20 No	No	No
5205 938A ELIZABETH STREET ZETLAND	Residential	50	35	35	-0.2	<20	35	35	0.1	<20 No	No	No
5206 940 ELIZABETH STREET ZETLAND	Residential	50	35	35	-0.1	<20	35	35	0.1	<20 No	No	No
5207 940A ELIZABETH STREET ZETLAND	Residential	50	35	35	-0.1	<20	35	35	0.1	<20 No	No	No
5208 942B ELIZABETH STREET ZETLAND	Residential	50	35	35	-0.1	<20	35	35	0.1	<20 No	No	No
5209 942A ELIZABETH STREET ZETLAND	Residential	50	35	35	-0.1	<20	35	35	0	<20 No	No	No
5210 944 ELIZABETH STREET ZETLAND	Residential	50	35	35	-0.1	<20	35	35	0.1	<20 No	No	No
5211 944A ELIZABETH STREET ZETLAND	Residential	50	35	35	-0.1	<20	35	35	0	<20 No	No	No
5212 946 ELIZABETH STREET ZETLAND	Residential	50	35	35	-0.1	<20	35	35	0	<20 No	No	No
5213 948 ELIZABETH STREET ZETLAND	Residential	50	35	35	-0.1	<20	35	35	0	<20 No	No	No
5214 950 ELIZABETH STREET ZETLAND	Residential	50	35	34	-0.1	<20	35	35	0.2	<20 No	No	No
5215 952 ELIZABETH STREET ZETLAND	Residential	50	35	35	0	<20	35	36	0.5	<20 No	No	No
5216 956 ELIZABETH STREET ZETLAND	Residential	50	35	35	-0.1	<20	36	36	0.4	<20 No	No	No
5217 958 ELIZABETH STREET ZETLAND	Residential	50	36	36	0	<20	36	36	0.4	<20 No	No	No
5218 960 ELIZABETH STREET ZETLAND	Residential	50	35	35	-0.1	<20	36	36	0.3	<20 No	No	No
5219 962 ELIZABETH STREET ZETLAND	Residential	50	35	35	-0.1	<20	36	36	0.1	<20 No	No	No
5221 3 TILFORD STREET ZETLAND	Residential	50	34	34	-0.1	<20	34	34	0.1	<20 No	No	No
5222 5 TILFORD STREET ZETLAND	Residential	50	34	34	-0.1	<20	34	34	0	<20 No	No	No
5223 7 TILFORD STREET ZETLAND	Residential	50	34	33	-0.2	<20	34	34	0.1	<20 No	No	No
5224 9 TILFORD STREET ZETLAND	Residential	50	33	33	-0.1	<20	34	34	0	<20 No	No	No
5225 11 TILFORD STREET ZETLAND	Residential	50	33	33	-0.2	<20	34	34	0.1	<20 No	No	No
5226 13 TILFORD STREET ZETLAND	Residential	50	33	33	-0.1	<20	34	34	0	<20 No	No	No
5227 15 TILFORD STREET ZETLAND	Residential	50	33	33	-0.1	<20	33	33	0	<20 No	No	No
5228 17 TILFORD STREET ZETLAND	Residential	50	33	33	-0.1	<20	33	33	0.1	<20 No	No	No
5229 19 TILFORD STREET ZETLAND	Residential	50	33	32	-0.2	<20	33	33	0.1	<20 No	No	No
5230 21 TILFORD STREET ZETLAND	Residential	50	32	32	-0.1	<20	33	33	0	<20 No	No	No
5231 23 TILFORD STREET ZETLAND	Residential	50	32	32	-0.1	<20	33	33	0.1	<20 No	No	No
5232 25 TILFORD STREET ZETLAND	Residential	50	32	32	-0.1	<20	33	33	0	<20 No	No	No
5233 25A TILFORD STREET ZETLAND	Residential	50	32	32	-0.1	<20	33	33	0	<20 No	No	No
5234 27 TILFORD STREET ZETLAND	Residential	50	32	32	-0.1	<20	32	33	0.1	<20 No	No	No
5235 29 TILFORD STREET ZETLAND	Residential	50	32	32	-0.1	<20	32	32	0	<20 No	No	No
5236 31 TILFORD STREET ZETLAND	Residential	50	32	32	-0.1	<20	33	33	-0.1	<20 No	No	No
5237 35 TILFORD STREET ZETLAND	Residential	50	33	33	-0.1	<20	33	33	-0.1	<20 No	No	No
5238 37 TILFORD STREET ZETLAND	Residential	50	30	30	-0.1	<20	31	31	0	<20 No	No	No
5239 41 TILFORD STREET ZETLAND	Residential	50	29	28	-0.1	<20	29	29	-0.1	<20 No	No	No
5240 43 TILFORD STREET ZETLAND	Residential	50	29	29	-0.1	<20	30	29	-0.1	<20 No	No	No
5241 43 TILFORD STREET ZETLAND	Residential	50	30	30	-0.1	<20	30	30	-0.1	<20 No	No	No
5242 48 COOK LANE ZETLAND	Residential	50	30	30	-0.1	<20	30	30	-0.1	<20 No	No	No
5243 48 COOK LANE ZETLAND	Residential	50	31	31	0	<20	32	32	0	<20 No	No	No
5244 11 JOYNTON AVENUE ZETLAND	Residential	50	31	31	0	<20	32	32	0	<20 No	No	No
5245 11 JOYNTON AVENUE ZETLAND	Residential	50	33	33	-0.1	<20	34	34	-0.1	<20 No	No	No
5246 301 BOTANY ROAD ZETLAND	Residential	50	71	70	-0.5	<20	71	71	-0.5	<20 No	No	No
5254 739 ELIZABETH STREET ZETLAND	Residential	50	45	45	-0.3	<20	45	45	-0.3	<20 No	No	No
5255 741 ELIZABETH STREET ZETLAND	Residential	50	40	40	-0.4	<20	41	40	-0.4	<20 No	No	No
5256 743 ELIZABETH STREET ZETLAND	Residential	50	42	42	-0.3	<20	42	42	-0.3	<20 No	No	No
5257 745 ELIZABETH STREET ZETLAND	Residential	50	41	41	-0.3	<20	42	42	-0.3	<20 No	No	No
5258 747 ELIZABETH STREET ZETLAND	Residential	50	41	41	-0.3	<20	41	41	-0.3	<20 No	No	No

5259 747A ELIZABETH STREET ZETLAND	Residential	50	41	41	-0.3	<20	41	41	-0.3	<20 No	No	No
5260 749 ELIZABETH STREET ZETLAND	Residential	50	41	40	-0.3	<20	41	41	-0.3	<20 No	No	No
5261 751 ELIZABETH STREET ZETLAND	Residential	50	40	40	-0.3	<20	41	40	-0.3	<20 No	No	No
5262 755 ELIZABETH STREET ZETLAND	Residential	50	40	39	-0.3	<20	40	40	-0.3	<20 No	No	No
5264 765 ELIZABETH STREET ZETLAND	Residential	50	35	34	-0.3	<20	35	35	-0.3	<20 No	No	No
5265 769 ELIZABETH STREET ZETLAND	Residential	50	34	33	-0.2	<20	34	34	-0.2	<20 No	No	No
5266 771 ELIZABETH STREET ZETLAND	Residential	50	37	37	-0.3	<20	38	37	-0.2	<20 No	No	No
5267 771A ELIZABETH STREET ZETLAND	Residential	50	37	37	-0.2	<20	37	37	-0.2	<20 No	No	No
5268 771B ELIZABETH STREET ZETLAND	Residential	50	37	36	-0.3	<20	37	37	-0.2	<20 No	No	No
5269 773 ELIZABETH STREET ZETLAND	Residential	50	35	35	-0.3	<20	36	35	-0.3	<20 No	No	No
5270 775 ELIZABETH STREET ZETLAND	Residential	50	35	34	-0.2	<20	35	35	-0.2	<20 No	No	No
5271 777 ELIZABETH STREET ZETLAND	Residential	50	36	36	-0.2	<20	37	36	-0.2	<20 No	No	No
5272 779 ELIZABETH STREET ZETLAND	Residential	50	36	36	-0.2	<20	36	36	-0.1	<20 No	No	No
5274 787 ELIZABETH STREET ZETLAND	Residential	50	34	34	-0.2	<20	35	35	-0.1	<20 No	No	No
5275 789 ELIZABETH STREET ZETLAND	Residential	50	34	34	-0.2	<20	35	35	-0.1	<20 No	No	No
5276 791 ELIZABETH STREET ZETLAND	Residential	50	34	34	-0.1	<20	34	34	0	<20 No	No	No
5277 793 ELIZABETH STREET ZETLAND	Residential	50	34	34	-0.2	<20	34	34	-0.1	<20 No	No	No
5278 795 ELIZABETH STREET ZETLAND	Residential	50	34	33	-0.2	<20	34	34	0	<20 No	No	No
5283 805 ELIZABETH STREET ZETLAND	Residential	50	31	31	-0.1	<20	31	32	0.3	<20 No	No	No
5284 807 ELIZABETH STREET ZETLAND	Residential	50	32	32	0	<20	32	34	1.6	<20 No	No	No
5285 8 EBSWORTH STREET ZETLAND	Residential	50	70	69	-0.5	<20	70	70	-0.5	<20 No	No	No
5286 2 PORTMAN STREET ZETLAND	Residential	50	56	55	-0.5	<20	56	56	-0.5	<20 No	No	No
5287 4 PORTMAN STREET ZETLAND	Residential	50	54	54	-0.4	<20	55	54	-0.4	<20 No	No	No
5288 6 PORTMAN STREET ZETLAND	Residential	50	53	53	-0.4	<20	54	53	-0.4	<20 No	No	No
5289 8 PORTMAN STREET ZETLAND	Residential	50	52	52	-0.4	<20	53	52	-0.5	<20 No	No	No
5290 10 PORTMAN STREET ZETLAND	Residential	50	52	51	-0.4	<20	52	52	-0.4	<20 No	No	No
5291 12 PORTMAN STREET ZETLAND	Residential	50	51	50	-0.4	<20	51	51	-0.4	<20 No	No	No
5292 14 PORTMAN STREET ZETLAND	Residential	50	50	49	-0.4	<20	50	50	-0.4	<20 No	No	No
5293 16 PORTMAN STREET ZETLAND	Residential	50	49	49	-0.4	<20	49	49	-0.4	<20 No	No	No
5294 18 PORTMAN STREET ZETLAND	Residential	50	48	48	-0.3	<20	49	49	-0.3	<20 No	No	No
5295 20 PORTMAN STREET ZETLAND	Residential	50	48	47	-0.3	<20	48	48	-0.3	<20 No	No	No
5296 22 PORTMAN STREET ZETLAND	Residential	50	47	47	-0.4	<20	48	47	-0.4	<20 No	No	No
5297 24 PORTMAN STREET ZETLAND	Residential	50	47	46	-0.3	<20	47	47	-0.3	<20 No	No	No
5298 26 PORTMAN STREET ZETLAND	Residential	50	46	46	-0.4	<20	47	46	-0.4	<20 No	No	No
5299 28 PORTMAN STREET ZETLAND	Residential	50	46	45	-0.4	<20	46	46	-0.4	<20 No	No	No
5300 30 PORTMAN STREET ZETLAND	Residential	50	45	45	-0.4	<20	46	45	-0.4	<20 No	No	No
5301 32 PORTMAN STREET ZETLAND	Residential	50	45	44	-0.4	<20	45	45	-0.4	<20 No	No	No
5302 34 PORTMAN STREET ZETLAND	Residential	50	44	44	-0.4	<20	45	44	-0.4	<20 No	No	No
5303 36 PORTMAN STREET ZETLAND	Residential	50	44	44	-0.4	<20	44	44	-0.4	<20 No	No	No
5304 38 PORTMAN STREET ZETLAND	Residential	50	44	43	-0.3	<20	44	44	-0.3	<20 No	No	No
5305 40 PORTMAN STREET ZETLAND	Residential	50	43	43	-0.3	<20	44	43	-0.3	<20 No	No	No
5306 42 PORTMAN STREET ZETLAND	Residential	50	43	43	-0.3	<20	43	43	-0.3	<20 No	No	No
5307 44 PORTMAN STREET ZETLAND	Residential	50	43	42	-0.3	<20	43	43	-0.3	<20 No	No	No
5308 46 PORTMAN STREET ZETLAND	Residential	50	42	42	-0.3	<20	43	43	-0.3	<20 No	No	No
5309 48 PORTMAN STREET ZETLAND	Residential	50	42	42	-0.3	<20	43	42	-0.3	<20 No	No	No
5310 50 PORTMAN STREET ZETLAND	Residential	50	42	42	-0.4	<20	42	42	-0.3	<20 No	No	No
5311 52 PORTMAN STREET ZETLAND	Residential	50	42	41	-0.3	<20	42	42	-0.3	<20 No	No	No
5312 54 PORTMAN STREET ZETLAND	Residential	50	42	41	-0.4	<20	42	42	-0.2	<20 No	No	No
5313 54A PORTMAN STREET ZETLAND	Residential	50	41	41	-0.3	<20	42	42	-0.3	<20 No	No	No
5314 54B PORTMAN STREET ZETLAND	Residential	50	41	41	-0.3	<20	42	41	-0.3	<20 No	No	No
5315 56 PORTMAN STREET ZETLAND	Residential	50	41	41	-0.4	<20	42	41	-0.2	<20 No	No	No
5316 60 PORTMAN STREET ZETLAND	Residential	50	41	40	-0.3	<20	41	41	-0.3	<20 No	No	No
5317 58 PORTMAN STREET ZETLAND	Residential	50	41	41	-0.3	<20	41	41	-0.3	<20 No	No	No
5318 14 EBSWORTH STREET ZETLAND	Residential	50	71	70	-0.5	<20	71	71	-0.5	<20 No	No	No

5319 1 PORTMAN STREET ZETLAND	Residential	50	54	54	-0.4	<20	55	55	-0.4	<20 No	No	No
5320 3 PORTMAN STREET ZETLAND	Residential	50	54	53	-0.4	<20	54	54	-0.4	<20 No	No	No
5321 5 PORTMAN STREET ZETLAND	Residential	50	53	52	-0.4	<20	53	53	-0.4	<20 No	No	No
5322 7 PORTMAN STREET ZETLAND	Residential	50	52	51	-0.4	<20	52	52	-0.3	<20 No	No	No
5323 9 PORTMAN STREET ZETLAND	Residential	50	51	51	-0.4	<20	51	51	-0.4	<20 No	No	No
5324 11 PORTMAN STREET ZETLAND	Residential	50	51	51	-0.3	<20	52	51	-0.4	<20 No	No	No
5325 13 PORTMAN STREET ZETLAND	Residential	50	50	50	-0.4	<20	51	51	-0.4	<20 No	No	No
5326 15 PORTMAN STREET ZETLAND	Residential	50	50	49	-0.4	<20	50	50	-0.4	<20 No	No	No
5327 17 PORTMAN STREET ZETLAND	Residential	50	49	49	-0.4	<20	50	49	-0.4	<20 No	No	No
5328 19 PORTMAN STREET ZETLAND	Residential	50	49	48	-0.4	<20	49	49	-0.4	<20 No	No	No
5329 21 PORTMAN STREET ZETLAND	Residential	50	48	48	-0.4	<20	49	48	-0.4	<20 No	No	No
5330 23 PORTMAN STREET ZETLAND	Residential	50	47	47	-0.4	<20	48	48	-0.4	<20 No	No	No
5331 27A PORTMAN STREET ZETLAND	Residential	50	47	46	-0.3	<20	47	47	-0.3	<20 No	No	No
5332 29 PORTMAN STREET ZETLAND	Residential	50	46	46	-0.4	<20	47	46	-0.4	<20 No	No	No
5333 31 PORTMAN STREET ZETLAND	Residential	50	46	45	-0.3	<20	46	46	-0.3	<20 No	No	No
5334 33 PORTMAN STREET ZETLAND	Residential	50	45	45	-0.4	<20	46	45	-0.4	<20 No	No	No
5335 35 PORTMAN STREET ZETLAND	Residential	50	45	45	-0.3	<20	45	45	-0.3	<20 No	No	No
5336 37 PORTMAN STREET ZETLAND	Residential	50	44	44	-0.3	<20	45	45	-0.3	<20 No	No	No
5337 39 PORTMAN STREET ZETLAND	Residential	50	44	44	-0.3	<20	45	44	-0.3	<20 No	No	No
5338 41 PORTMAN STREET ZETLAND	Residential	50	44	43	-0.4	<20	44	44	-0.4	<20 No	No	No
5339 43 PORTMAN STREET ZETLAND	Residential	50	43	43	-0.3	<20	44	44	-0.3	<20 No	No	No
5340 45 PORTMAN STREET ZETLAND	Residential	50	43	43	-0.4	<20	44	43	-0.4	<20 No	No	No
5341 47 PORTMAN STREET ZETLAND	Residential	50	43	42	-0.4	<20	43	43	-0.4	<20 No	No	No
5342 49 PORTMAN STREET ZETLAND	Residential	50	42	42	-0.4	<20	43	43	-0.4	<20 No	No	No
5343 51 PORTMAN STREET ZETLAND	Residential	50	42	42	-0.3	<20	43	42	-0.3	<20 No	No	No
5344 53 PORTMAN STREET ZETLAND	Residential	50	42	42	-0.4	<20	42	42	-0.4	<20 No	No	No
5345 55 PORTMAN STREET ZETLAND	Residential	50	42	41	-0.3	<20	42	42	-0.3	<20 No	No	No
5346 55 PORTMAN STREET ZETLAND	Residential	50	41	41	-0.3	<20	42	42	-0.3	<20 No	No	No
5347 57 PORTMAN STREET ZETLAND	Residential	50	41	41	-0.3	<20	42	41	-0.3	<20 No	No	No
5348 59 PORTMAN STREET ZETLAND	Residential	50	41	41	-0.3	<20	41	41	-0.3	<20 No	No	No
5349 62 PORTMAN STREET ZETLAND	Residential	50	40	40	-0.2	<20	40	40	-0.2	<20 No	No	No
5350 64 PORTMAN STREET ZETLAND	Residential	50	40	39	-0.3	<20	40	40	-0.2	<20 No	No	No
5351 66 PORTMAN STREET ZETLAND	Residential	50	39	39	-0.2	<20	40	40	-0.2	<20 No	No	No
5352 68 PORTMAN STREET ZETLAND	Residential	50	39	39	-0.3	<20	40	40	-0.2	<20 No	No	No
5353 70 PORTMAN STREET ZETLAND	Residential	50	39	39	-0.2	<20	40	40	-0.2	<20 No	No	No
5354 72 PORTMAN STREET ZETLAND	Residential	50	39	39	-0.2	<20	40	40	0	<20 No	No	No
5355 74 PORTMAN STREET ZETLAND	Residential	50	39	39	-0.2	<20	40	40	0.2	<20 No	No	No
5356 76 PORTMAN STREET ZETLAND	Residential	50	40	39	-0.2	<20	40	40	0.4	<20 No	No	No
5357 78 PORTMAN STREET ZETLAND	Residential	50	40	40	-0.2	<20	40	41	0.7	<20 No	No	No
5358 80 PORTMAN STREET ZETLAND	Residential	50	40	40	-0.2	<20	40	41	1.1	<20 No	No	No
5359 82-84 PORTMAN STREET ZETLAND	Residential	50	40	40	-0.2	<20	40	41	1.1	<20 No	No	No
5360 82A PORTMAN STREET ZETLAND	Residential	50	40	39	-0.2	<20	40	41	1.2	<20 No	No	No
5361 84 PORTMAN STREET ZETLAND	Residential	50	40	39	-0.1	<20	40	41	1.2	<20 No	No	No
5362 84A PORTMAN STREET ZETLAND	Residential	50	40	39	-0.1	<20	40	41	1.3	<20 No	No	No
5363 86 PORTMAN STREET ZETLAND	Residential	50	39	39	-0.1	<20	40	41	1.3	<20 No	No	No
5364 88 PORTMAN STREET ZETLAND	Residential	50	39	39	-0.1	<20	40	41	1.4	<20 No	No	No
5365 90 PORTMAN STREET ZETLAND	Residential	50	39	39	-0.1	<20	39	41	1.5	<20 No	No	No
5366 92 PORTMAN STREET ZETLAND	Residential	50	39	39	0	<20	40	41	1.5	<20 No	No	No
5367 94 PORTMAN STREET ZETLAND	Residential	50	40	40	0.1	<20	40	42	1.4	<20 No	No	No
5368 61 PORTMAN STREET ZETLAND	Residential	50	38	38	0	<20	39	40	1.7	<20 No	No	No
5369 63 PORTMAN STREET ZETLAND	Residential	50	41	41	0.1	<20	41	42	1.1	<20 No	No	No
5370 65 PORTMAN STREET ZETLAND	Residential	50	42	43	0.2	<20	43	44	0.9	<20 No	No	No
5371 67 PORTMAN STREET ZETLAND	Residential	50	44	44	0.2	<20	44	45	0.7	<20 No	No	No
5372 69 PORTMAN STREET ZETLAND	Residential	50	45	45	0.1	<20	45	46	0.5	<20 No	No	No

5373 71 PORTMAN STREET ZETLAND	Residential	50	46	46	0.1	<20	46	47	0.5	<20 No	No	No
5374 75 PORTMAN STREET ZETLAND	Residential	50	46	46	0.1	<20	46	47	0.6	<20 No	No	No
5375 73 PORTMAN STREET ZETLAND	Residential	50	46	46	0.1	<20	46	47	0.5	<20 No	No	No
5376 8 EBSWORTH STREET ZETLAND	Residential	50	53	53	-0.2	<20	54	53	-0.3	<20 No	No	No
5377 28 EBSWORTH STREET ZETLAND	Residential	50	52	52	0.2	<20	53	53	0.1	26 No	No	No
5378 28 EBSWORTH STREET ZETLAND	Residential	50	51	51	0.2	<20	52	52	0.1	26 No	No	No
5380 75 QUEEN STREET BEACONSFIELD	Residential	50	47	47	0.1	<20	47	47	0.1	22 No	No	No
5381 77 QUEEN STREET BEACONSFIELD	Residential	50	42	42	0.2	<20	42	42	0.2	21 No	No	No
5382 79 QUEEN STREET BEACONSFIELD	Residential	50	42	42	0.2	<20	42	43	0.2	21 No	No	No
5383 81 QUEEN STREET BEACONSFIELD	Residential	50	42	42	0.2	<20	43	43	0.2	21 No	No	No
5384 81A QUEEN STREET BEACONSFIELD	Residential	50	42	42	0.1	<20	43	43	0.2	21 No	No	No
5385 83 QUEEN STREET BEACONSFIELD	Residential	50	42	43	0.2	<20	43	43	0.2	20 No	No	No
5386 85 QUEEN STREET BEACONSFIELD	Residential	50	43	43	0.1	<20	43	43	0.1	20 No	No	No
5387 89 QUEEN STREET BEACONSFIELD	Residential	50	43	43	0.2	<20	43	43	0.2	20 No	No	No
5388 91 QUEEN STREET BEACONSFIELD	Residential	50	43	43	0.2	<20	43	43	0.2	20 No	No	No
5389 93 QUEEN STREET BEACONSFIELD	Residential	50	43	43	0.2	<20	43	43	0.1	20 No	No	No
5390 95 QUEEN STREET BEACONSFIELD	Residential	50	43	43	0.2	<20	43	43	0.2	20 No	No	No
5391 97 QUEEN STREET BEACONSFIELD	Residential	50	43	43	0.2	<20	43	43	0.2	<20 No	No	No
5392 99 QUEEN STREET BEACONSFIELD	Residential	50	43	43	0.2	<20	43	43	0.2	<20 No	No	No
5393 101 QUEEN STREET BEACONSFIELD	Residential	50	44	44	0.2	<20	45	45	0.3	20 No	No	No
5394 105 QUEEN STREET BEACONSFIELD	Residential	50	42	43	0.2	<20	43	43	0.3	<20 No	No	No
5395 107 QUEEN STREET BEACONSFIELD	Residential	50	43	43	0.2	<20	43	43	0.3	<20 No	No	No
5396 109 QUEEN STREET BEACONSFIELD	Residential	50	43	43	0.2	<20	43	43	0.2	<20 No	No	No
5397 117 QUEEN STREET BEACONSFIELD	Residential	50	43	43	0.2	<20	43	43	0.2	<20 No	No	No
5398 117 QUEEN STREET BEACONSFIELD	Residential	50	42	43	0.2	<20	43	43	0.2	<20 No	No	No
5399 119 QUEEN STREET BEACONSFIELD	Residential	50	42	43	0.2	<20	43	43	0.2	<20 No	No	No
5400 121 QUEEN STREET BEACONSFIELD	Residential	50	43	43	0.1	<20	43	43	0.2	<20 No	No	No
5401 123 QUEEN STREET BEACONSFIELD	Residential	50	43	43	0.2	<20	43	43	0.2	<20 No	No	No
5402 123B QUEEN STREET BEACONSFIELD	Residential	50	42	43	0.2	<20	43	43	0.2	<20 No	No	No
5403 125 QUEEN STREET BEACONSFIELD	Residential	50	42	43	0.2	<20	43	43	0.3	<20 No	No	No
5406 139A QUEEN STREET BEACONSFIELD	Residential	50	42	43	0.2	<20	43	43	0.2	<20 No	No	No
5407 141 QUEEN STREET BEACONSFIELD	Residential	50	42	43	0.2	<20	43	43	0.2	<20 No	No	No
5408 143 QUEEN STREET BEACONSFIELD	Residential	50	43	43	0.2	<20	43	43	0.2	<20 No	No	No
5409 145 QUEEN STREET BEACONSFIELD	Residential	50	43	43	0.2	<20	43	43	0.2	<20 No	No	No
5411 9C COLLINS STREET BEACONSFIELD	Residential	50	47	47	0.1	<20	47	47	0.2	<20 No	No	No
5412 88 VICTORIA STREET BEACONSFIELD	Residential	50	49	49	0.2	<20	50	50	0.2	23 No	No	No
5413 90 VICTORIA STREET BEACONSFIELD	Residential	50	49	49	0.1	<20	49	50	0.3	23 No	No	No
5414 92 VICTORIA STREET BEACONSFIELD	Residential	50	49	49	0.2	<20	49	49	0.2	23 No	No	No
5415 94 VICTORIA STREET BEACONSFIELD	Residential	50	46	46	0.1	<20	47	47	0.2	22 No	No	No
5416 96 VICTORIA STREET BEACONSFIELD	Residential	50	44	44	0.2	<20	45	45	0.2	22 No	No	No
5417 98 VICTORIA STREET BEACONSFIELD	Residential	50	44	44	0.2	<20	44	44	0.3	22 No	No	No
5418 100 VICTORIA STREET BEACONSFIELD	Residential	50	43	44	0.2	<20	44	44	0.3	22 No	No	No
5419 102 VICTORIA STREET BEACONSFIELD	Residential	50	43	43	0.2	<20	44	44	0.2	22 No	No	No
5420 104 VICTORIA STREET BEACONSFIELD	Residential	50	43	43	0.2	<20	44	44	0.2	22 No	No	No
5421 106 VICTORIA STREET BEACONSFIELD	Residential	50	43	43	0.2	<20	44	44	0.2	22 No	No	No
5422 108 VICTORIA STREET BEACONSFIELD	Residential	50	43	43	0.2	<20	44	44	0.2	22 No	No	No
5423 110 VICTORIA STREET BEACONSFIELD	Residential	50	43	43	0.2	<20	44	44	0.2	21 No	No	No
5424 112 VICTORIA STREET BEACONSFIELD	Residential	50	43	43	0.2	<20	44	44	0.2	21 No	No	No
5425 114 VICTORIA STREET BEACONSFIELD	Residential	50	43	43	0.2	<20	44	44	0.2	21 No	No	No
5426 116 VICTORIA STREET BEACONSFIELD	Residential	50	43	44	0.2	<20	44	44	0.3	21 No	No	No
5427 118 VICTORIA STREET BEACONSFIELD	Residential	50	44	44	0.2	<20	44	44	0.3	21 No	No	No
5428 120 VICTORIA STREET BEACONSFIELD	Residential	50	44	44	0.2	<20	44	45	0.2	21 No	No	No
5429 122 VICTORIA STREET BEACONSFIELD	Residential	50	44	44	0.2	<20	44	45	0.3	21 No	No	No
5431 128 VICTORIA STREET BEACONSFIELD	Residential	50	44	45	0.2	<20	45	45	0.2	21 No	No	No

5432 130 VICTORIA STREET BEACONSFIELD	Residential	50	45	45	0.2	<20	45	45	0.3	21 No	No	No
5433 132 VICTORIA STREET BEACONSFIELD	Residential	50	45	45	0.2	<20	45	45	0.3	20 No	No	No
5434 134 VICTORIA STREET BEACONSFIELD	Residential	50	45	45	0.2	<20	45	46	0.2	20 No	No	No
5435 136 VICTORIA STREET BEACONSFIELD	Residential	50	45	45	0.3	<20	46	46	0.2	20 No	No	No
5436 138 VICTORIA STREET BEACONSFIELD	Residential	50	45	45	0.2	<20	46	46	0.2	20 No	No	No
5437 140 VICTORIA STREET BEACONSFIELD	Residential	50	45	45	0.2	<20	46	46	0.3	<20 No	No	No
5438 142 VICTORIA STREET BEACONSFIELD	Residential	50	45	46	0.2	<20	46	46	0.3	<20 No	No	No
5439 144 VICTORIA STREET BEACONSFIELD	Residential	50	46	46	0.2	<20	46	46	0.3	<20 No	No	No
5440 146 VICTORIA STREET BEACONSFIELD	Residential	50	46	46	0.3	<20	46	46	0.2	<20 No	No	No
5441 148 VICTORIA STREET BEACONSFIELD	Residential	50	45	46	0.3	<20	46	46	0.3	<20 No	No	No
5442 150 VICTORIA STREET BEACONSFIELD	Residential	50	45	45	0.3	<20	46	46	0.2	<20 No	No	No
5443 152 VICTORIA STREET BEACONSFIELD	Residential	50	45	45	0.2	<20	45	46	0.2	<20 No	No	No
5444 154 VICTORIA STREET BEACONSFIELD	Residential	50	45	45	0.2	<20	45	45	0.3	<20 No	No	No
5445 156 VICTORIA STREET BEACONSFIELD	Residential	50	44	45	0.3	<20	45	45	0.2	<20 No	No	No
5446 158 VICTORIA STREET BEACONSFIELD	Residential	50	44	45	0.3	<20	45	45	0.3	<20 No	No	No
5447 160 VICTORIA STREET BEACONSFIELD	Residential	50	44	44	0.2	<20	45	45	0.2	<20 No	No	No
5448 162 VICTORIA STREET BEACONSFIELD	Residential	50	44	44	0.2	<20	44	45	0.3	<20 No	No	No
5449 164 VICTORIA STREET BEACONSFIELD	Residential	50	44	44	0.2	<20	44	45	0.2	<20 No	No	No
5450 166 VICTORIA STREET BEACONSFIELD	Residential	50	44	44	0.2	<20	44	44	0.2	<20 No	No	No
5451 168 VICTORIA STREET BEACONSFIELD	Residential	50	43	44	0.2	<20	44	44	0.2	<20 No	No	No
5452 170 VICTORIA STREET BEACONSFIELD	Residential	50	43	43	0.2	<20	44	44	0.2	<20 No	No	No
5453 172 VICTORIA STREET BEACONSFIELD	Residential	50	43	43	0.2	<20	44	44	0.2	<20 No	No	No
5454 174-176 VICTORIA STREET BEACONSFIELD	Residential	50	46	46	0.2	<20	47	47	0.2	<20 No	No	No
5455 174-176 VICTORIA STREET BEACONSFIELD	Residential	50	49	49	0.2	<20	50	50	0.3	<20 No	No	No
5456 54-98 QUEEN STREET BEACONSFIELD	Open active	0	41	41	-0.2	<20	41	41	-0.1	<20 No	No	No
5457 91 VICTORIA STREET BEACONSFIELD	Residential	50	52	52	0.1	<20	52	53	0.3	<20 No	No	No
5458 95 VICTORIA STREET BEACONSFIELD	Residential	50	41	42	0.2	<20	42	42	0.2	<20 No	No	No
5459 95 VICTORIA STREET BEACONSFIELD	Residential	50	42	42	0.2	<20	42	42	0.2	<20 No	No	No
5460 97 VICTORIA STREET BEACONSFIELD	Residential	50	41	42	0.2	<20	42	42	0.2	<20 No	No	No
5461 99 VICTORIA STREET BEACONSFIELD	Residential	50	41	41	0.1	<20	42	42	0.3	<20 No	No	No
5462 101 VICTORIA STREET BEACONSFIELD	Residential	50	41	41	0.2	<20	42	42	0.2	<20 No	No	No
5463 103 VICTORIA STREET BEACONSFIELD	Residential	50	41	41	0.2	<20	42	42	0.2	<20 No	No	No
5464 105 VICTORIA STREET BEACONSFIELD	Residential	50	41	41	0.1	<20	42	42	0.2	<20 No	No	No
5465 107 VICTORIA STREET BEACONSFIELD	Residential	50	41	41	0.1	<20	42	42	0.2	<20 No	No	No
5466 109 VICTORIA STREET BEACONSFIELD	Residential	50	41	41	0.2	<20	42	42	0.2	<20 No	No	No
5467 111 VICTORIA STREET BEACONSFIELD	Residential	50	41	41	0.1	<20	42	42	0.2	<20 No	No	No
5468 113 VICTORIA STREET BEACONSFIELD	Residential	50	41	41	0.2	<20	42	42	0.2	<20 No	No	No
5469 115 VICTORIA STREET BEACONSFIELD	Residential	50	44	44	0.2	<20	45	45	0.2	<20 No	No	No
5470 115 VICTORIA STREET BEACONSFIELD	Residential	50	44	44	0.2	<20	45	45	0.2	<20 No	No	No
5471 117 VICTORIA STREET BEACONSFIELD	Residential	50	44	44	0.2	<20	45	45	0.3	<20 No	No	No
5472 119 VICTORIA STREET BEACONSFIELD	Residential	50	44	44	0.2	<20	45	45	0.2	<20 No	No	No
5473 119 VICTORIA STREET BEACONSFIELD	Residential	50	44	44	0.3	<20	45	45	0.3	<20 No	No	No
5474 123 VICTORIA STREET BEACONSFIELD	Residential	50	44	44	0.2	<20	45	45	0.3	<20 No	No	No
5475 125 VICTORIA STREET BEACONSFIELD	Residential	50	44	45	0.3	<20	45	45	0.3	<20 No	No	No
5476 127 VICTORIA STREET BEACONSFIELD	Residential	50	41	42	0.2	<20	42	42	0.3	<20 No	No	No
5477 129 VICTORIA STREET BEACONSFIELD	Residential	50	42	42	0.1	<20	42	42	0.3	<20 No	No	No
5478 131 VICTORIA STREET BEACONSFIELD	Residential	50	41	42	0.2	<20	42	42	0.2	<20 No	No	No
5479 133 VICTORIA STREET BEACONSFIELD	Residential	50	42	42	0.1	<20	42	43	0.3	<20 No	No	No
5480 135 VICTORIA STREET BEACONSFIELD	Residential	50	42	42	0.2	<20	43	43	0.2	<20 No	No	No
5481 137 VICTORIA STREET BEACONSFIELD	Residential	50	43	43	0.2	<20	43	44	0.2	<20 No	No	No
5482 139 VICTORIA STREET BEACONSFIELD	Residential	50	44	44	0.2	<20	44	45	0.3	<20 No	No	No
5483 141 VICTORIA STREET BEACONSFIELD	Residential	50	45	45	0.2	<20	45	45	0.2	<20 No	No	No
5484 143 VICTORIA STREET BEACONSFIELD	Residential	50	45	45	0.2	<20	45	46	0.2	<20 No	No	No
5485 145 VICTORIA STREET BEACONSFIELD	Residential	50	45	45	0.2	<20	46	46	0.3	<20 No	No	No

Green Square to Ashmore Precinct Connector Road - Night-time Noise Impacts

5486 147 VICTORIA STREET BEACONSFIELD	Residential	50	45	45	0.2	<20	46	46	0.2	<20	No	No	No
5487 149 VICTORIA STREET BEACONSFIELD	Residential	50	45	46	0.2	<20	46	46	0.2	<20	No	No	No
5488 151 VICTORIA STREET BEACONSFIELD	Residential	50	46	46	0.2	<20	46	46	0.2	<20	No	No	No
5489 155 VICTORIA STREET BEACONSFIELD	Residential	50	46	46	0.2	<20	47	47	0.3	<20	No	No	No
5490 9 COLLINS STREET BEACONSFIELD	Residential	50	53	53	0.1	<20	53	53	0.2	<20	No	No	No
5491 1 COLLINS STREET BEACONSFIELD	Residential	50	55	55	0.2	<20	55	55	0.2	<20	No	No	No
5492 3 COLLINS STREET BEACONSFIELD	Residential	50	54	54	0.2	<20	55	55	0.2	<20	No	No	No
5493 5 COLLINS STREET BEACONSFIELD	Residential	50	54	54	0.2	<20	54	55	0.3	<20	No	No	No
5494 7 COLLINS STREET BEACONSFIELD	Residential	50	53	53	0.2	<20	54	54	0.3	<20	No	No	No
5496 416 BOTANY ROAD BEACONSFIELD	Residential	50	72	72	0.1	<20	72	72	0.3	<20	No	No	No
5497 418 BOTANY ROAD BEACONSFIELD	Residential	50	72	72	0.1	<20	72	72	0.3	<20	No	No	No
5498 420 BOTANY ROAD BEACONSFIELD	Residential	50	72	72	0.1	<20	72	72	0.3	<20	No	No	No
5510 450 BOTANY ROAD BEACONSFIELD	Residential	50	69	69	0.1	<20	69	69	0.2	<20	No	No	No
5511 452 BOTANY ROAD BEACONSFIELD	Residential	50	69	69	0.1	<20	70	70	0.3	<20	No	No	No
5512 454 BOTANY ROAD BEACONSFIELD	Residential	50	70	70	0.1	<20	70	70	0.3	<20	No	No	No
5513 454A BOTANY ROAD BEACONSFIELD	Residential	50	70	70	0.1	<20	70	70	0.2	<20	No	No	No
5514 456 BOTANY ROAD BEACONSFIELD	Residential	50	70	70	0.1	<20	70	70	0.3	<20	No	No	No
5515 458 BOTANY ROAD BEACONSFIELD	Residential	50	70	70	0.1	<20	70	70	0.2	<20	No	No	No
5516 460 BOTANY ROAD BEACONSFIELD	Residential	50	70	70	0.1	<20	70	71	0.3	<20	No	No	No
5517 462 BOTANY ROAD BEACONSFIELD	Residential	50	70	70	0.1	<20	70	71	0.3	<20	No	No	No
5518 464 BOTANY ROAD BEACONSFIELD	Residential	50	70	70	0.1	<20	70	71	0.2	<20	No	No	No
5519 466 BOTANY ROAD BEACONSFIELD	Residential	50	70	70	0.1	<20	70	71	0.2	<20	No	No	No
5520 468 BOTANY ROAD BEACONSFIELD	Residential	50	70	70	0.1	<20	70	71	0.3	<20	No	No	No
5521 470 BOTANY ROAD BEACONSFIELD	Residential	50	70	70	0.1	<20	70	71	0.3	<20	No	No	No
5522 472 BOTANY ROAD BEACONSFIELD	Residential	50	70	70	0.1	<20	70	71	0.3	<20	No	No	No
5523 474 BOTANY ROAD BEACONSFIELD	Residential	50	70	70	0.1	<20	70	71	0.3	<20	No	No	No
5524 476 BOTANY ROAD BEACONSFIELD	Residential	50	70	70	0.1	<20	70	71	0.3	<20	No	No	No
5525 478 BOTANY ROAD BEACONSFIELD	Residential	50	70	70	0.1	<20	70	71	0.3	<20	No	No	No
5526 480 BOTANY ROAD BEACONSFIELD	Residential	50	70	70	0.1	<20	70	71	0.3	<20	No	No	No
5527 482 BOTANY ROAD BEACONSFIELD	Residential	50	70	70	0.1	<20	70	71	0.3	<20	No	No	No
5528 484 BOTANY ROAD BEACONSFIELD	Residential	50	70	70	0.1	<20	70	71	0.2	<20	No	No	No
5540 651 BOTANY ROAD ROSEBERY	Residential	50	70	70	0.3	<20	71	71	0.2	<20	No	No	No
5545 14 CRESSY STREET ROSEBERY	Residential	50	47	47	0.1	<20	47	47	0.2	21	No	No	No
5549 2 ROTHSCHILD AVENUE ROSEBERY	Residential	50	49	49	0.1	<20	49	49	0.1	<20	No	No	No
5550 4A ROTHSCHILD AVENUE ROSEBERY	Residential	50	53	53	0	<20	53	53	0	<20	No	No	No
5552 105-115 PORTMAN STREET ZETLAND	Residential	50	47	47	0.1	<20	48	48	0.1	<20	No	No	No
5553 23 GEDDES AVENUE ZETLAND	Residential	50	53	53	0	<20	57	62	4.7	33	Yes	No	Yes
5554 50 HANSARD STREET ZETLAND	Residential	50	48	48	0	<20	48	48	0	<20	No	No	No
5555 147 WYNDHAM STREET ALEXANDRIA	Residential	50	35	35	-0.2	<20	36	35	-0.2	<20	No	No	No
5556 84 EPSOM ROAD ZETLAND	Residential	50	63	63	0	<20	63	63	0	<20	No	No	No
9656 377-495 BOTANY ROAD ZETLAND	Residential	50	56	56	0	<20	56	59	2.9	36	Yes	No	Yes
9658 811 ELIZABETH STREET ZETLAND	Residential	50	46	46	0.1	<20	46	47	0.6	<20	No	No	No

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Acoustics
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GREEN SQUARE TO ASHMORE CONNECTOR ROAD - REVIEW OF ENVIRONMENTAL FACTORS

Noise and Vibration Assessment

27 September 2017

City of Sydney Council

TG980-02F02 GS2AC Acoustic Assessment (r1)

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Contents

List of tables

List of figures

1 Introduction

The City of Sydney ('City') is working on the delivery of the proposed Green Square to Ashmore Connector ('GS2AC') Road from Botany Road to Bowden Street in Alexandria to improve road and transport access to the Green Square Town Centre ('GSTC'), a planned major centre in the City of Sydney Local Government Area ('LGA'). The GS2AC has long been considered a viable road and transport outcome for the area and is consistent with *Sustainable Sydney 2030*.

Key elements of the 450 m long road include two vehicle travel lanes and tie-works in Bowden Street, two new signalised intersections and ancillary signal upgrades, bi-directional cycle lane, kerbside parking, landscaping and public domain treatments, lighting and signage as well as bus stops for future servicing requirements.

The project also provides an opportunity to undertake the sustainable renewal of the residue lands generated by the GS2AC which may include future affordable housing and mixed employment generating uses. The City is committed to providing two affordable housing developments on either side of the proposed road between Botany Road and O'Riordan Street.

The City proposes to commence construction of the GS2AC in 2019, with opening of the road to occur in 2020.

The project is being assessed under Part 5 of the NSW Environmental Planning and Assessment Act and a Review of Environmental Factors ('REF') has been prepared to assess key engineering, environmental and planning issues affecting the design, construction and operation of the road.

The City has engaged Renzo Tonin & Associates ('RT&A') to undertake a construction and operational noise and vibration assessment as a part of the preparation of the REF. This report presents an assessment of construction and operational noise and vibration on the nearest most potentially affected receivers to the project.

The assessment has been prepared on accordance with the various noise and vibration requirements of the following:

- NSW Environmental Protection Authority ('EPA') *Interim Construction Noise Guideline* ('ICNG'),
- Department of Environment and Conservation ('DEC') NSW *Assessing Vibration: A Technical Guideline*,
- DIN4150 *Structural vibration - Effects of vibration on structures*, and
- NSW *Road Noise Policy* ('RNP').

It is noted that DEC publications may be found in the Office of Environment & Heritage ('OEH').

The work documented in this report was carried out in accordance with the Renzo Tonin & Associates Quality Assurance System, which is based on Australian Standard / NZS ISO 9001. APPENDIX A contains a glossary of acoustic terms used in this report.

2 Project overview

2.1 Project proposal

The City is working on the project delivery of the GS2AC which is a proposed new road that will improve access to the GSTC. The GS2AC is approximately 450 m long and 20 m wide, and will connect Botany Road to Bowden Street through O'Riordan Street, just south of the Green Square Railway Station ('GSRS'). Figure 1 and Figure 2 present the location of the GS2AC.

Figure 1: Location of GS2AC (Source: City of Sydney)

Figure 2: Location of GS2AC

2.2 Relevant policies and guidelines

The following policies and guidelines have been used in the assessment:

- ICNG,
- Assessing Vibration: A Technical Guideline,
- NSW RNP,
- State Environmental Planning Policy (Infrastructure) 2007 ('ISEPP'), and
- Development near Rail Corridors and Busy Road-Interim Guideline.

The above policies and guidelines have been addressed in this report as follows:

Policy or Guideline	Assessment outline	Report section
ICNG	Assessment of noise during the excavation and construction phase of the development and its potential impact on surrounding development	Section 5
Assessing Vibration: A Technical Guideline	The primary potential for vibration impact generated by the development is during the excavation and construction phase.	Section 5
RNP	Assessment of the operational road traffic noise generated by the development and its potential impact on surrounding development	Section 6
ISEPP	Discussion of implications for future noise sensitive development surrounding the GS2AC corridor	Section 6
Development Near Rail Corridors and Busy Road-Interim Guideline	Supporting guideline for the State Environmental Planning Policy – Infrastructure 2007	Section 6

2.3 Scope of assessment

The following sets out the primary acoustic consideration for the project along with the sections of this report in which they are discussed.

Acoustic consideration	Report section
Construction noise and vibration	Section 5
Operational road traffic noise assessment	Section 6

3 Nearest noise and vibration sensitive receivers

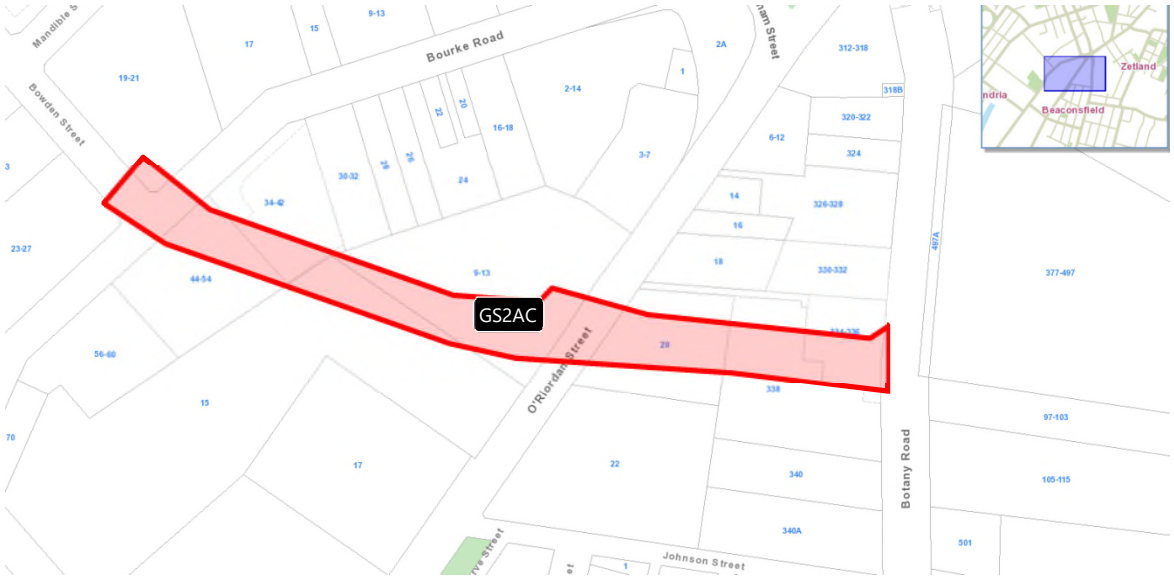
The nearest potentially affected receivers to construction and operational noise associated with the GS2AC development are presented in Table 1 and graphically in Figure 3. Figure 4 presents the cadastral areas and property addresses surrounding the GS2AC.

Table 1: Nearest receivers

Receiver Type	Receiver ID	Receiver location
Residential land uses	R1a	Victoria Street, Alexandria
	R1b	Queen Street, Alexandria
	R2	16 O'Riordan Street, Alexandria
Commercial premises	C1	9-13 O'Riordan Street, Alexandria
	C2	17 O'Riordan Street, Alexandria
	C3	18 O'Riordan Street, Alexandria
	C4	22 O'Riordan Street, Alexandria
	C5	34-42 Bourke Road, Alexandria
	C6	19-21 Bourke Road, Alexandria
	C7	23-37 Bourke Road, Alexandria
	C8	56-60 Bourke Road, Alexandria
Other sensitive development	O1	Airport rail tunnel

Figure 3: Nearest receiver locations

Figure 4: Cadastral areas and property addresses



Note is made that the nearest existing residences are located approximately 70m away along Queen Street to the south and the completed 7-storey ValueSuites Green Square at 16 O'Riordan Street to the north. Residences along Queen Street are shielded from the GS2AC by the commercial premises at 22 O'Riordan Street and assessment to these residences is not warranted due to the significant acoustic shielding provided by the intervening buildings.

Future affordable housing is proposed towards the eastern extents of the GS2AC and is permissible with consent in the proposed B7 Business Park Zone. In particular, the area encapsulated by 20-22 O'Riordan Street and 334-338 Botany Road is under consideration for affordable housing. It has been assumed in this assessment that, with the exception of one possible completed affordable housing development, future residences will be constructed following completion of the GS2AC.

Based on the above, this report has not included an assessment of excavation and construction noise upon future residential premises. However, for indicative noise levels, predictions made at commercial receiver C4 could be referred to. Predictions at future residential premises should be carried out for the detailed design and preparation of the Construction Noise and Vibration Management Plan ('CNVMP') for the project. With regard to operational noise upon future residential land uses, future development will need to be assessed in accordance with the ISEPP, however a brief assessment has been included to provide an indication of potential requirements on the built form.

4 Existing noise environment

Measurements of the existing noise environment have been referenced in the assessment of both construction and operational noise impacts. While the NSW ICNG sets fixed noise level targets for construction noise at commercial and industrial premises, noise impacts to internal areas of such development are typically more relevant. Internal noise levels within the nearest most potentially affected locations have also been referenced in the operational road traffic noise assessment.

Noise monitoring data outlined in the Green Square Storm Water Drain REF (Sydney Water, April 2014) have also been referenced.

This report was originally completed in the middle of 2015 and the project was deferred until the present time. The noise measurements undertaken in 2014 are considered still valid as there has not been a significant change in the receiving environment, hence there is no need to remeasure.

4.1 Noise measurement locations

The short-term measurement locations are outlined in Table 2 and presented in Figure 5.

Table 2: Noise monitoring locations

ID	Address	Description
Internal short-term noise monitoring		
S1	9-13 O'Riordan Street	The sound level meter was located within the south-east corner of 9-13 O'Riordan Street with roller doors open. The microphone was positioned 5m in from the eastern facade and 1.5m above ground level.
S2	9-13 O'Riordan Street	The sound level meter was located within the south-east corner of 9-13 O'Riordan Street with roller doors open. The microphone was positioned 25m in from the eastern facade and 1.5m above ground level.
S3	17 O'Riordan Street	The sound level meter was located within a small open office of 17 O'Riordan Street with windows and doors closed. The small office is located along the northern facade of the building, approximately 70m west of the O'Riordan Street curb. The microphone was positioned 1.5m above ground level.
S4	17 O'Riordan Street	The sound level meter was located within a delivery warehouse of 17 O'Riordan Street with roller doors open. The warehouse is located along the western facade of the building, approximately 95m from the O'Riordan Street curb. The microphone was positioned 1.5m above ground level.
S5	22 O'Riordan Street	The sound level meter was located within a car servicing warehouse of 22 O'Riordan Street with roller doors open. The warehouse is located approximately 25m from the O'Riordan Street curb. The microphone was positioned 1.5m above ground level.
S6	22 O'Riordan Street	The sound level meter was located within the reception area of 22 O'Riordan Street with windows and doors closed. The reception area is located approximately 12m from the O'Riordan Street curb. The microphone was positioned 1.5m above ground level.

ID	Address	Description
S7	34-42 Bourke Road	The sound level meter was located within the office area/tea room of 34-42 Bourke Road with windows and doors closed. The area is located approximately 10m from the Bourke Road curb. The microphone was positioned 1.5m above ground level.
S8	34-42 Bourke Road	The sound level meter was located within the south-west corner of the warehouse storage area of 34-42 Bourke Road with roller doors open. The western facade of the storage area is located approximately 26m from the Bourke Road curb. The microphone was positioned 1.5m above ground level.
S9	19-21 Bourke Road	The sound level meter was located in the centre of the ground floor commercial tenancy within 19-21 Bourke Road. The eastern facade of the commercial tenancy is located approximately 10m from Bourke Road. The microphone was positioned 1.5m above ground level.
External short-term noise monitoring		
S10	34-42 Bourke Road	The sound level meter was located on the drive way entrance to 34-42 Bourke Road, approximately 1m from the Bourke Road curb and 1.5m above ground level.
S11	9-13 O'Riordan Street	The sound level meter was located approximately 40m north of the northern facade of 17 O'Riordan Street and 1m from the O'Riordan Street curb. The microphone was positioned 1.5m above ground level.
S12	3 Queen Street	The sound level meter was located approximately 2m from the Johnston Street curb and 1.5m from the Queen Street curb. The microphone was positioned 1.5m above ground level.
Long-term noise monitoring - Green Square Stormwater Drain REF		
L1	1 Queen Street, Alexandria	Detail description of logger location is not available.

Figure 5: Noise monitoring locations

4.2 Short-term noise measurement results

Short-term noise measurements were undertaken during the daytime of Thursday, 6 November 2014, to determine the existing internal and external noise environment at the locations presented in Table 2 above. A summary of the short-term measurement results is presented in Table 3.

Table 3: Short-term noise monitoring results

Location / Time	Measured noise level, dB(A)		Comments on measured noise levels
	L_{Aeq}	L_{A90}	
Internal			
S1 - 9-13 O'Riordan Street 08:36-08:51	59	56	The background L_{A90} and the ambient L_{Aeq} noise level was determined by vehicle pass-bys on O'Riordan Street.
S2 - 9-13 O'Riordan Street 08:52-09:07	59	56	The background L_{A90} and the ambient L_{Aeq} noise level was determined by vehicle pass-bys on O'Riordan Street.
S3 - 17 O'Riordan Street 09:23-09:38	60	50	The background L_{A90} and the ambient L_{Aeq} noise level was determined by the use of a radio, telephone conversation and general office activities.
S4 - 17 O'Riordan Street 09:42-09:48	62	57	The background L_{A90} and the ambient L_{Aeq} noise level was determined by delivery warehouse activities, including unloading of delivery van.
S5 - 22 O'Riordan Street 10:12-10:27	71	65	The background L_{A90} and the ambient L_{Aeq} noise level was determined by car servicing activities, including car detailing, buffering, sprays and cleaning.
S6 - 22 O'Riordan Street 10:33-10:48	52	43	The background L_{A90} and the ambient L_{Aeq} noise level was determined by general reception activities, including telephone conversation and air-conditioning noise.
S7 - 34-42 Bourke Road 11:32-11:47	48	36	Note is made that the office area/tea room area was unoccupied during the measurement. The background L_{A90} and the ambient L_{Aeq} noise level was determined by distant murmur of warehouse activities.
S8 - 34-42 Bourke Road 11:49-12:04	60	44	The background L_{A90} and the ambient L_{Aeq} noise level was determined by warehouse activities, including loading/unloading of pallets, warehouse conversation and the occasional use of a forklift.
S9 - 19-21 Bourke Road 11:04-11:19	59	52	The background L_{A90} and the ambient L_{Aeq} noise level was determined by customers browsing and being assisted by a sales clerk.
External			
S10 - 34-42 Bourke Road 12:07-12:22	71	59	The background L_{A90} and the ambient L_{Aeq} noise level was determined by vehicle pass-bys on Bourke Road.
S11 - 9-13 O'Riordan Street 12:29-12:44	73	63	The background L_{A90} and the ambient L_{Aeq} noise level was determined by vehicle pass-bys on O'Riordan Street.
S12 - 3 Queen Street 12:47-01:02	63	54	The background L_{A90} and the ambient L_{Aeq} noise level was predominantly determined by vehicle passbys on O'Riordan Street, with occasional pass-bys along Johnson and Queen Streets.
L1 - 1 Queen Street	-	46	-

Location / Time	Measured noise level, dB(A)		Comments on measured noise levels
	L_{Aeq}	L_{A90}	

Note: The equipment used for noise measurements was a Brüel & Kjær Type 2250 precision sound level analyser which is a Class 1 instrument having accuracy suitable for field and laboratory use. The instrument was calibrated prior and subsequent to measurements using a Bruel & Kjaer Type 4231 calibrator. No significant drift in calibration was observed. All instrumentation complies with IEC 61672 (parts 1-3) '*Electroacoustics - Sound Level Meters*' and IEC 60942 '*Electroacoustics - Sound calibrators*' and carries current NATA certification (or if less than 2 years old, manufacturers certification).

It is noted that the long-term noise monitoring results at 1 Queen Street reveal significantly lower background noise levels compared with the short-term measurements at 3 Queen Street. As the exact location of the 1 Queen Street logger has not been confirmed, it is possible that the noise monitor was located in the rear yard of the property and therefore acoustically shielded. The lower background noise monitoring results have nonetheless been utilised for the assessment.

The background noise levels at the completed ValueSuites Green Square are also expected to be higher than the measured noise levels at 1 Queen Street; however, due to the on-going construction work in the area, it will be nearly impossible to monitor the real background noise levels. Based on the measured results at S11 and S12, the long-term background noise level at 16 O'Riordan Street is estimated to be 55dB(A).

5 Construction noise and vibration assessment

5.1 Construction noise and vibration objectives

5.1.1 Construction noise objectives

The ICNG provides guidelines for assessing noise generated during the construction phase of developments.

The key components of the guideline that are incorporated into this assessment include:

- Use of L_{Aeq} as the descriptor for measuring and assessing construction noise.

  NSW noise policies, including the INP, RNP and RING have moved to the primary use of L_{Aeq} over any other descriptor. As an energy average, L_{Aeq} provides ease of use when measuring or calculating noise levels since a full statistical analysis is not required as when using, for example, the L_{A10} descriptor.

- Application of reasonable and feasible noise mitigation measures.
- As stated in the ICNG, a noise mitigation measure is feasible if it is capable of being put into practice, and is practical to build given the project constraints.
- Selecting reasonable mitigation measures from those that are feasible involves making a judgement to determine whether the overall noise benefit outweighs the overall social, economic and environmental effects.

The ICNG provides two methods for assessment of construction noise, being either a quantitative or a qualitative assessment. A quantitative assessment is recommended for major construction projects of significant duration, and involves the measurement and prediction of noise levels, and assessment against set criteria. A qualitative assessment is recommended for small projects with a duration of less than three weeks and focuses on minimising noise disturbance through the implementation of reasonable and feasible work practices, and community notification.

Given the scale of the construction works proposed for the GS2AC, a quantitative assessment is carried out herein, consistent with the ICNG requirements. For the nearest sensitive receivers to the GS2AC project, refer to Table 1 and Figure 3 of this report.

Table 4, reproduced from the ICNG, sets out the noise management levels which are primarily based on the Rating Background Level ('RBL'), and procedures for residential receivers.

Table 4: Noise management levels at residential receivers

Time of day	Management level $L_{Aeq\ (15\ min)}$	How to apply
Recommended standard hours: Monday to Friday 7 am to 6 pm Saturday 8 am to 1 pm No work on Sundays or public holidays	Noise affected RBL + 10dB(A)	The noise affected level represents the point above which there may be some community reaction to noise. • Where the predicted or measured $L_{Aeq\ (15\ min)}$ is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level. • The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.
	Highly noise affected 75dB(A)	The highly noise affected level represents the point above which there may be strong community reaction to noise. • Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account: 1. times identified by the community when they are less sensitive to noise (such as before and after school for works near schools, or mid-morning or mid-afternoon for works near residences 2. if the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside recommended standard hours	Noise affected RBL + 5dB(A)	• A strong justification would typically be required for works outside the recommended standard hours. • The proponent should apply all feasible and reasonable work practices to meet the noise affected level. • Where all feasible and reasonable practices have been applied and noise is more than 5dB(A) above the noise affected level, the proponent should negotiate with the community. • For guidance on negotiating agreements see section 7.2.2 of the ICNG.

Construction noise management levels can be determined using the ICNG. Table 5 sets out the noise management levels for various noise-sensitive land use developments, including commercial premises.

Table 5: Noise management levels at other noise sensitive land uses

Land use	Where objective applies	Management level $L_{Aeq\ (15\ min)}$
Classrooms at schools and other educational institutions	Internal noise level	45 dB(A)
Hospital wards and operating theatres	Internal noise level	45 dB(A)
Places of worship	Internal noise level	45 dB(A)
Active recreation areas	External noise level	65 dB(A)
Passive recreation areas	External noise level	60 dB(A)
Community centres	Depends on the intended use of the centre.	Refer to the 'maximum' internal levels in AS2107 for specific uses.
Commercial premises	External noise level	70 dB(A)
Industrial premises	External noise level	75 dB(A)

Note: Noise management levels apply when receiver areas are in use only.

While initial screening of potential impacts at commercial and industrial premises has been carried out in accordance with the ICNG criteria, where noise impacts are revealed, consideration is given to the internal noise amenity, based on prevailing internal noise levels and the building envelope construction.

5.1.2 Construction vibration objectives

5.1.2.1 Disturbance to building occupants

Assessment of potential disturbance from vibration on human occupants of buildings is made in accordance with the DECCs '*Assessing Vibration; a technical guideline*'. In accordance with the guideline, assessment against the human exposure criteria is typically reserved for long-term vibration impacts such as that associated with operational phases of development rather than construction works. While provided for reference, assessment of construction vibration is expected to be limited to potential structural damage.

The guideline provides criteria which are based on the British Standard BS 6472-1992. Sources of vibration are defined as either 'Continuous', 'Impulsive' or 'Intermittent'. Table 6 provides definitions and examples of each type of vibration.

Table 6: Types of vibration

Type of vibration	Definition	Examples
Continuous vibration	Continues uninterrupted for a defined period (usually throughout the day-time and/or night-time).	Machinery, steady road traffic, continuous construction activity (such as tunnel boring machinery).
Impulsive vibration	A rapid build-up to a peak followed by a damped decay that may or may not involve several cycles of vibration (depending on frequency and damping). It can also consist of a sudden application of several cycles at approximately the same amplitude, providing that the duration is short, typically less than 2 seconds.	Infrequent: Activities that create up to 3 distinct vibration events in an assessment period, eg. occasional dropping of heavy equipment, occasional loading and unloading.
Intermittent vibration	Can be defined as interrupted periods of continuous or repeated periods of impulsive vibration that varies significantly in magnitude.	Trains, nearby intermittent construction activity, passing heavy vehicles, forging machines, impact pile driving, jack hammers. Where the number of vibration events in an assessment period is three or fewer, this would be assessed against impulsive vibration criteria.

Source: Assessing Vibration; a technical guideline

The vibration criteria are defined as a single weighted root mean square (rms) acceleration source level in each orthogonal axis. Section 2.3 of the guideline states:

> *'Evidence from research suggests that there are summation effects for vibrations at different frequencies. Therefore, for evaluation of vibration in relation to annoyance and comfort, overall weighted rms acceleration values of the vibration in each orthogonal axis are preferred'.*

When applying the criteria, it is important to note that the three directional axes are referenced to the human body, ie. x-axis (back to chest), y-axis (right side to left side) or z-axis (foot to head). Vibration may enter the body along different orthogonal axes and affect it in different ways. Therefore, application of the criteria requires consideration of the position of the people being assessed.

The preferred and maximum values for continuous and impulsive vibration are defined in Table 2.2 of the guideline and are reproduced in Table 7.

Table 7: Preferred and maximum levels for human comfort

Location	Assessment period [1]	Preferred values		Maximum values	
		z-axis	x- and y-axis	z-axis	x- and y-axis
Continuous vibration (Weighted RMS acceleration, m/s^2, 1-80Hz)					
Critical areas [2]	Day or night time	0.005	0.0036	0.010	0.0072
Residences	Daytime	0.010	0.0071	0.020	0.014
	Night time	0.007	0.005	0.014	0.010
Offices, schools, educational institutions and places of worship	Day- or night time	0.020	0.014	0.040	0.028
Workshops	Day- or nighttime	0.04	0.029	0.080	0.058
Impulsive vibration (Weighted RMS acceleration, m/s^2, 1-80Hz)					
Critical areas [2]	Day or night-time	0.005	0.0036	0.010	0.0072
Residences	Daytime	0.30	0.21	0.60	0.42
	Night-time	0.10	0.071	0.20	0.14
Offices, schools, educational institutions and places of worship	Day- or night-time	0.64	0.46	1.28	0.92
Workshops	Day or night-time	0.64	0.46	1.28	0.92
Intermittent vibration (Vibration Dose Values, VDV, $m/s^{1.75}$, 1-80Hz)					
Critical areas[2]	Day or night-time	0.10		0.20	
Residences	Daytime	0.20		0.40	
	Night-time	0.13		0.26	
Offices, schools, educational institutions and places of worship	Day- or night-time	0.40		1.60	
Workshops	Day or night-time	0.80		1.60	

Notes:
1. Daytime is 7:00am to 10:00pm and night-time is 10:00pm to 7:00am
2. Examples include hospital operating theatres and precision laboratories where sensitive operations are occurring. There may be cases where sensitive equipment or delicate tasks require more stringent criteria than the human comfort criteria specify above. Stipulation of such criteria is outside the scope of their policy and other guidance documents (eg. relevant standards) should be referred to.

5.1.2.2 Structural damage to buildings

Potential structural damage of buildings as a result of vibration is typically managed by ensuring vibration induced into the structure does not exceed certain limits and standards, such as British Standard 7385 Part 2 and German Standard DIN4150-3. Currently there is no existing Australian Standard for assessment of structural building damage caused by vibration energy.

Within DIN4150-3, damage is defined as "*any permanent effect of vibration that reduces the serviceability of a structure or one of its components*" (p.2). The Standard also outlines:

> *"that for structures as in lines 2 and 3 of Table 1, the serviceability is considered to have been reduced if*
>
> - *cracks form in plastered surfaces of walls;*
> - *existing cracks in the building are enlarged;*
> - *partitions become detached from loadbearing walls or floors.*
>
> *These effects are deemed 'minor damage. " (DIN4150.3, 1990, p.3)*

While the DIN Standard defines the above damage as 'minor', based on the definitions provided in BS7385, set out below, the DIN standard deals with cosmetic issues than major structural failures.

The differences in levels of damage are more defined in British Standard 7385 Part 1 1990 (p.10):

- *Cosmetic - The formation of hairline cracks on drywall surfaces, or the growth of existing cracks in plaster or drywall surfaces; in addition the formation of hairline cracks in mortar joints of brick/concrete block construction.*
- *Minor - The formation of large cracks or loosening of plaster or drywall surfaces, or cracks through bricks/concrete blocks.*
- *Major - Damage to structural elements of the building, cracks in supporting columns, loosening of joints, splaying of masonry cracks, etc.*

The vibration limits in Table 1 of British Standard 7385 Part 2 (1993) are also for the protection against cosmetic damage. Guidance on limits for minor or major damage is provided in Section 7.4.2 of the Standard (p.5):

> *7.4.2 Guide values for transient vibration relating to cosmetic damage*
>
> *Limits for transient vibration, above which cosmetic damage could occur are given numerically in Table 1 and graphically in Figure 1. In the lower frequency region where strains associated with a given vibration velocity magnitude are higher, the guide values for the building types corresponding to line 2 are reduced. Below a frequency of 4 Hz, where a high displacement is associated with a relatively low peak component particle velocity value a maximum displacement of 0.6 mm (zero to peak) should be used.*
>
> *Minor damage is possible at vibration magnitudes which are greater than twice those given in Table 1, and major damage to a building structure may occur at values greater than four times the tabulated values.*

British Standard

British Standard 7385: Part 2 '*Evaluation and measurement of vibration in buildings*', can be used as a guide to assess the likelihood of building damage from ground vibration. BS7385 suggests levels at which 'cosmetic', 'minor' and 'major' categories of damage might occur.

The cosmetic damage levels set by BS 7385 are considered 'safe limits' up to which no damage due to vibration effects has been observed for certain particular building types. Damage comprises minor non-structural effects such as hairline cracks on drywall surfaces, hairline cracks in mortar joints and cement render, enlargement of existing cracks and separation of partitions or intermediate walls from load bearing walls. 'Minor' damage is considered possible at vibration magnitudes which are twice those given and 'major' damage to a building structure may occur at levels greater than four times those values.

BS7385 is based on peak particle velocity and specifies damage criteria for frequencies within the range 4Hz to 250Hz, being the range usually encountered in buildings. At frequencies below 4Hz, a maximum displacement value is recommended. The values set in the Standard relate to transient vibrations and to low-rise buildings. Continuous vibration can give rise to dynamic magnifications due to resonances and may need to be reduced by up to 50%. Table 8 sets out the BS7385 criteria for cosmetic, minor and major damage.

The buildings surrounding the GS2AC would fall under Group 1 of BS 7385.

Table 8: BS 7385 structural damage criteria

Group	Type of structure	Damage level	4Hz to 15Hz	15Hz to 40Hz
1	**Reinforced or framed structures Industrial and heavy commercial buildings**	**Cosmetic**		
		Minor		
		Major		
2	Un-reinforced or light framed structures Residential or light commercial type buildings	Cosmetic	15 to 20	20 to 50
		Minor	30 to 40	40 to 100
		Major	60 to 80	80 to 200

Notes: Peak Component Particle Velocity is the maximum Peak particle velocity in any one direction (x, y, z) as measured by a tri-axial vibration transducer.

German Standard

German Standard DIN 4150 - Part 3 '*Structural vibration in buildings - Effects on Structure*' (DIN 4150-3), also provides recommended maximum levels of vibration that reduce the likelihood of building damage caused by vibration and are generally recognised to be conservative.

DIN 4150-3 presents the recommended maximum limits over a range of frequencies (Hz), measured in any direction, and at the foundation or in the plane of the uppermost floor of a building or structure.

The vibration limits increase as the frequency content of the vibration increases. The criteria are presented in Table 9. The buildings surrounding the GS2AC would fall under Group 1 of DIN 4150-3.

Table 9: DIN 4150-3 structural damage criteria

Group	Type of structure	Vibration velocity, mm/s			
		At foundation at frequency of			Plane of floor uppermost storey
		1Hz to 10Hz	10Hz to 50Hz	50Hz to 100Hz	All frequencies
1	**Buildings used for commercial purposes, industrial buildings and buildings of similar design**	**20**	**20 to 40**	**40 to 50**	**40**
2	Dwellings and buildings of similar design and/or use	5	5 to 15	15 to 20	15
3	Structures that because of their particular sensitivity to vibration, do not correspond to those listed in Group 1 or 2 and have intrinsic value (eg. buildings under a preservation order)	3	3 to 8	8 to 10	8

With regard to potential impacts on the airport rail tunnel, consultation with Transport for NSW ('TfNSW') and/or Sydney trains should be undertaken. It would not be expected for criteria to be more stringent than for Group 1 structures.

5.2 Construction noise and vibration assessment

5.2.1 Proposal

5.2.1.1 Projected program and schedule

The project schedule is proposed to be conducted within two sections, being the eastern section and the western section. The eastern section is for works conducted between Botany Road and O'Riordan Street. The western section is for works conducted between O'Riordan Street and Bourke Road. Table 10 presents the indicative development program for construction works. This is subject to change upon awarding of construction contract.

Table 10: Indicative construction program

Section	Detailed breakdown	Time period	Vehicle trip estimates for duration
GS2AC East	Taxi building demolition (if required)	3 December 2018 to 3 June 2019	
	Remediation and excavation works and in-ground services other than trunk	3 December 2018 to 21 August 2019	750
	Retaining walls/batters	7 September 2019 to 1 December 2019	450
	Sub-grade	2 December 2019 to 30 Jan 2020	600
	Kerb & gutter	31 Jan 2020 to 26 March 2020	400

Section	Detailed breakdown	Time period	Vehicle trip estimates for duration
	Footpaths & trees	29 March 2020 to 6 May 2020	700
	Pavement lanes surfacing	9 May 2020 to 4 June 2020	600
GS2AC West	Remediation and excavation	7 September 2019 to 2 January 2020	700
	Retaining walls/batters	3 January 2020 to 26 March 2020	450
	Sub-grade	29 March 2020 to 20 May 2020	600
	Kerb & gutter	23 May 2020 to 18 July 2020	400
	Footpaths & trees	19 July 2020 to 9 September 2020	700
	Pavement lanes surfacing	10 September 2020 to 6 October 2020	600

5.2.1.2 Construction hours

The hours of excavation and construction works are likely to be in line with those outlined in the ICNG, being:

- Monday to Friday: 7:00am to 6:00pm
- Saturday: 7:00am to 1:00pm
- Sunday/Public holiday: No work

Given the offset of existing residences from the GS2AC, consideration could be given to out of hour's works. Due to the importance of maintaining through traffic on Botany Road, O'Riordan Street and Bourke Road particularly during peak hours, some out of hours work would be required to minimise disruptions to motorists and protect the safety of workers and the travelling public. Work outside of standard construction hours and extended construction hours would be undertaken in accordance with approvals and notification requirements of any Environment Protection Licence ('EPL') for construction of the proposal.

5.2.1.3 Construction traffic

With regard to the eastern section, the intersection of Geddes Avenue and Botany Road will be signalised approximately 12 months prior to the commencement of construction. Due to traffic volumes on Botany Road (2,600 vehicles am peak hour), this intersection shall be utilised to provide safe and controlled access from the road network to the eastern section of the site.

The western section of the GS2AC will be accessed via Bourke Road with a full suite of turning movements as this road has the lowest traffic volumes (1,070 vehicles am peak hour). Access at O'Riordan Street (2,865 vehicles am peak hour) would be limited to left in left out.

Vehicle movements associated with each phase of construction are presented in Table 10 above. By comparison to existing traffic flows, the construction traffic will result in negligible noise impact on surrounding land uses.

5.2.1.4 Excavation and construction equipment

Noise generated from excavation and construction will vary depending on the specific type of activity carried out, as well the number of items of plant equipment operating at any one time. At this early stage of the development, the full details of excavation and construction are unknown. However, an indication of plant and equipment to be used during the works is provided in Table 11.

Table 11: Major construction equipment and sound power levels, dB(A)

Equipment type	Indicative size	L_w Sound power level
Excavation		
Tracked excavator	10t	99
Tracked excavator	15t	101
Tracked excavator	30t	103
Air compressor	-	111
Tipper truck	-	112
Concrete saw	-	113
Crushing / screening plant	-	117
Jack hammer	-	121
TOTAL	-	124
Construction		
Concrete Pump	6 t	103
Air compressor	-	111
Tipper truck	-	112
Vibratory roller	7t	120
Jack hammer	-	121
TOTAL	-	124

5.2.2 Noise assessment

Excavation and construction works are to take place at various locations across the development site. While equipment is likely to be distributed across various locations of the site, phases of work have been conservatively assessed by assuming all associated equipment is located in a specific zone. The site has been divided into four work zones extending from Botany Road to Bowden Street and noise emission from works within each of the zones has been assessed at the nearest receiver locations. The work zones are presented in Figure 6.

Figure 6: Work zones and nearest receiver locations

Based on the excavation and construction procedures and proximity of the nearest receivers, it is expected that the target levels may be exceeded during the peak excavation and construction activities. Noise prediction calculations have been carried out to determine worst case scenario noise levels of excavation and construction works at the subject site. Noise predictions have been assessed on the basis of the following:

- All plant and equipment for each stage operating concurrently for a conservative assessment,
- All plant and equipment distributed across each work zone.

Table 12 presents the predicted L_{Aeq} noise levels for peak activities during each stage of development.

Table 12: Predicted noise levels at nearest affected receivers

Receiver location	Work zone	Predicted L_{Aeq}, dB(A)		'Noise affected' targets	Comments
		Excavation	Construction		
R1 - Victoria Street and Queen Street, Alexandria	1	56	56	56	Work in all zones predicted to comply with the highly affected target of 75dB(A). Operations in Zones 2-4 predicted to exceed the noise affected target based upon the long-term noise monitoring results. By reference to the short-term measurements, only Zone 4 would exceed.
	2	**59**	**59**		
	3	**62**	**62**		
	4	**74**	**74**		
R2 - 16 O'Riordan Street, Alexandria	1	68	66	65	Work carried out in Zones 3 and 4 are predicted to exceed the highly affected target of 75dB(A). Operations in all zones were predicted to exceed the noise affected target based upon the
	2	73	69		
	3	78	72		

Receiver location	Work zone	Predicted L_{Aeq}, dB(A)		'Noise affected' targets	Comments
		Excavation	Construction		
	4	78	74		estimated long-term noise levels. However, the background noise levels are expected to be higher than estimated. Assessment of potential impacts during construction activities should be carried out to an internal location as noise levels from existing road traffic will require windows/doors to be closed for compliance against the RNP.
C1 - 9-13 O'Riordan Street	1	**79**	**80**	70	Work carried out in all zones predicted to exceed the external noise targets. For the reconfiguration of the site post partial site acquisition, it is recommended that driveway openings are removed from the site boundary and doors closed during intrusive construction activities, in order to protect internal amenity. Assessment of potential impacts during construction activities should be carried out to an internal location so that such measures can be considered.
	2	**96**	**96**		
	3	**79**	**79**		
	4	**73**	**73**		
C2 - 17 O'Riordan Street	1	**78**	**79**	70	Work carried out in all zones predicted to exceed the external noise targets, however only marginally for Zones 3 and 4. As the offices are constructed with fixed glazing and mechanically ventilated, assessment of potential impacts during construction activities should be carried out to an internal location. Based on site observations, 5mm fixed pane aluminium frame glazing was installed. Adopting a conservative internal noise criteria of background + 10dB and noise reduction from outside to inside of 20dB, all works zones are expected to result in reasonable internal amenity for the Red Cross building.
	2	**81**	**81**		
	3	**74**	**75**		
	4	70	**71**		
C3 - 18 O'Riordan Street	1	69	69	70	Work carried out in zones 2-4 are predicted to exceed the external noise targets. However, assessment to internal locations, given the solid southern façade of the building, is expected to result in reasonable internal amenity for occupants of the building.
	2	**74**	**75**		
	3	**79**	**80**		
	4	**79**	**79**		
C4 - 22 O'Riordan Street	1	70	70	70	Work carried out in Zones 2-4 are predicted to exceed the external noise targets, with most sensitive work zone being Zone 3. The impacts to inside the building will be dependent on the reconfiguration of the site post acquisition. It is recommended that the development be constructed and configured to minimise noise intrusion to internal areas for occupants. Consideration of construction noise mitigation measures is however warranted for those works in Zone 3.
	2	**76**	**76**		
	3	**96**	**96**		
	4	**83**	**83**		
C5 - 34-42 Bourke Road	1	**90**	**90**	70	Work carried out in Zones 1 and 2 is predicted to exceed the external noise targets. Assessment of potential impacts during construction activities should however be carried out to an internal location. Consideration of construction noise mitigation measures is however warranted, particularly for works in Zone 1.
	2	**79**	**80**		
	3	70	70		
	4	67	68		
C6 - 19-21 Bourke Road	1	**80**	**81**	70	Work carried out in Zones 1 and 2 is predicted to exceed the external noise targets, but only
	2	**72**	**72**		

Receiver location	Work zone	Predicted L_{Aeq}, dB(A)		'Noise affected' targets	Comments
		Excavation	Construction		
	3	66	67		marginally for Zone 2. Assessment of potential impacts during construction activities should however be carried out to an internal location. Adopting a conservative internal noise criteria of background + 10dB and noise reduction from outside to inside of 20dB with windows and doors closed, all works zones are expected to result in reasonable internal amenity.
	4	64	65		
C7 - 23-37 Bourke Road	1	**79**	**79**	70	Work carried out in Zones 1 and 2 is predicted to exceed the external noise targets, but only marginally for Zone 2. Assessment of potential impacts during construction activities should however be carried out to an internal location. Based on external inspection of the building, reasonable internal amenity is expected for all works zones.
	2	70	**71**		
	3	66	66		
	4	64	64		
C8 - 56-60 Bourke Road	1	**83**	**83**	70	Work carried out in Zones 1 and 2 is predicted to exceed the external noise targets, but only marginally for Zone 2. Assessment of potential impacts during construction activities should however be carried out to an internal location. Based on external inspection of the building, reasonable internal amenity is expected for all works zones.
	2	**74**	**74**		
	3	67	68		
	4	65	66		

5.2.3 Vibration assessment

5.2.3.1 Vibration sensitive receivers

Table 13 presents the nearest vibration sensitive receivers as well as the approximate distance to the nearest work zone.

Table 13: Nearest vibration receivers

Location ID	Receiver description	Nearest work zone	Approximate distance to nearest work zone
R1	Queen St, Alexandria	4	100m
R2	ValueSuites Green Square	3	50m
C1	Taxis combined services	2	10m
C2	Australian Red Cross	2	13m
C3	Autohaus One	3	40m
C4	Perfect Auto Body	3	5m
C5	Grace Records Management	2	5m
C6	Kelly Country	1	20m
C7	Danoz Direct	1	30m
C8	Quantum Energy Technologies	1	15m
O1	Airport line	1	Tunnel depth to be confirmed by TfNSW or Sydney Trains.

5.2.3.2 Vibration sources

The vibration generated from excavation and construction works will vary depending on the level and type of activity carried out at each site during each activity. Typical plant and equipment in use have been identified in Table 11.

Table 14 below identifies the dominant vibration generating plant and equipment. Potential vibration generated to receivers is dependent on separation distances, the intervening soil and rock strata, dominant frequencies of vibration and the receiver structure. Typical levels of ground vibration from these sources are shown in Table 14.

Table 14: Construction plant vibration levels

Plant equipment	Indicative size	PPV Vibration (mm/s) at distance from plant					
		5m	10m	15m	20m	30m	40m
Excavator & Breaker	Heavy	10.5	2.5	-	-	-	-
Excavator (travelling)	Heavy	8.0	3.4	1.6	-	-	-
Piling - Rotary bored cast in-situ	-	11.4	6.4	-	5.6	-	-
Roller - Vibratory (pad foot)	12t	15.1	10.3	3.2	-	-	-
Truck & Trailer	≤45t net	14.5	10.3	3.4	-	-	-

5.2.3.3 Indicative minimum working distances for vibration intensive equipment

As a guide, indicative minimum working distances for typical items of vibration intensive plant and equipment are provided in Table 15. The minimum working distances are quoted for:

- cosmetic damage, based on the British Standard 7385 (Group 2); and
- human comfort, based on the DECC's '*Assessing Vibration; a technical guideline*'.

Table 15: Recommended minimum working distances for vibration intensive equipment

Plant Item	Rating/ Description	Minimum Working Distance, m	
		Cosmetic Damage (BS 7385)	Human Response (DECC Guideline)
Vibratory Roller[2]	<50 kN (Typically 1-2 tonnes)	5	15 - 20
	<100 kN (Typically 2-4 tonnes)	6	20
	<200 kN (Typically 4-6 tonnes)	12	40
	<300 kN (Typically 7-13 tonnes)	15	100
	>300 kN (Typically 13-18 tonnes)	20	100
	>300 kN (Typically >18 tonnes)	25	100
Compactor[1]	852G	10	20
Dozer[1]	(D810) with ripper	2 (nominal)	10
Excavator[1]	<=30 Tonne (travelling/ digging)	10	15
Grader[1]	<= 20 tonne	2 (nominal)	10
Small Hydraulic Hammer[2]	300kg (5-12 tonne excavator)	2	7

Plant Item	Rating/ Description	Minimum Working Distance, m	
		Cosmetic Damage (BS 7385)	Human Response (DECC Guideline)
Medium Hydraulic Hammer[2]	900kg (12-18 tonne excavator)	7	23
Large Hydraulic Hammer[2]	1600kg (18-34 tonne excavator)	22	73
Pile Boring[2]	≤ 800 mm	2 (nominal)	N/A
Jackhammer[2]	Hand held	1 m (nominal)	Avoid contact with structure
Truck Movements[1]	-	-	10m

Notes:
1. More stringent conditions may apply to heritage or other sensitive structures
2. The minimum working distances are indicative and will vary depending on the specific equipment and geotechnical conditions.
3. They apply to cosmetic damage of buildings and have been derived from measured vibration data from a range of projects available in our database under varying geotechnical conditions. Vibration monitoring should be undertaken to confirm the safe working distances at specific sites where considered necessary.

The buildings nearest to works are C1 and C4 which require partial demolition and reconstruction to accommodate the GS2AC. The proximity of future structures will require a review when detailed information is available. With regard to human response, given the proximity of works, some adverse vibration may be experienced however the operations of both premises are not considered vibration sensitive. Cosmetic or structural damage is not expected based on the scope of work, however as stated, a review of future built should be carried out when specific machinery and equipment items to be utilised by the contractor has been finalised.

With regard to the nearest residential receivers, no adverse vibration impacts are expected as a result of the project works.

5.2.4 Recommendations

It is recommended that a site specific Construction Noise and Vibration Management Plan ('CNVMP') to be prepared prior to the issue of Construction Certificate ('CC') which should include noise modelling of construction activities after the exact selection of equipment to be used on-site becomes available.

5.2.4.1 Noise control measures

The following at-source control and management measures should be considered for the management of noise from excavation and construction works to reduce potential noise impacts. Noise reductions of between 3-8dB(A) for individual plant items could be expected where alternative process or localised noise barriers are practical. In other area, the management measures are focused on minimising unnecessary noise generation from the site and the extent and duration of peak noise levels.

Table 16: Construction noise control measures

Measure	Detail
Source controls	
Noise barriers	Construction of solid site hoarding along the corridor is unlikely to be practical or feasible. Noise barriers would provide some noise reduction to ground level receptors only. Where possible, localised barriers could be constructed for stationary equipment.
Equipment selection	Use the quietest and least vibration emitting construction methods where feasible and reasonable, eg. use of eccentric rippers rather than rock hammers.
Limit equipment in use	Only the equipment necessary for the upgrade works will be used at any time. Avoid any unnecessary noise when carrying out manual operations and when operating plant. Simultaneous operation of noisy plant and equipment within discernible range of a sensitive receiver should be avoided/ limited where possible.
Limit activity duration	Any equipment not in use for extended periods shall be switched off. For example, heavy vehicles should switch engines off whilst being unloaded.
Reversing alarms	Alternatives reverse alarm, such as 'quackers' should be installed where feasible and reasonable.
Management measures	
Implement community consultation measures	Inform community of construction activity and potential impacts.
Develop good relations	Good relations with building occupants should be established at the beginning of the works and be maintained throughout the project, as this is of paramount importance. Keeping people informed of progress and taking complaints seriously and dealing with them expeditiously is critical. The person selected to liaise with the building occupants should be adequately trained and experienced in such matters.
Work staging	Where practical, stage works so that that intrusive works are carried out at least noise sensitive periods.
Site inductions	All employees, contractors and subcontractors are to receive a Project induction. The environmental component may be covered in toolboxes and must include: • all relevant project specific and standard noise and vibration mitigation measures • relevant licence and approval conditions • permissible hours of work • any limitations on high noise and vibration generating activities • location of nearest sensitive receivers • environmental incident procedures
Complaints management procedure	A management procedure would need to be put in place to deal with noise complaints that may arise from construction activities. Each complaint would need to be investigated and appropriate noise amelioration measures put in place to mitigate future occurrences, where the noise in question is in excess of allowable limits.
Noise monitoring	A monitoring schedule is recommended to be developed and implemented during high noise and vibration generating activities where required. Noise and vibration monitoring would be carried out for any identified sensitive works, where monitoring could be used to proactively identify noisy works that may be otherwise managed and mitigated.

5.2.4.2 Vibration control measures

Based on available data from a database containing vibration measurements from past projects and from library information, Table 17 below presents the recommended minimum working distances for high vibration generating plant.

Table 17: Vibration minimum working distances

Plant item	Rating / description	Minimum. working distance, m	
		Cosmetic damage[2]	Human response[3]
Bobcat	Travelling	1 (nominal)	Avoid contact with structure
Jackhammer	Hand held	1 (nominal)	Avoid contact with structure
Large Hydraulic Hammer	1600 kg	5	73
Excavator	<=30 Tonne (travelling/ digging)	5	15
Truck Movements[1]	Travelling loaded	5	10
Vibratory Rollers	20t	10	100

Notes:
1. Renzo Tonin & Associates project files, databases & library
2. Based on DIN4150.3 Group 1 Buildings
3. For residential receivers. Provided for reference only. Management measures isolated to structural damage for construction works.

Site specific buffer distances shall be determined where vibration significant plant items, in particular large rock hammers/breakers and vibratory rollers, operate within Cosmetic Damage minimum working distances detailed in Table 17. Where this occurs, minimum buffer distances to affected receivers shall be determined by site measurements prior to the commencement of the regular use of the vibration significant plant on site. The site-specific minimum working distance shall be maintained in order to comply with relevant vibration limits.

6 Operational noise assessment

6.1 Operational traffic noise criteria

This report assesses road traffic noise impact in accordance with the NSW RNP. The GS2AC is classed as a local road as it only provides vehicular access to surrounding streets.

According to the RNP, this project is a new road as it is proposed on a corridor that has not previously been a road and therefore the project is classed as a 'new road'.

6.1.1 Residential land uses

The RNP is used to assess the potential traffic noise impact from the new road. The 'new road' criteria for residential receivers are presented in Table 18 below. These criteria are for noise levels assessed in front of a building facade. In accordance with Section 3.4.1 of the RNP, the criteria in Table 18 are based on the traffic noise level contribution from just the GS2AC.

Table 18: Road traffic noise assessment criteria for residential land uses

Road category	Type of project/land use	Assessment Criteria, dB(A)	
		Day 7:00am-10:00pm	Night 10:00pm-7:00am
Local roads	Existing residences affected by noise from new local road corridors	$L_{Aeq,(1\ hour)}$ 55 (external)	$L_{Aeq,(1\ hour)}$ 50 (external)

Note: Land use developers must meet internal noise goals in the Infrastructure SEPP (Department of Planning NSW 2007) for residences near busy roads (see RNP Appendix C10).

Where existing traffic noise levels are above the noise assessment criteria, the primary objective is to reduce these through feasible and reasonable measures to meet the assessment criteria. A secondary objective is to protect against excessive decreases in amenity as the result of a project by applying the relative increase criteria.

6.1.1.1 Increase in traffic on surrounding road network

The GS2AC will affect traffic on the surrounding road network, and has the potential to either increase or decrease traffic. For receivers located on surrounding roads that are not directly influenced by traffic noise from the GS2AC but may experience an increase in traffic noise due to the project, assessment against the RNP 2dB increase allowance has been undertaken. In accordance with the RNP when assessing feasible and reasonable mitigation measures, an increase of up to 2dB represents a minor impact that is considered barely perceptible to the average person.

6.1.2 Non-residential land use developments

The RNP also sets criteria for the assessment of traffic noise on non-residential land uses such as schools, hospitals, places of worship and recreation areas. With the exception of commercial receivers, no potentially non-residential affected sensitive receivers have been identified in the study area.

6.1.3 Commercial developments

While the RNP does not outline specific criteria for commercial premises, the RNP does reference the internal noise levels contained in Australian Standard 2107:2000 (Standards Australia 2000). For this project, commercial developments have been assessed against Australian Standard 2107:2000.

For commercial receivers, external to internal noise level reductions have been estimated based on each receiver type's building construction, and these reductions range from 20 to 25dB(A). Where estimation has not been possible, a conservative 20dB(A) reduction from external to internal noise levels has been adopted to allow an external assessment.

6.2 Relative increase criteria

Traffic noise impacts from the proposed 'new road' would need to also comply with the 'Relative Increase Criteria' as discussed in Section 2.4 of the RNP. The relative increase criteria are to be applied to the external areas of existing residential and sensitive land uses impacted upon by the redeveloped road.

The relative increase criteria as set out in the RNP applicable to this project are reproduced below.

Table 19: Relative increase criteria

Type of development	Total traffic noise level increase, dB(A)
New road corridor	Existing traffic $L_{Aeq(period)}$ + 12 dB (external)

Note: 'Existing traffic' refers to the traffic noise levels for the elevant 'no build' option.

Residential receivers alongside Johnson Street are already exposed to high level of traffic noise from Botany Road, O'Riordan Street and Johnson Street, and since this project is located more than 100 metres from these receivers, there is no location where the project will cause an increase of more than 12dB over the existing noise levels. The project therefore complies with the relative increase criteria.

6.3 Maximum noise level goal

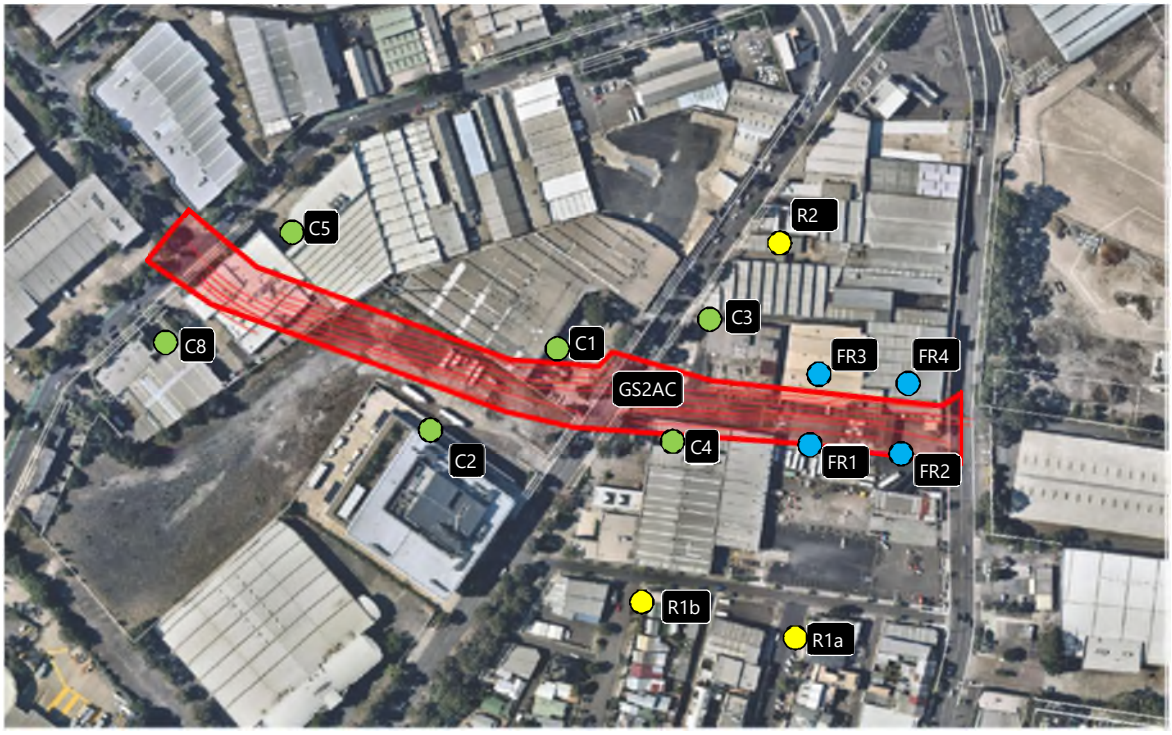
Maximum noise levels generated by road traffic noise have the potential to cause disturbance to sleep. The RNP does not specify a night-time L_{Max} noise limit or noise goal. Research conducted to date in this field has not been definitive and the relationship between maximum noise levels, sleep disturbance and subsequent health effects is not currently well defined. Research on sleep disturbance is however reviewed in the RNP and it is concluded that that the range of results is sufficiently diverse that it is not reasonable to issue new noise criteria for sleep disturbance.

According to the policy however, the likely maximum or peak noise levels are to be broadly assessed and reported for the night-time period, which is considered by the NSW EPA as being 10pm to 7am.

6.4 Assessment locations

The nearest potentially affected receivers to operational noise associated with the GS2AC development are presented in Figure 3 of this report. Based on site observations of the construction of commercial buildings, the operational traffic noise assessment locations (pertaining to the nearest potentially affected facade) are presented in Figure 7. Also shown in Figure 7 are the assessment locations related to potential future residential use, which is discussed in Section 6.7.2.

Figure 7: Operational traffic noise assessment locations



6.5 Traffic flow and composition summary

Traffic data (1-hour peak hour traffic volumes) have been provided by AECOM for the future years 2021 (Year of Opening) and 2031 (Design Year) are provided in Table 20.

In addition, RMS Strategic Model traffic data (2-hour peak hour traffic volumes) provided by RMS for 2021 and 2031 have also been utilised for this assessment and are shown in APPENDIX B. The RMS data has been utilised to assess the influence of the GS2AC project as the modelling included scenarios with and without the GS2AC.

Table 20: 2021 and 2031 AM and PM 1-hour peak intersection traffic volumes (with development)

Intersection	Approach	2021 AM	2021 PM	2031 AM	2031 PM
Botany Road / Geddes Avenue	Botany (N)	1008	1219	1123	1163
	Geddes (E)	279	279	486	336
	Botany (S)	1027	876	1201	929
	GS2AC (W)	144	225	474	665
O'Riordan Street / GS2AC	O'Riordan (N)	1142	1006	1154	1002
	GS2AC (E)	227	269	380	259
	O'Riordan (S)	1124	1118	1049	1216
	GS2AC (W)	125	161	403	448
Bourke Road / GS2AC	Bourke (N)	471	340	399	274
	GS2AC (E)	180	241	194	207
	Bourke (S)	423	456	486	535
	Bowden (W)	300	340	436	331
Botany Road / Bourke Road / Bourke Street	Botany (N)	877	1083	917	930
	Bourke (E)	585	649	481	554
	Botany (S)	1000	848	1155	957
	Bourke (W)	1032	1089	1025	1224
Wyndham Street / O'Riordan Street	Wyndham (N)	658	581	763	574
	Bourke (E)	369	439	309	400
	O'Riordan (S)	1065	1045	1033	1233
	Bourke (W)	370	460	409	494

Note: 2021 AM and PM data for Botany Road / Geddes Avenue, O'Riordan Street / GS2AC and Bourke Road / GS2AC intersections are based on Draft G een Square to Ashmore Connector Route Strategy prepared by AECOM Australia Pty Ltd and dated 3 April 2017.

Based on consultation with AECOM the 1-hour peak volumes were multiplied by a conversion factor of 10 in order to estimate the 'Annual Average Daily Traffic' (AADT). With regard to the RMS Strategic Model 2-hour peak data, a 6.5 multiplier was used to estimate the AADT. Both AADT estimates were found to be comparable. To determine the 15-hour day and 9-hour night splits, the following assumption, in consultation with AECOM, has been utilised:

- Daytime (7am to 10pm) = 85% of AADT;
- Night (10pm to7am) = 15% of AADT.

6.6 Road traffic noise prediction modelling

Noise predictions are based on a method developed by the United Kingdom Department of Environment entitled "Calculation of Road Traffic Noise (1988)" known as the CoRTN (1988) method. This method has been adapted to Australian conditions and extensively tested by the Australian Road Research Board and as a result it is recognised and accepted by the NSW Environment Protection Authority. The model predicts noise levels for steady flowing traffic and noise from high truck exhausts is also taken into account.

The CoRTN algorithms are contained within the 'CadnaA' noise modelling software which has been used to calculate traffic noise levels at receivers. The noise prediction model takes into account the following inputs.

Input parameters	Data acquired from
Traffic volumes and mix	Based on forecast data from AECOM and RMS $L_{Aeq,1hr}$ volumes based on the average AECOM peak hourly volumes
Vehicle speed	Posted Traffic Speed: 50km/h
Source height	0.5 metre for car exhaust, 1.5 metres for car and truck engines and 3.6 metres for truck exhaust and detailed within CORTN88
Ground topography at receiver and road	2m Ground Contours obtained from NSW Land & Property Information (LPI)
Angles of view from receiver	Contained within model
Reflections from existing barriers, structures and cuttings on opposite side of road	Calculated in CadnaA through CoRTN algorithm
Ground absorption factor	0.5
Receiver Heights	Residences: 1.5 metre above ground level for ground floor and 4.5 metre above ground level for 1st floor Commercial: estimated (range from 1.5m to 6.5m)
Facade correction	+2.5dB(A)
Correction for Australian conditions	-1.7 dB(A) for 'at facade' conditions from Australian Road Research Board ('ARRB') Transport Research (Saunders et al 1983)
Acoustic properties of road surfaces	Dense graded asphalt - no corrections applied
Noise mitigation measures	Existing significant fences included in noise model

6.7 Noise model prediction results

In accordance with Section 3.4.1 of the RNP, the traffic noise level contributions from the GS2AC have been predicted to the assessment locations in Figure 7. Predictions have been undertaken for the worst-case scenario, 'Design Year' day period, and results are presented in Table 21.

Table 21: Design Year (2031) Daytime Operational noise level predictions from GS2AC

Receiver location	External $L_{Aeq,1hr}$ dB(A) daytime noise level[1]	Inside to outside noise reduction dB(A)[2]	Internal $L_{Aeq,15hr}$ dB(A) daytime noise level[1]	RNP criteria or AS 2107:200 recommended Satisfactory noise level	Consideration for noise mitigation
R1a - Victoria Street, Alexandria	48	-	-	55[3]	No
R1b - Queen Street, Alexandria	42	-	-	55[3]	No
R2 - 16 O'Riordan Street	46	-	-	55[3]	No
C1 - 9-13 O'Riordan Street	63	25	38	40[4]	No
C2 - 17 O'Riordan Street	62	25	37	40[4]	No
C3 - 18 O'Riordan Street	60	20	40	40[4]	No
C4 - 22 O'Riordan Street	58	25	33	40[4]	No

Receiver location	External $L_{Aeq,1hr}$ dB(A) daytime noise level[1]	Inside to outside noise reduction dB(A)[2]	Internal $L_{Aeq,15hr}$ dB(A) daytime noise level[1]	RNP criteria or AS 2107:200 recommended Satisfactory noise level	Consideration for noise mitigation
C5 - 34-42 Bourke Road	57	25	32	40[4]	No
C8 - 56-60 Bourke Road	54	25	29	40[4]	No

Notes:
1. At facade noise prediction (ARRB correction applied)
2. Estimated inside to outside noise level reduction based on receiver type's building construction
3. RNP criteria for 'new' sub-arterial road
4. Internal noise level for general office areas

As shown in Table 21, noise compliance is achieved at all assessment locations.

6.7.1 Receivers on surrounding roads

Based on the RMS Strategic Model traffic data, analysis has been undertaken to determine potential traffic noise level increases/decreases along existing surrounding roads (ie. Botany Road, O'Riordan Street, Bourke Road and Bowden Street) due to the GS2AC project. A summary of the analysis is presented in Table 22.

Table 22: Noise level difference dB(A) on surrounding roads due to the GS2AC project

Road	2021		2031	
	AM 2Hr Peak	PM 2Hr Peak	AM 2Hr Peak	PM 2Hr Peak
Botany Road	0.2	0.1	0.7	-0.4
O'Riordan Street	-0.2	-0.3	0.1	-0.9
Bourke Road (North of GS2AC)	0.3	0.2	-0.3	0.0
Bourke Road (South of GS2AC)	0.7	0.9	0.1	-0.2
Bowden Street	1.1	1.4	1.9	0.7

Table 22 shows that the project will not cause traffic noise levels along existing surrounding roads (ie. Botany Road, O'Riordan Street, Bourke Road and Bowden Street) to increase by 2dB(A). In accordance with the RNP, when assessing feasible and reasonable mitigation measures this is considered a minor impact that is considered barely perceptible to the average person.

6.7.2 Future residences

An existing residence is best interpreted as applying from DA approved development onwards. That is, residential subdivided or zoned land would not ordinarily be affected by the RNP, as there is an opportunity for addressing noise through good placement, layout and building design of residences.

The area encapsulated by 20-22 O'Riordan Street, and 334-338 Botany Road is under consideration for future affordable housing. Even though GS2AC, O'Riordan Street, and Botany Road would not be presently classed as a 'busy road' (ie. <40,000 ADT) within the Infrastructure SEPP (Department of Planning NSW 2007), the ISEPP provides the most applicable guidance for this development.

Table 24 summarises the ISEPP criteria for new residential development, including an equivalent external noise goal.

Table 23: ISEPP noise criteria for new residential development

Room	Location	$L_{Aeq,\ 15hr}$ Day 7am – 10pm	$L_{Aeq\ 9hr}$ Night 10pm – 7am
Living rooms*	Internal, windows closed	40	40
	Internal, windows open	50	50
	External free-field (allowing windows to remain open)^	60	60
	External 1m from façade level (allowing windows to remain open)^	62.5	62.5
Bedrooms*	Internal, windows closed	40	35
	Internal, windows open	50	45
	External free-field (allowing windows to remain open)^	60	55
	External 1m from façade level (allowing windows to remain open)^	62.5	57.5

Notes: * Requisite for 40,000AADT Roads only under ISEPP 2007.

^ ISEPP Guideline states that where internal noise criteria are exceeded by more than 10dB(A) with windows open mechanical ventilation is required. External goals have been calculated on the basis of nominal 10dB(A) reduction through an open window to a free-field position. Windows open to 5% of floor area in accordance with the BCA 2011 requirements.

A preliminary assessment has been undertaken for an indicative future residential housing on the corner of GS2AC and Botany Road. An indicative residential building has been included in the noise model and predictions have been undertaken and summarised in Table 24. Assessment locations are shown in Figure 7 and setback distances from GS2AC and Botany Road are shown in Table 24.

Table 24: Design Year (2031) daytime operational noise level predictions at future residences

Receiver location	Kerb setback distance in metres [3]	External $L_{Aeq,15hr}$ dB(A) daytime noise level contribution from GS2AC[1]	External $L_{Aeq,15hr}$ dB(A) daytime noise level contribution from Botany Rd[1]	External $L_{Aeq,15hr}$ dB(A) daytime total noise level[1,2]
FR1	5 (GS2AC) & 70 (Botany Road)	66	58	67
FR2	5 (GS2AC) & 20 (Botany Road)	65	66	68
FR3	5 (GS2AC) & 70 (Botany Road)	52	72	72
FR4	5 (GS2AC) & 20 (Botany Road)	44	72	72

Notes:
1. At facade noise prediction (ARRB correction applied)
2. Total noise includes traffic noise from GS2AC and Botany Road
3. Distances are from the kerb of the road

Predictions within Table 24 show that at location FR1, GS2AC is the dominant traffic noise source, at FR2, they are equally contributing and at FR3 and FR4, Botany Road is slightly dominating. Therefore, any at-road noise mitigation would only be beneficial to assessment location FR1 and FR2. The extent of noise reduction provided by the mitigation would be limited by the existing traffic noise contribution from Botany Road.

The predicted noise levels indicate that noise mitigation treatment to the building facade will be required for future noise sensitive development along the GS2AC. The extent of treatment will be dependant of the types of uses, setback from the road and orientation. Design advice for future noise sensitive development is not within the scope of the GS2AC REF.

6.8 Maximum noise level assessment

The nearest residential receivers are located greater than 100m away from the proposed GS2AC, near Johnson Street. Given this distance and the proximity of surrounding existing roads, sleep disturbance from GS2AC is unlikely. It is also expected that the number of L_{Amax} events could decrease along Johnson Street, as the GS2AC could be utilised as an alternative to Johnson Street. Furthermore, the development of land between the GS2AC and existing residential premises will provide additional acoustic shielding.

6.9 Road traffic noise mitigation options

While the assessment reveals compliance at all existing receptors and that future development may require noise mitigation to the building design, consideration has been given to potential noise reduction measures for the road design.

The advice provided here is in respect of acoustics only. Supplementary professional advice may need to be sought in respect of fire ratings, structural design, buildability, fitness for purpose and the like.

The RNP sets out that priority should first be given to reducing noise during road design and traffic management where there may be greater opportunity to provide cost effective integrated outcomes with better urban design. Following traffic management and road design, Section 3.4.1 of the RNP indicates the following priority order for noise mitigation:

i. Quieter pavement surfaces
ii. In-corridor noise barriers/mounds
iii. at-property treatments or localised barriers/mounds

All reasonable and feasible traffic management and road design opportunities to reduce road traffic noise have been considered within the concept design. Therefore, the following sections assess the feasible and reasonableness of the remaining mitigation options in accordance with the order of priority stated above.

6.9.1 Quieter pavements

The RNP sets out that quieter pavement surface is the preferred form of noise mitigation as it reduces source noise levels and provides protection to both external and internal noise levels and also has the least visual impact.

Application of a quiet pavement is not recommended for this proposal for the following reasons:

- The posted speed limit for the GS2AC is to be 50 km/h, and the noise reductions achieved from this mitigation measure would be negligible.
- There are multiple intersections along the GS2AC, which is not ideal for quiet pavements and can cause increased wear and maintenance.

Dense graded asphalt is therefore considered the most appropriate road surface for both noise and other design considerations.

6.9.2 Noise barriers

Not only are noise barriers considered impractical for the project, but future residential development will be multi-storey and therefore noise barriers will provide no noise reduction benefit.

7 Conclusion

Renzo Tonin & Associates have completed a noise and vibration assessment for the Green Square to Ashmore Connector (GS2AC) REF, located at Green Square, Sydney, NSW. Noise and vibration associated with the project construction activities, along with noise from operation of the project road has been assessed.

The findings of this study are:

Construction noise and vibration assessment

- Construction noise is likely to exceed the construction noise goals for the majority of receivers along the construction route. Impacts will be greatest for residential receivers when construction is taking place towards the eastern end of the works. All reasonable and feasible noise mitigation should be applied during the construction phase. Possible noise mitigation measures and their effectiveness have been discussed.
- The risk of structural damage during construction is generally assessed as being low, although this should be confirmed for the detailed design. There is low risk of adverse comment from the nearest receivers for tactile vibration. Vibration mitigation measures and indicative buffer distances have been provided.
- Dilapidation surveys are recommended prior to the commencement of construction at properties that do not comply with the nominated indicative buffer distances.
- Vibration monitoring is recommended during the construction phase to determine site specific buffer distances.

Traffic noise assessment

- Traffic noise levels along existing surrounding roads (ie. Botany Road, O'Riordan Street, Bourke Road and Bowden Street) are not predicted to increase by more than 2dB(A) as a result of the GS2AC. Therefore the impact associated with increased noise from the project along existing roads is considered minor and does not warrant any noise mitigation measures.
- Noise compliance is achieved at all existing assessment locations.
- Possible at-road mitigation options for future residential housing is limited, as set out in Section 6.9. The need for any noise mitigation treatment for future residential housing should be assessed for each proposed development along the GS2AC corridor, and where required, noise mitigation treatment applied to the building.

APPENDIX A Glossary of terminology

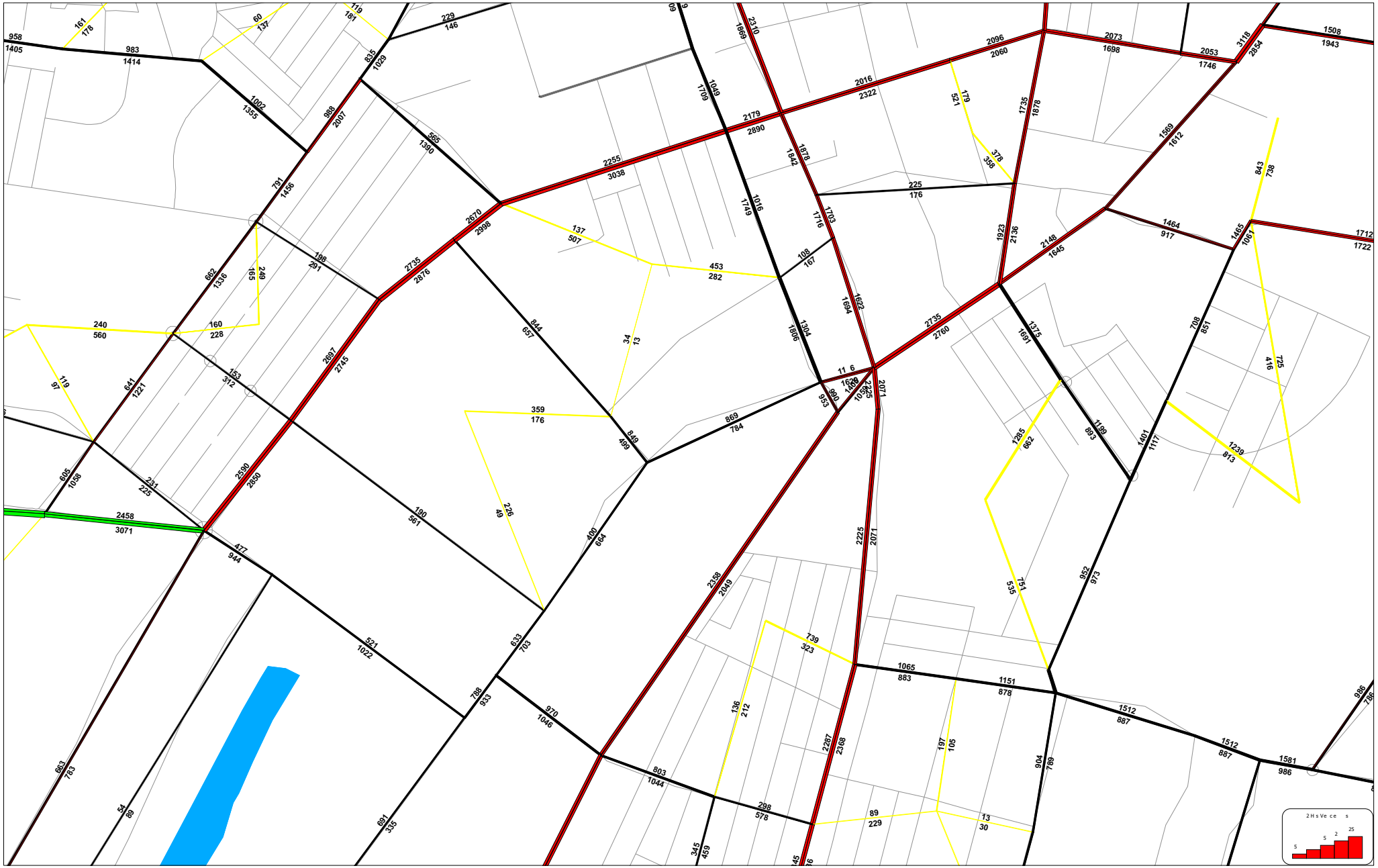
The following is a brief description of the technical terms used to describe noise to assist in understanding the technical issues presented.

Adverse weather	Weather effects that enhance noise (that is, wind and temperature inversions) that occur at a site for a significant period of time (that is, wind occurring more than 30% of the time in any assessment period in any season and/or temperature inversions occurring more than 30% of the nights in winter).
Ambient noise	The all-encompassing noise associated within a given environment at a given time, usually composed of sound from all sources near and far.
Assessment period	The period in a day over which assessments are made.
Assessment point	A point at which noise measurements are taken or estimated. A point at which noise measurements are taken or estimated.
Background noise	Background noise is the term used to describe the underlying level of noise present in the ambient noise, measured in the absence of the noise under investigation, when extraneous noise is removed. It is described as the average of the minimum noise levels measured on a sound level meter and is measured statistically as the A-weighted noise level exceeded for ninety percent of a sample period. This is represented as the L_{90} noise level (see below).
Decibel [dB]	The units that sound is measured in. The following are examples of the decibel readings of every day sounds: 0dB The faintest sound we can hear 30dB A quiet library or in a quiet location in the country 45dB Typical office space. Ambience in the city at night 60dB CBD mall at lunch time 70dB The sound of a car passing on the street 80dB Loud music played at home 90dB The sound of a truck passing on the street 100dBThe sound of a rock band 115dBLimit of sound permitted in industry 120dBDeafening
dB(A)	A-weighted decibels. The ear is not as effective in hearing low frequency sounds as it is hearing high frequency sounds. That is, low frequency sounds of the same dB level are not heard as loud as high frequency sounds. The sound level meter replicates the human response of the ear by using an electronic filter which is called the "A" filter. A sound level measured with this filter switched on is denoted as dB(A). Practically all noise is measured using the A-filter.
Frequency	Frequency is synonymous to pitch. Sounds have a pitch which is peculiar to the nature of the sound generator. For example, the sound of a tiny bell has a high pitch and the sound of a bass drum has a low pitch. Frequency or pitch can be measured on a scale in units of Hertz or Hz.
Impulsive noise	Having a high peak of short duration or a sequence of such peaks. A sequence of impulses in rapid succession is termed repetitive impulsive noise.
Intermittent noise	The level suddenly drops to that of the background noise several times during the period of observation. The time during which the noise remains at levels different from that of the ambient is one second or more.
L_{Max}	The maximum sound pressure level measured over a given period.
L_{Min}	The minimum sound pressure level measured over a given period.
L_1	The sound pressure level that is exceeded for 1% of the time for which the given sound is measured.
L_{10}	The sound pressure level that is exceeded for 10% of the time for which the given sound is measured.

L_{90}	The level of noise exceeded for 90% of the time. The bottom 10% of the sample is the L_{90} noise level expressed in units of dB(A).
L_{eq}	The "equivalent noise level" is the summation of noise events and integrated over a selected period of time.
Reflection	Sound wave changed in direction of propagation due to a solid object obscuring its path.
SEL	Sound Exposure Level (SEL) is the constant sound level which, if maintained for a period of 1 second would have the same acoustic energy as the measured noise event. SEL noise measurements are useful as they can be converted to obtain L_{eq} sound levels over any period of time and can be used for predicting noise at various locations.
Sound	A fluctuation of air pressure which is propagated as a wave through air.
Sound absorption	The ability of a material to absorb sound energy through its conversion into thermal energy.
Sound level meter	An instrument consisting of a microphone, amplifier and indicating device, having a declared performance and designed to measure sound pressure levels.
Sound pressure level	The level of noise, usually expressed in decibels, as measured by a standard sound level meter with a microphone.
Sound power level	Ten times the logarithm to the base 10 of the ratio of the sound power of the source to the reference sound power.
Tonal noise	Containing a prominent frequency and characterised by a definite pitch.

APPENDIX B RMS Strategic Model Traffic Data

TRAFF C VOLUMES__



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Scenario 2111 2021 SYDNEY ROAD NETWORK (NTDELAY)- -6PM(mf2)
2015-03-20 1 23

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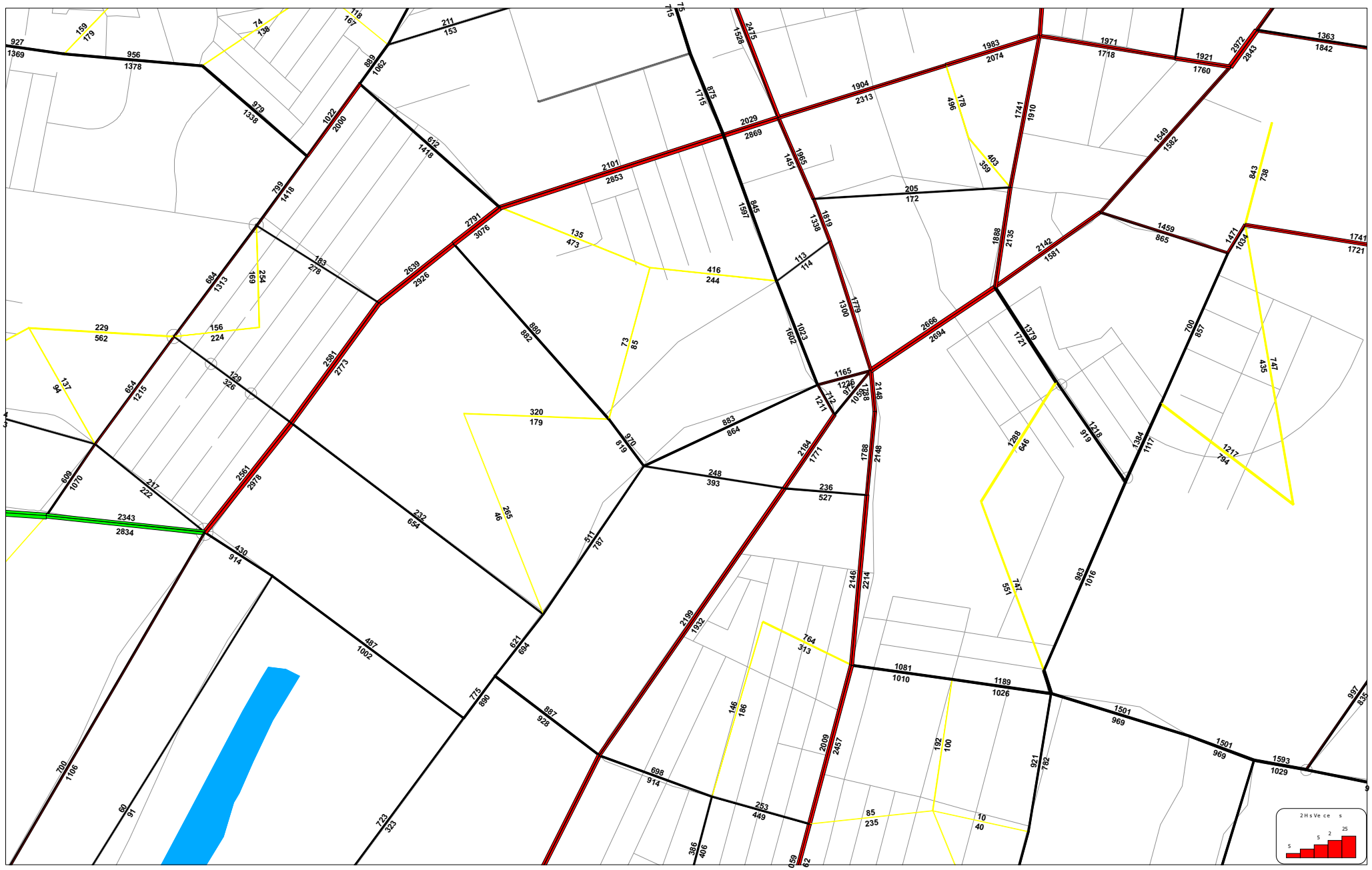

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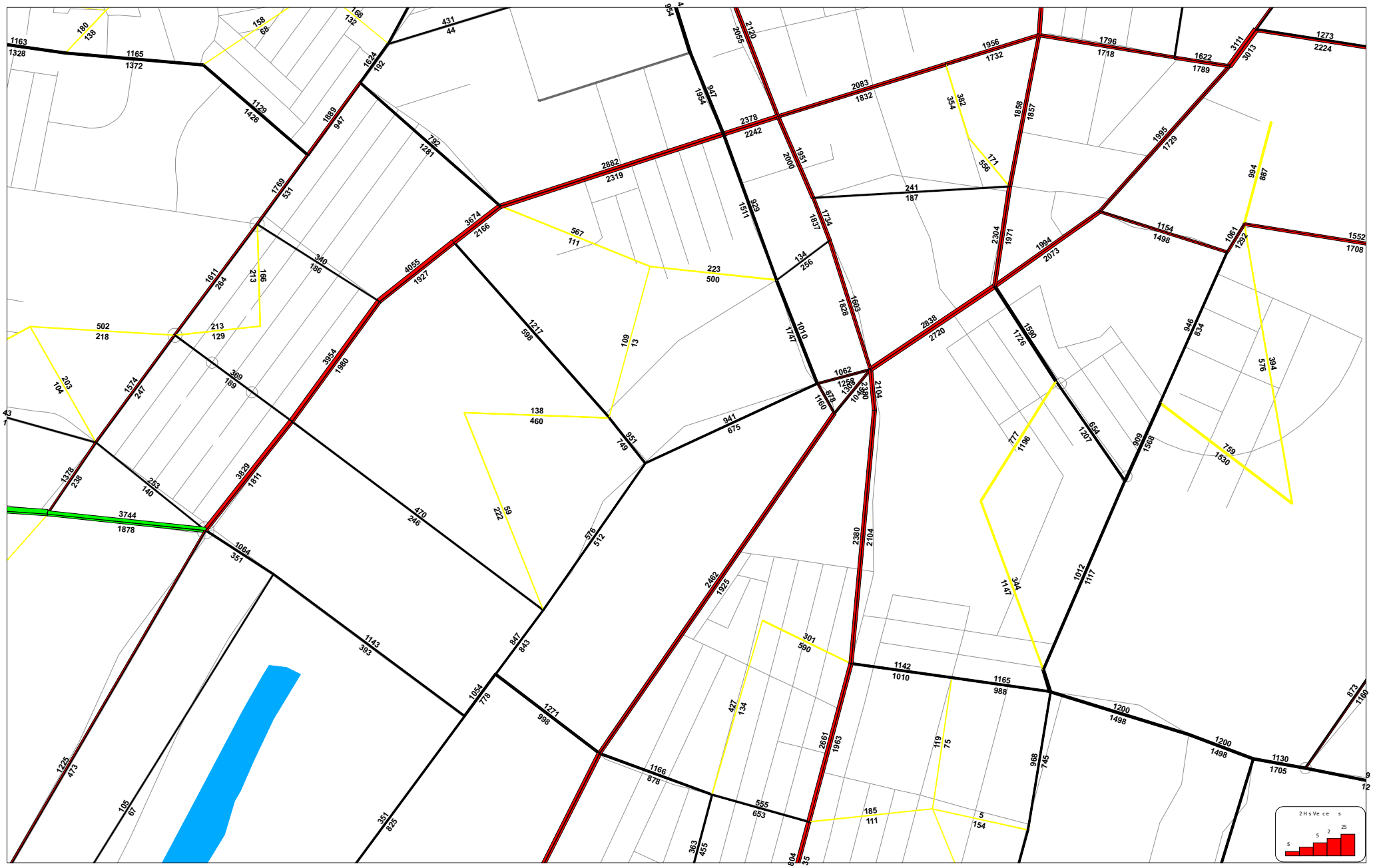

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2015-03-20 1 23

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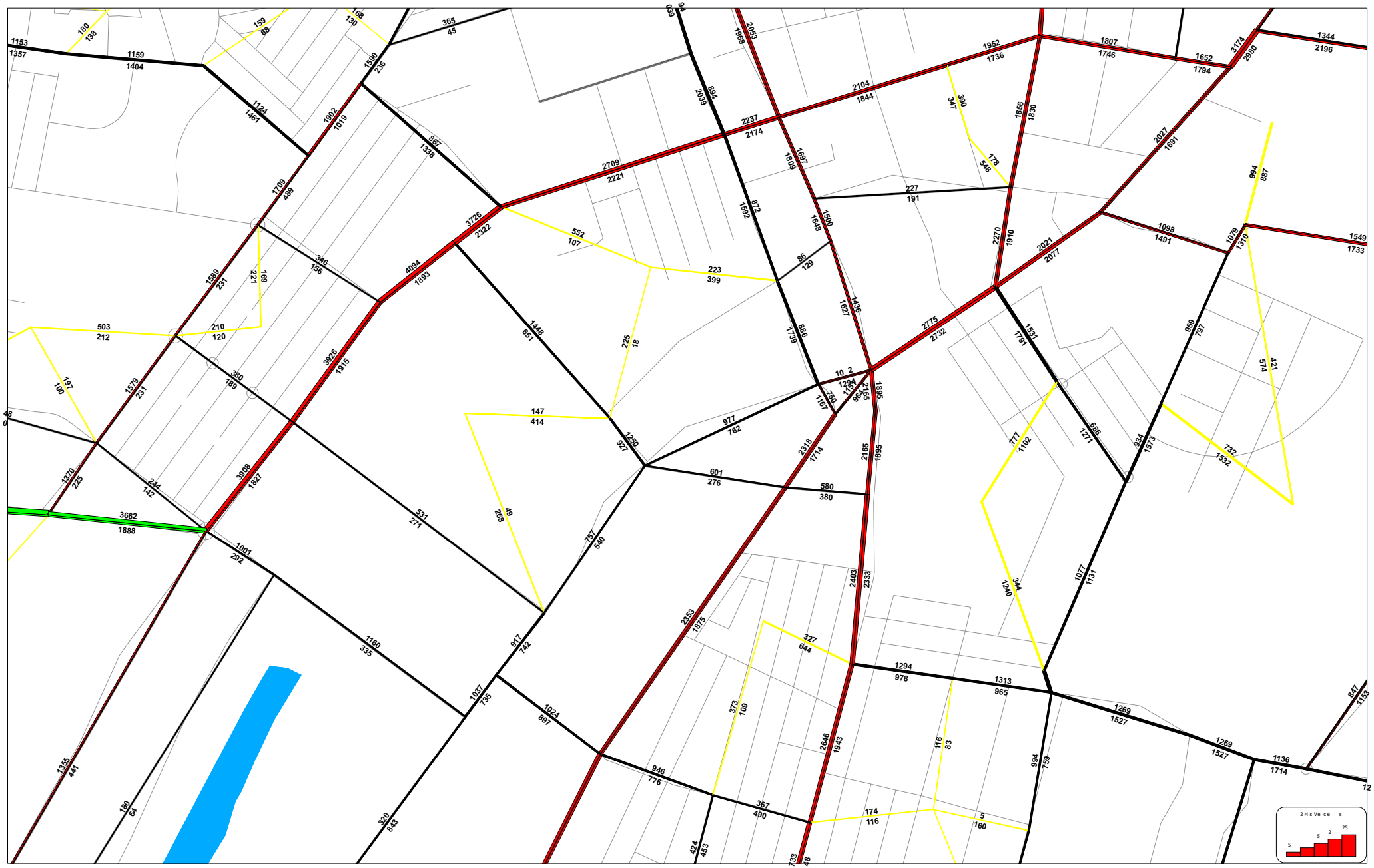

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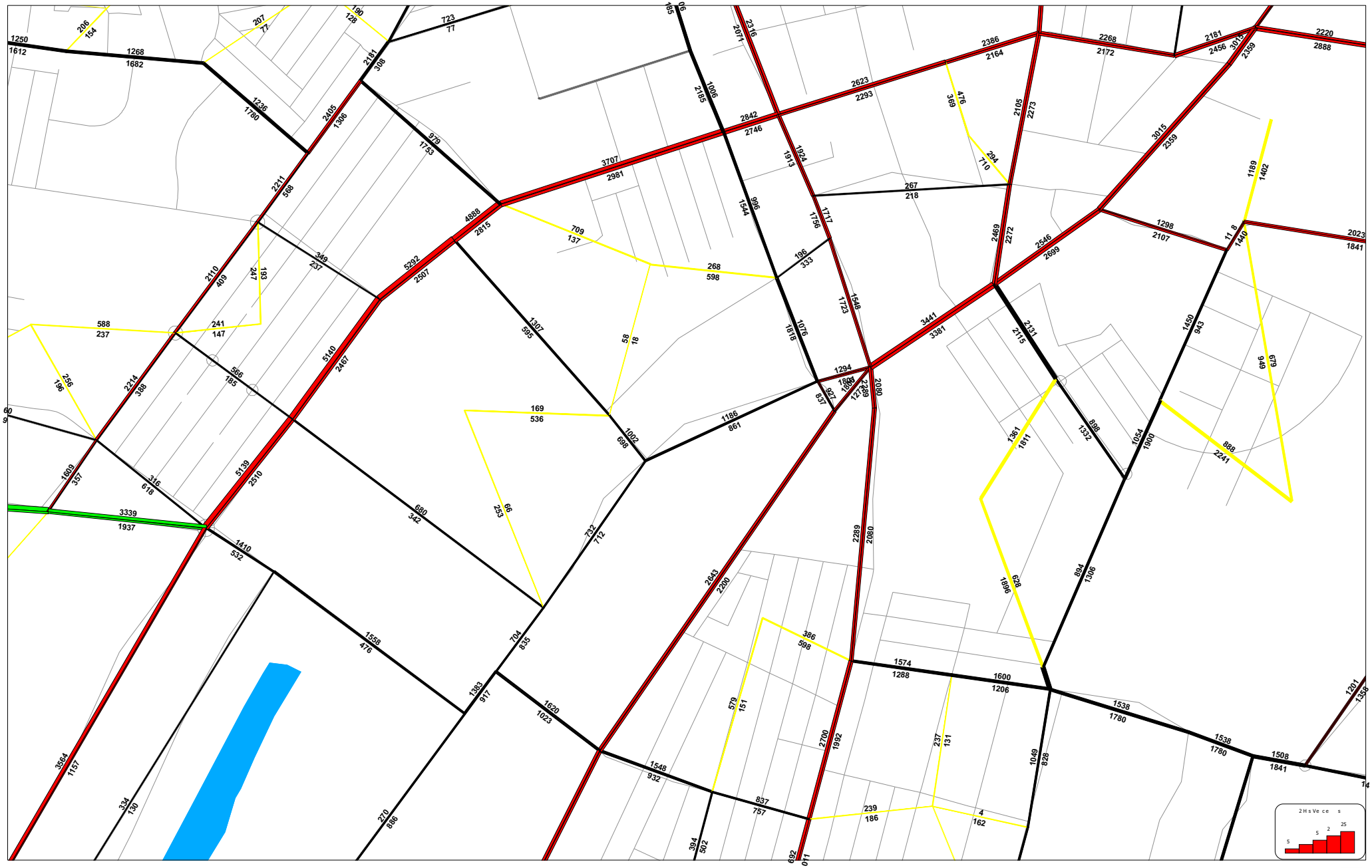
2015-03-20 1 1

TRAFF C VOLUMES__



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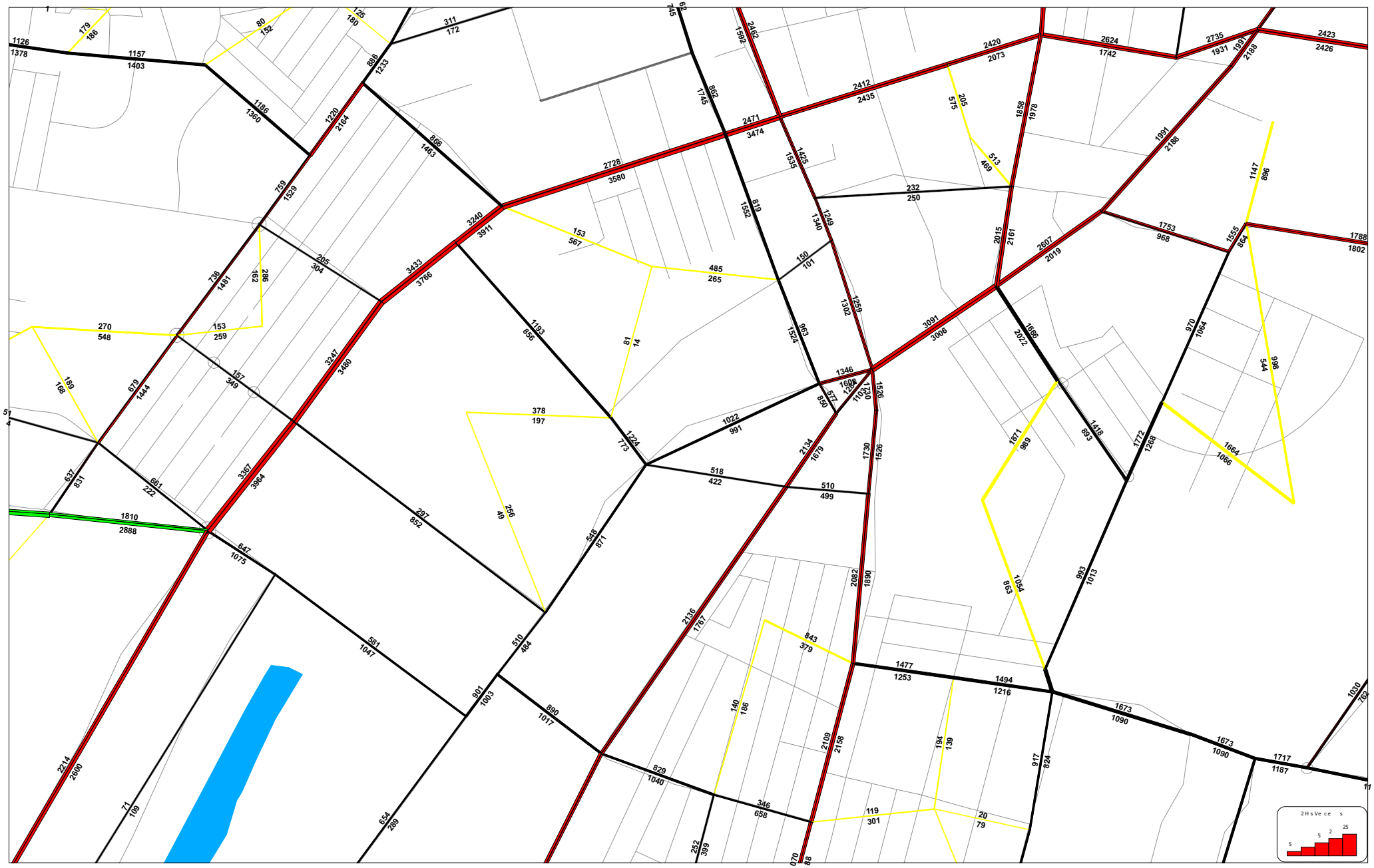

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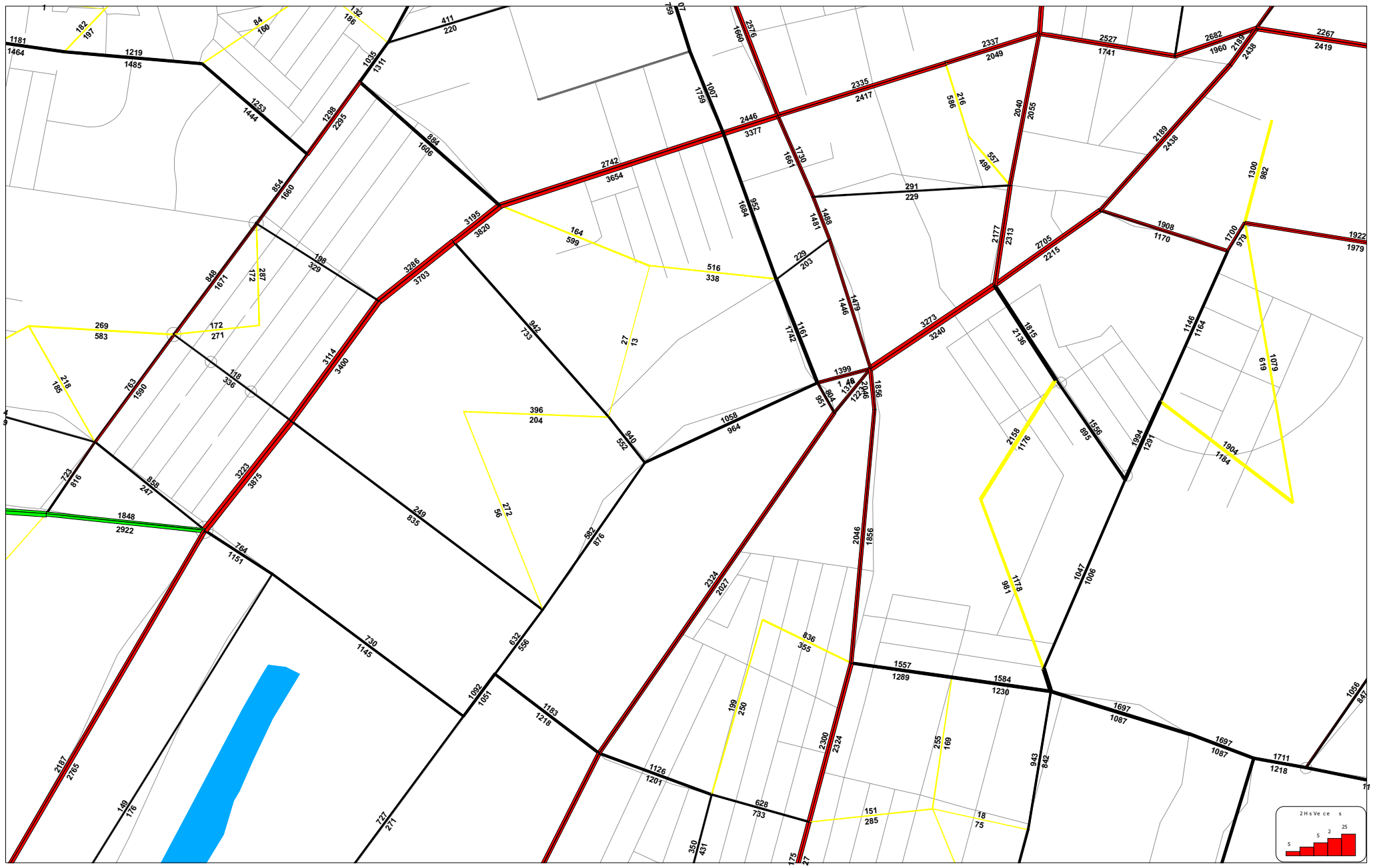
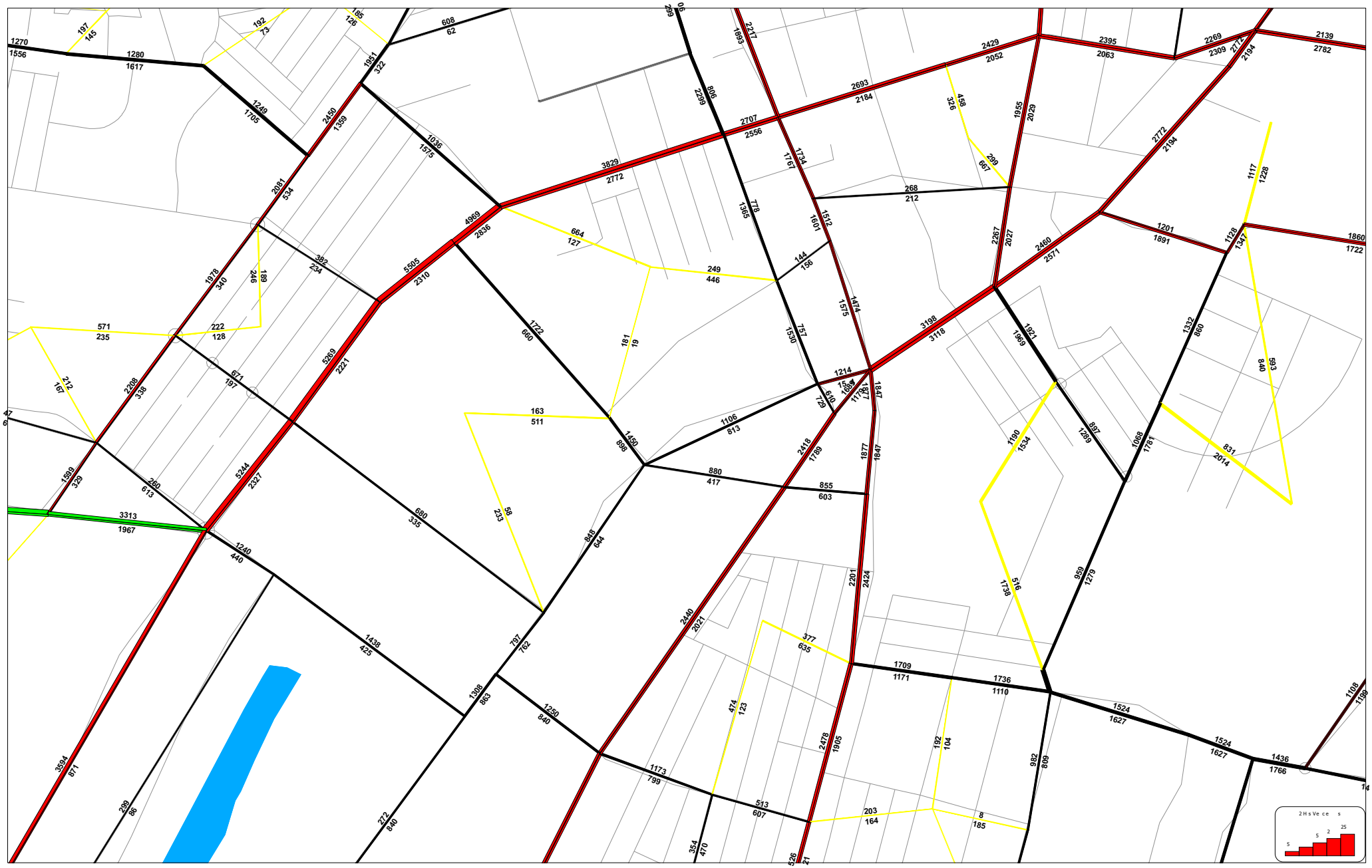
TRAFF C VOLUMES__



2006TZ SYDNEY GMA STRATEG C TRAFF C FORECAST NG MODEL
Scenario 1118 2036 SYDNEY ROAD NETWORK (NTDELAY)- -6PM(mf20)
2015-03-20 1 2

TRAFF C VOLUMES__



2006TZ SYDNEY GMA STRATEG C TRAFF C FORECAST NG MODEL
Scenario 502 2031 SYDNEY ROAD NETWORK (NTDELAY)-7-9AM(mf1)EWRR
2015-03-20 1 1