

VOLUME 4

South Frequent Transit Network Assessment of Operational Noise Effects

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Responsibility	Name
Author	Nick Craven
Reviewer	Claire Drewery, Siiri Wilkening
Approver	Liam Winter

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Glossary of Defined Terms and Acronyms

We note that ‘Takaanini’ (with double vowels) is used throughout the Report Acknowledging the ongoing kōrero and guidance from Manawhenua on the cultural landscape. ‘Takanini’ is used where reference is made to a specific and existing named place (e.g., Takanini Road, Takanini Town Centre etc.). Manawhenua is also used throughout the Report as while gifting the programme name as Te Tupu Ngātahi, Manawhenua confirmed this was an appropriate spelling (capital ‘M’ and one word). Notwithstanding this, the term is spelled as two words in other fora and the proposed designation conditions – Mana Whenua.

Acronym/Term	Description
AC-14	Asphaltic concrete (low-noise road surface)
AEE	Assessment of Effects on the Environment report
AT	Auckland Transport
AUP:OP	Auckland Unitary Plan: Operative in Part
A-weighting	A set of frequency-dependent sound level adjustments that are used to better represent how humans hear sounds. Humans are less sensitive to low and very high frequency sounds. Sound levels using an “A” frequency weighting are expressed as dB L _A . Alternative ways of expressing A-weighted decibels are dBA or dB(A).
BPO	Best Practicable Option as defined in Section 2 of the Resource Management Act 1991
dB	Decibel. The unit of sound level.
FTN	Frequent Transit Network
L_{A90}	The A-weighted sound level exceeded for 90 % of the measurement period, measured in dB. Commonly referred to as the background noise level.
L_{Aeq}	The equivalent continuous A-weighted sound level. Commonly referred to as the average sound level and is measured in dB.
L_{Aeq(24h)}	The LAeq sound level averaged over a 24-hour period from midnight to midnight.
L_{Amax}	The A-weighted maximum sound level. The highest sound level which occurs during the measurement period. Usually measured with a fast time-weighting i.e. LAFmax
MDRS	Medium Density Residential Standards
N/A	Not Applicable
NIWA	National Institute of Water and Atmospheric Research
Noise	A subjective term used to describe sound that is unwanted by, or distracting to, the receiver.
NPS	National Policy Statement
NPS:UD	National Policy Statement on Urban Development

Acronym/Term	Description
NoR	Notice of Requirement
NZ	New Zealand
NZS 6801	New Zealand Standard NZS 6801:2008 Acoustics – Measurement of environmental sound
NZS 6802	New Zealand Standard NZS 6802:2008 Acoustics - Environmental Noise
NZS 6806	New Zealand Standard NZS 6806:2010 Acoustics - Road-traffic noise - New and altered roads
PA10	Open graded porous asphalt
The Project	The Four NoRs proposed to authorise transport upgrades along key sections of roads which fall within the South FTN network (subject of this report / application).
RMA	Resource Management Act 1991
SH1	State Highway 1
South FTN	South Frequent Transit Network
Te Tupu Ngātahi	Te Tupu Ngātahi Supporting Growth
THAB	Terraced House and Apartment Building zone
Waka Kotahi	Waka Kotahi New Zealand Transport Agency

Executive Summary

This report assesses the project wide traffic noise effects from the four proposed Notices of Requirement (**NoRs/the Project**) sought to enable the South Frequent Transit Network (**FTN**) against relevant standards and guidelines. Where necessary, we have investigated and recommended mitigation for each of the four NoRs.

Road traffic noise for altered roads has been assessed against NZS 6806 and other relevant guidance, including the Auckland Unitary Plan (Operative in Part) (**AUP:OP**). In addition, we have assessed the change in noise level due to the Project.

Active mode transport, i.e. walking and cycling, does not generate noise levels high enough to affect the ambient noise environment, particularly where the facilities are adjacent to busy roads, and has therefore not been assessed in this report.

The Project will result in a redistribution of traffic across the wider area. This has been taken into consideration when assessing the individual NoRs.

NoR 1 – Great South Road FTN Upgrade

NoR 1-A-B

NoR 1-A-B includes the length of road proposed to be designated along Great South Road between Browns Road and Halsey Road.

The Project section does not meet the definition of an Altered Road under NZS 6806 as the noise levels due to the Project do not change to a noticeable degree. Therefore, mitigation does not need to be considered further under the Standard. 246 Protected Premises and Facilities (**PPFs**) are predicted to achieve noise levels in Category A under the Do Minimum scenario, and 15 PPFs are predicted to fall into Categories B and C.

When considering noise contributions from other roads in the vicinity of NoR 1-A-B, noise levels are predicted to remain similar at the vast majority of PPFs when comparing the Do-nothing and Do Minimum scenarios.

NoR 1-C

NoR 1-C includes the length of Great South Road proposed to be designated near its intersection with Mahia Road.

The Project section does not meet the definition of an Altered Road under NZS 6806 as the noise levels due to the Project do not change to a noticeable degree. Therefore, mitigation does not need to be considered further under the Standard. In the Do Minimum scenario, 36 PPFs are predicted to fall in Category A and three PPFs are predicted to fall in Category B.

When considering noise contributions from other roads in the vicinity of NoR 1-C, noise levels are predicted to remain similar at all PPFs when comparing the Do-nothing and Do Minimum scenarios.

NoR 1-D

NoR 1-D includes the intersection of Great South Road with Taka Street and Walter Strevens Drive.

The Project section does not meet the definition of an Altered Road under NZS 6806 as the noise levels due to the Project not changing it to a noticeable degree. Therefore, mitigation does not need to be considered further under the Standard. 51 PPFs are predicted to fall in Category A and only one PPF is predicted to fall in Category B under the Do Minimum scenario.

When considering noise contributions from other roads in the vicinity of NoR 1-D, noise levels are predicted to remain similar at all PPFs when comparing the Do-nothing and Do Minimum scenarios..

NoR 1-E

NoR 1-E includes the intersection of Great South Road with Coles Crescent, Subway Road and O'Shannessey Street.

The Project section does not meet the definition of an Altered Road under NZS 6806, as the noise levels due to the Project do not change to a noticeable degree. Therefore, mitigation does not need to be considered further under the Standard. All PPFs are predicted to fall in Category A under the Do Minimum scenario.

When considering noise contributions from other roads in the vicinity of NoR 1-E, noise levels are predicted to remain similar at all PPFs when comparing the Do-nothing and Do Minimum scenarios.

NoR 1-F

NoR 1-F includes the intersection of Great South Road with Wellington Street.

The Project section does not meet the definition of an Altered Road under NZS 6806 as the noise levels due to the Project do not change to a noticeable degree. Therefore, mitigation does not need to be considered further under the Standard. All PPFs are predicted to fall in Category A under the Do Minimum scenario.

When considering noise contributions from other roads in the vicinity of NoR 1-F, noise levels are predicted to remain similar at all PPFs when comparing the Do-nothing and Do Minimum scenarios.

NoR 1-G

NoR 1-G includes the intersection of Great South Road with Settlement Road, Beach Road, Liverpool Street and Butterworth Avenue.

The Project section does not meet the definition of an Altered Road under NZS 6806 as the noise levels due to the Project do not change to a noticeable degree. Therefore, mitigation does not need to be considered further under the Standard. Under the Do Minimum scenario, all 87 PPFs are predicted to achieve noise levels within Category A.

When considering noise contributions from other roads in the vicinity of NoR 1-F, noise levels are predicted to remain similar at the vast majority of PPFs when comparing the Do-nothing and Do Minimum scenarios.

NoR 1-H

NoR 1-H includes the intersection of Great South Road with Park Estate Road.

The Project section does not meet the definition of an Altered Road under NZS 6806 as the noise levels due to the Project do not change to a noticeable degree. Therefore, mitigation does not need to

be considered further under the Standard. The majority of PPFs are predicted to fall in Category A under the Do Minimum scenario.

When considering noise contributions from other roads in the vicinity of NoR 1-H, noise levels are predicted to remain similar or reduce at all PPFs when comparing the Do-nothing and Do Minimum scenarios.

NoR 1 – Bridge

NoR 1-Bridge includes the section of the bridge along Great South Road over Slippery Creek.

The PPFs in NoR 1-Bridge have been assessed against the Altered Roads criteria in accordance with NZS 6806. The Project section does not meet the definition of an Altered Road under NZS 6806 as the noise levels due to the Project do not change to a noticeable degree. Therefore, mitigation does not need to be considered further under the Standard. All PPFs are predicted to fall in Category A under the Do Minimum scenario.

When considering noise contributions from other roads in the vicinity of NoR 1-Bridge, noise levels are predicted to remain similar at all PPFs when comparing the Do-nothing and Do Minimum scenarios.

NoR 2 – Great South Road Upgrade (Drury Section)

NoR 2 includes the section of Great South Road between Waihoehoe Road and the SH1 Drury Interchange.

The Project section does not meet the definition of an Altered Road under NZS 6806 as the noise levels due to the Project do not change to a noticeable degree. Therefore, mitigation does not need to be considered further under the Standard. All PPFs are predicted to fall in Category A under the Do Minimum scenario.

When considering noise contributions from other roads in the vicinity of NoR 2, noise levels are predicted to remain similar or reduce at all PPFs when comparing the Do-nothing and Do Minimum scenarios.

NoR 3 – Takaanini FTN – Weymouth Road, Alfriston Road and Great South Road Upgrades

NoR 3 traverses along Weymouth and Alfriston Roads generally between Selwyn Road and Alfriston Park, and the section of Great South Road between Alfriston Road and Myers Road.

The PPFs near NoR 3 have been assessed against the Altered Roads criteria in accordance with NZS 6806. The NoR meets the definition of an Altered Road under NZS 6806.

39 PPFs will fall in Category B and two PPFs in Category C in the Do Minimum scenario. Noise barriers at these PPFs would not provide the reduction required by the Standard due to the gaps required for driveways which significantly reduce the performance of the barrier, and an asphalt low-noise road surface has already been implemented near the Category B and C PPFs in the Do Minimum scenario.

Noise barriers at Category B and C PPFs will be re-assessed at the time of detailed design to determine if they represent the Best Practicable Option (**BPO**). For any PPFs predicted to receive noise levels in Category C once the BPO mitigation has been determined, we recommend that building modification is investigated at the implementation of the Project.

When considering noise contributions from other roads in the vicinity of NoR 3, noise levels at the vast majority of PPFs are generally expected to remain similar between the Do-nothing and Do Minimum scenarios with a negligible change in noise level of 2 dB or less.

NoR 4 – Takaanini FTN - Porchester Road and Popes Road Upgrades

NoR 4 traverses along Porchester Road generally between Alfriston Road and Walters Road and along Popes Road generally between Takanini School Road and Porchester Road.

The PPFs near NoR 4 have been assessed against the Altered Roads criteria in accordance with NZS 6806. The Project meets the definition of an Altered Road under NZS 6806.

After the application of a low-noise surface and implementation of effective noise barriers in the Mitigation Option 2 scenario which assumes AC-14 (asphaltic concrete low-noise road surface) where required and noise barriers implemented where they would be effective, 38 PPFs will be in Category B and eight PPFs in Category C. Noise barriers at these Category B and C PPFs would not provide the reduction required by the Standard due to the gaps required for driveways which significantly reduce the performance of the barrier.

Noise barriers at Category B and C PPFs will be re-assessed at the time of detailed design to determine if they represent the BPO. For any PPFs predicted to receive noise levels in Category C once the BPO mitigation has been determined, we recommend that building modification is investigated at the implementation of the Project. Mitigation Option 2 is the recommended mitigation option for the Altered Roads within NoR 4; however this is subject to future BPO assessment.

When considering noise contributions from other roads in the vicinity of NoR 4, noise levels are predicted to remain similar or reduce at almost all PPFs when comparing the Do-nothing and Mitigation Option 2 scenarios.

1 Introduction

1.1 Purpose and scope of this report

This report has been prepared to inform the Assessment of Effects on the Environment (**AEE**) for Notices of Requirement (**NoR**) being sought by Auckland Transport (**AT**) for the South Frequent Transit Network (**FTN**) under the Resource Management Act 1991 (**RMA**). Four NoRs are proposed to authorise transport upgrades along key sections of roads which fall within the South FTN network. The transport upgrades authorised by the NoRs are referred to in this report as the **Project**.

Specifically, this report considers the actual and potential effects associated with the construction and operation of the Project on the existing and likely future environment as it relates to operational noise effects and recommends measures that may be implemented to avoid, remedy and/or mitigate these effects.

This report should be read alongside the AEE, which contains further details on the history and context of the Project. The AEE also contains a detailed description of works to be authorised within the NoR, and the typical construction methodologies that will be used to implement this work. These have been reviewed by the author of this report and have been considered as part of this assessment of operational noise effects. As such, they are not repeated here. Where a description of an activity is necessary to understand the potential effects, it has been included in this report for clarity.

1.2 Report Structure

In order to provide a clear assessment of the NoRs, this report follows as appropriate, the structure set out in the AEE. This report contains an assessment of the actual and potential effects for each of the Project as a whole (the four NoRs). Where appropriate, measures to avoid, remedy or mitigate effects are recommended. The sections of this report are arranged accordingly. Table 1-1 below provides an overview of the report structure and where the description of effects can be found in this report.

The report follows a nested structure where each of the four NoRs are assessed. Note that each of the NoR 1 sections were assessed individually due to their geographical separation from each other.

Table 1-1: Report Structure

Report Section #	Extent Assessed (Route and/or NoR)
7	NoR 1 – Great South Road FTN Upgrade (divided into sub-sections per intersection)
7.1	NoR 1-A-B
7.2	NoR 1-C
7.3	NoR 1-D
7.4	NoR 1-E
7.5	NoR 1-F
7.6	NoR 1-G

Report Section #	Extent Assessed (Route and/or NoR)
7.7	NoR 1-H
7.8	NoR 1-Bridge
8	NoR 2 – Great South Road (Drury section)
9	NoR 3 – Takaanini FTN – Weymouth Road, Alfriston Road and Great South Road Upgrades
10	NoR 4 – Takaanini FTN – Porchester Road / Popes Road

2 Project Description

2.1 Context – South FTN network

As described further in the AEE, the South FTN is one of the transport works packages proposed for South Auckland between Manukau and Drury as part of Te Tupu Ngātahi Supporting Growth (**Te Tupu Ngātahi**).¹ The South FTN is in turn part of a wider planned multi-modal transport network intended to support growth and enable mode shift in South Auckland.

The South FTN comprises a range of road upgrades including bus priority measures, new and upgraded active mode facilities, and intersection improvements along existing arterial road corridors in South Auckland. In particular, the proposed road upgrades provide for:

- Operation of high-quality FTN² bus services along Great South Road between Manukau and Drury (the Great South Road FTN route);
- Operation of high-quality FTN bus services along existing roads between Manurewa, Takaanini, and Papakura (the Takaanini FTN route); and
- Urbanisation of adjoining key connections to FTN routes – Popes Road West, and the Drury section of Great South Road between Waihoehoe Road and State Highway 1 (**SH1**).

The total extent of the South FTN network is shown in Figure 2-1.

2.2 The NoRs – proposed spatial extent

Of the full South FTN network extent shown in Figure 2-1, only a portion falls within the NoRs/Project (Figure 2-2). This is because the proposed corridor upgrades do not always require additional land take, can be undertaken within the existing road reserve, and therefore do not require new designations.³

Accordingly, this assessment is focussed on the activities proposed to be authorised by the four NoRs. The NoRs seek generally to provide for road widening to accommodate bus priority measures, walking, and cycling facilities, key intersection upgrades, replacement of existing bridges and other associated works. These are described in more detail in Table 2-1, and the extents are shown in Figure 2-2

Further detail on the proposed activities and works in each NoR are provided in the AEE.

¹ The Programme is a collaboration between Auckland Transport (**AT**) and Waka Kotahi NZ Transport Agency (**Waka Kotahi**) to investigate, plan, and undertake route protection for the strategic transport networks needed to support Auckland's growth over the next 30 years.

² FTN services are defined in AT's Regional Public Transport Plan (RPTP) as bus routes operating at least every 15 minutes between 7am-7pm, 7 days-a-week, often supported by priority measures such as bus or transit lanes.

³ Some limited additional third-party land may be required in the future to provide for intersection upgrades between Takaanini and Ōpaheke. The relative cost-benefit assessment of these areas did not favour route protection at this time given the projected time scale for future urban growth in this area.

Table 2-1: South FTN – Summary of NoRs

NoR reference	Project component	Description
NoR 1	Great South Road FTN Upgrade	<ul style="list-style-type: none"> Road upgrades and transport upgrades providing for the Great South Road FTN route along Great South Road between Manukau and Drury. NoR comprises eight separate areas along Great South Road (see Figure 2-2) providing for bus priority measures, walking and cycling facilities, key intersection upgrades, replacement of the existing Otūwairoa / Slippery Creek bridge, and stormwater management devices.
NoR 2	Great South Road Upgrade (Drury section)	<ul style="list-style-type: none"> Road upgrades and transport upgrades providing for upgrade of a 520m section of Great South Road in Drury between Waihoehoe Road and the SH1 Drury Interchange. NoR enables road widening to provide for four lanes, active mode facilities, replacement of the existing Hingaia Stream bridge, and stormwater management devices.
NoR 3	Takaanini FTN – Weymouth Road, Alfriston Road and Great South Road Upgrades	<ul style="list-style-type: none"> Road upgrades and transport upgrades providing for the Takaanini FTN route along Weymouth and Alfriston Roads between Selwyn Road and Saralee Drive; and for an adjoining section of the Great South Road FTN route between Halver Road and Myers Road. NoR enables road widening to accommodate bus priority measures, walking and cycling facilities, key intersection upgrades, replacement of existing bridges along Weymouth Road over the North Island Main Trunk (NIMT) and Alfriston Road over SH1, and stormwater management devices.
NoR 4	Takaanini FTN – Porchester Road and Popes Road Upgrades	<ul style="list-style-type: none"> Road upgrades and transport upgrades providing for the Takaanini FTN route along Porchester Road generally between Alfriston Road and Walters Road; and for the urbanisation of Popes Road generally between Takaanini School Road and Porchester Road. NoRs provide for urbanisation of both corridors – two traffic lanes, walking and cycling facilities, key intersection upgrades, and stormwater management devices.

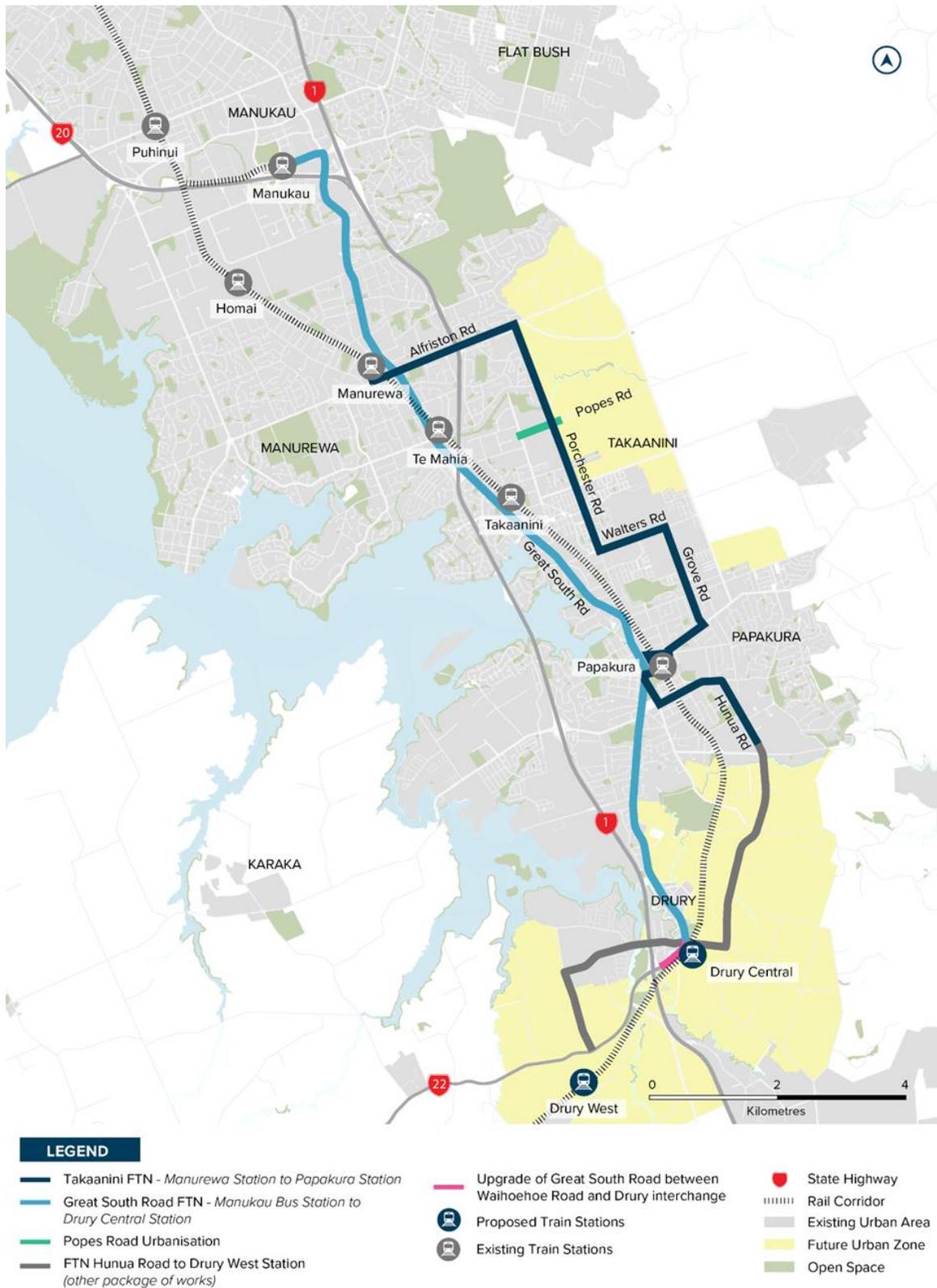


Figure 2-1: South FTN – full network



Figure 2-2: South FTN – NoR extents (the Project) including NoR 1 intersection references

3 Assessment methodology and parameters

New designations are sought for the four NoR areas. Whilst this report considers noise effects from traffic both within and outside the proposed designation boundaries, appropriate mitigation measures have only been determined for effects arising from activities within the boundary of each NoR (i.e., within the scope of the NoRs).

3.1 Operational Noise

3.1.1 Guidelines and Standards reviewed

We reviewed the following guidelines and standards for the assessment of traffic and operational noise:

- AUP:OP, specifically rule E25.6.33 relating to transport noise and referencing NZ 6806;
- NZS 6806:2010 Acoustics – Road-traffic Noise – New and altered roads; and
- Waka Kotahi’s “Guide to assessing road-traffic noise using NZS 6806 for state highway asset improvement projects” (**Guide**), V1.1, August 2016.

We recommend applying the requirements of NZS 6806.

We recommend that the additional information provided in the Guide is applied to this Project. The Guide describes how NZS 6806 should be implemented. While it describes some Waka Kotahi specific processes, such as the use of a Waka Kotahi internal matrix of project discipline feedback when determining the BPO for noise mitigation, the methodology and process set out in the Guide is considered best practice and should be applied to all Projects that involve new or altered roads. Overall, the Guide provides background on how to implement NZS 6806 and is therefore a useful complementary document to the Standard.

3.1.2 Road traffic noise

Road traffic noise is assessed in accordance with NZS 6806. This Standard is also required by the AUP:OP rule E25.6.33.

We consider the intent of NZS 6806 is to provide a pragmatic approach to the use of noise mitigation. This approach includes the requirement that a roading project needs to have a noticeable noise effect before mitigation is considered, and that any mitigation needs to achieve a noticeable reduction in noise level.

NZS 6806 applies to traffic noise assessments where a project falls within its thresholds. The Standard and its thresholds are briefly explained below.

- **Assessment Positions** are described as “Protected Premises and Facilities” (**PPFs**). PPFs include dwellings (including those that have building consent but are not built yet), educational facilities and their playgrounds within 20m of any school building, boarding houses, retirement villages, Marae, hospitals with in-patient facilities and motels/hotels in residential zones.

– Note that:

- Areas earmarked for future residential development are not PPFs as the location and specific type of the receiving buildings are not known. However, to provide information for the future developers, we have provided noise level predictions over vacant land also.
- Businesses are not PPFs as they are not considered noise sensitive and are often noise generators in their own right. This includes any potential future businesses that may be established through a Structure Plan.
- **Assessment Extent** is 100m from the edge of the new carriageway for urban areas and 200m for rural areas, in accordance with NZS6806. Urban areas are defined by Statistics NZ and are independent from the underlying zoning. Different parts of the Project are in Urban and Rural areas as indicated in Figure 3-1, with the light green indicating the Rural area and the light orange indicating Urban areas. The majority of the NoRs are located in the Urban area, with a 100m assessment area. Part of NoR 2 falls within the Rural area, and a small section of NoR 4 falls within the Rural area; these sections have a 200m assessment area.



Figure 3-1: Urban/Rural classification by Statistics NZ

- **Assessment Areas** are areas which combine PPFs that would benefit from the same mitigation (e.g. barrier). For these Projects, given the potential long implementation period, we have prepared an overview of proposed mitigation for each of the NoRs rather than dividing the areas further.
- **Design Year** is a year 10 to 20 years after opening of the Project. Since there are a number of NoRs assessed, without a defined implementation year, we chose the scenario for the latest traffic data available. The traffic data assumes that the area is developed to its fullest potential. The design year for this scenario is 2048+.
- **Noise Criteria Categories** are set out in the Standard for ‘new’ and ‘altered’ roads. This Project includes only altered roads. The Noise Criteria Categories for Altered Roads are set out in Table 3-1 below.

Table 3-1: Traffic noise criteria categories

Category	Altered Road dB L _{Aeq(24h)}
A (primary external noise category)	≤ 64
B (secondary external noise category)	64 – 67
C (internal noise category)	40 (provided the external noise level is > 67)

The applicable category at any PPF depends on the BPO test, by progressively applying the noise criteria categories to determine which can practicably be achieved. NZS6806 is clear that preference is to be given to structural mitigation over building modification mitigation. NZS6806 also requires that the lowest external noise level is achieved with practicable structural mitigation, before considering building modification to mitigate residual internal noise levels.

- **Assessment Scenarios** are the various operational scenarios that we assess and compare. The Standard includes the following scenarios:
 - Existing noise environment: consists of the current road layout and traffic volume (for the Project we were provided traffic data from 2016 from the traffic modelling team at Te Tupu Ngātahi). (Note that a significant change in traffic volume is required to affect a noticeable change in traffic noise – refer Section 3.1.3);
 - Future Do-nothing scenario: This scenario only applies to altered roads. It consists of the existing roads for the existing noise environment, with traffic volume at the design year 2048. This scenario assumes that the full development of all surrounding areas has occurred, and traffic volumes have increased because of that development, but that traffic can only use the existing roads;
 - Future Do-minimum scenario: consists of all proposed transport corridors (the NoRs) at the design year 2048, without any specific noise mitigation. This scenario means that the only barriers included are solid safety barriers, which are required for reasons other than noise mitigation. Where a low noise road surface such as AC-14 (asphaltic concrete low-noise road surface) is proposed as the “base” road surface (e.g. as is the case for NoR 1-A-B along Great South Road), this is also included in the Do-minimum scenario. Other roads that are not proposed to be altered by the Project (e.g. those crossing or connecting with the Project) are not included in the assessment; and

- **Future Project with mitigation:** consists of the proposed Project transport corridors at the design year 2048, and includes mitigation that is designed specifically to reduce noise levels.
- **Altered Roads:** In order for a Project to qualify as an Altered Road, a vertical or horizontal realignment of an existing road is required, and the noise level change due to the implementation of the Project (i.e. comparing the Do-nothing and Do-minimum scenarios) must be more than 3 dB for noise levels above 64 dB $L_{Aeq(24h)}$ and more than 1 dB for noise levels above 68 dB $L_{Aeq(24h)}$ at any PPF.
For Altered roads, the noise predictions for the NZS 6806 assessment did not include the surrounding road network for the Do-minimum scenario, as Section 6.2.2 of NZS 6806 states that mitigation is only required for road traffic noise generated from the New or Altered road.
- **Mitigation Requirements** are set out in the Standard based on the BPO. Mitigation is split into structural (road surface, barriers, bunds) and building modification mitigation (improvement of building façades and ventilation, after the implementation of any structural mitigation, generally only considered for PPFs receiving noise levels within Category C). Any mitigation should achieve a noticeable noise level reduction of an average of 3 decibels within each assessment area or 5 dB for standalone PPFs.

3.1.3 Subjective perception of noise level changes

The subjective impression of changes in noise can generally be correlated with the numerical change in noise level. While every person reacts differently to noise level changes, research shows a general correlation between noise level changes and subjective responses.⁴ Table 3-2 shows indicative subjective responses to explain the noise level changes discussed in this report.

The perception of these noise level changes generally applies to immediate changes in noise level, as would be the case for a new road. However, people may subjectively have an annoyance reaction to a greater or lesser degree, depending on their perception of the Project.

Table 3-2: Noise level change compared with general subjective perception

Noise level change	General subjective perception ⁵
1–2 decibels	Insignificant/imperceptible change
3–4 decibels	Just perceptible change
5–8 decibels	Appreciable to clearly noticeable change
9–11 decibels	Halving/doubling of loudness
>11 decibels	More than halving/doubling of loudness

Noise is measured on a logarithmic scale, meaning that a doubling in traffic volume (e.g. from 10,000 vehicles per day (vpd) to 20,000 vpd) results in a noise level increase of 3 decibels, a just-perceptible

⁴ For instance, LTNZ Research Report No. 292: Road traffic noise: determining the influence of New Zealand Road surfaces on noise levels and community annoyance, Table 18.
⁵ Based on research by Zwicker & Scharf (1965); and Stevens (1957, 1972).

change. A tenfold increase in traffic volume (e.g. from 10,000 to 100,000 vpd) would result in a noise level increase of 10 decibels, which would sound twice as loud.

While for the assessment in accordance with NZS 6806 only the Project roads are included, when discussing the effect on people, in relation to the change in noise level, the surrounding road network was included in the noise predictions. This provides a more realistic representation of the level of effects, particularly for a suite of Projects that are proposed for a similar geographic region which influence each other and the wider environment.

3.2 Operational Vibration

Traffic vibration from new or upgraded roading projects is not generally expected to create issues. A key factor with new roads is the uniformity of the basecourse/pavement and the absence of near surface services. This is due to new or upgraded roads being designed to be smooth and even and avoiding vibration generated from passing traffic over uneven surfaces. Therefore, traffic vibration effects arising from operation of the Project has not been assessed further.

4 Methodology

We have assessed the road traffic noise effects at PPFs based on:

- The noise criteria categories of NZS 6806; and
- Noise effects (both beneficial and adverse) through determination of noise level changes.

The reason for the two-pronged approach is that in some circumstances, compliance with a Standard does not necessarily mean that the effects of a project would be minor, and vice versa.

Potentially, the effects of a noise level increase can be small (e.g. a noise level increase of less than 3 decibels). At the same time, the resulting noise environment can be very high, particularly adjacent to existing state highways, and cause (potentially further) adverse effects for residential use.

The Project is intended to unlock the development potential of land in some areas and support existing development and transport demands surrounding the transport corridors in other areas. The proposed extensive urban development of land in the vicinity is predicted to result in traffic volumes changing, thus resulting in noise level changes for some areas when comparing current and future 2048 traffic volumes.

The assessment in accordance with NZS 6806 is undertaken for each Project road individually, excluding other roads in the area. The reason is that the only effects that can be mitigated by a project are those of the roads that are directly affected by that project, i.e. excluding other roads that may contribute to the overall noise levels but are not being changed by a project.

On the other hand, the assessment of traffic noise change takes account of all major roads in the vicinity of the Project road. In this instance, the traffic noise levels that may be experienced at PPFs from all traffic in the area is assessed to gain a good understanding of:

- Whether a Project road has an effect on the overall noise level received at individual PPFs; and
- The change in noise level assuming all NoRs have been implemented (refer Section 4.2 below).

This means that the change in noise level takes account of the cumulative effect of all existing and future roads being used.

4.1 Preparation for this report

Work undertaken for this report commenced in December 2022. In summary, the preparation for this report has included:

- Review of information from other experts, namely traffic, construction, design and planning amongst others;
- A site visit of all project areas within the NoRs on 17 July 2023; and
- Ambient noise level surveys in the Project areas (refer to section 5.2).

Where information we relied on was provided by other experts, this is noted in the report.

4.2 Assumptions

Assessment of operational noise and vibration effects is based on information provided by other experts, specifically the team’s traffic specialists.

Since we have assessed four NoRs, without a defined implementation year, we chose a scenario where all NoRs are likely to be implemented, and the area is developed to its fullest potential. The design year for this scenario is 2048.

The assessment of the Do-nothing scenario (refer Section 3.1.2) is that the surrounding environment is fully developed, but without any changes to the transport corridors. We understand from the traffic specialists that a sensitivity factor is included in these traffic volumes that does not allow for impractically high traffic volumes on existing roads. The assumption is that peak traffic would occur for more hours of the day.

We have assumed that all existing buildings inside the designation areas will be removed or will not represent a PPF (e.g. buildings may be repurposed to contain non-noise sensitive uses). We have therefore not assessed these buildings as PPFs (refer Table 4-1). Should they be retained and be used for any uses identifying them as a PPF, they will need to be assessed and mitigation will need to be determined where necessary, during detailed design.

Table 4-1: Buildings inside designation (not assessed)

NoR	Address
1	322, 1/324, 330 Great South Road, Ōpaheke 1/70, 1-2/68 Great South Road, Manurewa 135 Great South Road, Drury 9, 64, 72 Great South Road, Manurewa
2	1, 1/1 Firth Street 280, 280A, 280B Great South Road, Drury
3	1/110, 1/19, 1/32, 1/77, 1/79, 1/81, 1/84, 11A, 125, 127, 141, 141A, 1-8/17, 2/77, 2/81, 23/110, 30A, 36A, 38, 40, 42, 50, 52B, 52C, 54, 59C, 6/15, 60, 7, 7A, 70, 76, 86, 90, 92 Alfriston Road 44 Claude Road 1/236A, 1/241, 1/243, 1/249, 1/251, 1-2/247, 207-209, 228, 231, 237, 253, 255, 257 Great South Road, Manurewa 25 Index Place 1/4, 1B, 1C, 2/4, 2A, 2B Scotts Road 1 Shifnal Drive 2, 4, 6, 10, 12, 1-3/11, 15, 16, 18 Weymouth Road
4	1-7 Whakarato Way

4.3 Assessment basis

The assessment considers the proposed transport infrastructure in two categories:

- **Altered roads:** Altered roads are proposed for all the NoRs and have been assessed against NZS6806 and in relation to the change in noise levels.
- **Walking and Cycling:** All four NoRs allow for some form of active mode transport, i.e. walking and cycling. Walking and cycling facilities do not cause any significant noise levels that would be consistently noticeable adjacent to the integrated major transport corridors that they are located at. Therefore, no specific operational noise assessment of walking and cycling facilities was undertaken.

4.4 Computer noise modelling

The propagation of transport noise is affected by multiple factors, amongst them:

- Terrain elevations, including shielding from intervening terrain and exposure due to elevation;
- Ground condition, including absorptive ground such as meadows or hard reflective ground;
- Atmospheric conditions, including wind or temperature inversions; and
- Road parameters, including road surface, traffic speed, vehicle types and gradient.

Because of the multiple factors and their interaction, computer noise modelling is a vital tool in predicting traffic noise impacts in the vicinity of major roads and for the determination of mitigation measures. Modelling enables a comprehensive and overall picture of noise impacts to be produced, taking into consideration all factors potentially affecting noise propagation.

We used the software SoundPLAN, which is an internationally recognised computer noise modelling programme. SoundPLAN uses a three-dimensional digital topographical terrain map of the area as its base. In addition, we entered data into the model for existing buildings, proposed earthworks edges and ground absorption within the assessment area. We digitised road traffic noise sources, with road lanes located on the terrain file, for the existing/Do-nothing scenarios and the Do-minimum scenario.

The SoundPLAN model implements the calculation algorithms of the “Calculation of Road Traffic Noise” methodology which is referenced in NZS 6806 in Section 5.3.2 of the standard.

The calculation algorithms take account of the factors set out above, including relevant atmospheric and ground conditions within appropriate parameters.

For road noise, we have used the adjustments for New Zealand road conditions, specifically road surface types, as set out in the Waka Kotahi “Guide to state highway road surface noise”, V1.0, January 2014, Table 2.1. Therefore, modelling results can be compared with the relevant criteria without further adjustment.

4.4.1 Model verification

The accuracy of the computer model needs to be verified. We used the measurement results set out in Section 5.2 to verify that the computer model operates within satisfactory tolerances (refer Table 4-2).

Table 4-2: Computer noise model verification

Measurement position	Location	Measured Level	Predicted Level	Difference	Comment
		dB L _{Aeq(24h)}	dB L _{Aeq(24h)}	decibels	
MP1	NoR 1	66	65	+1	Within acceptable range.
MP2	NoR 3	67	65	+2	Within acceptable range.
MP3	NoR 4	72	65	+7	Higher noise level measured than predicted. Potentially due to noise from foliage near the monitoring location, a worn road surface near the measurement location, and also from cars travelling at a higher speed than the 60 km/h posted speed limit used in the noise model.

A comparison of the measured and predicted levels shows that there is generally good agreement between measured and predicted levels at two out of the three locations, with a difference of no more than 2 decibels, for those positions where traffic on existing roads is the controlling noise source. This accuracy fulfils the requirements of NZS 6806 which states in Section 5.3.4.2: “*The difference between measured and predicted levels should not exceed ± 2 dB.*”

The larger discrepancy at the measurement location near Porchester Road was likely due to noise from foliage, and cars travelling faster than the 60 km/h posted speed limit along Porchester Road.

4.4.2 Individual receiver noise levels

We have assessed noise effects at all PPFs. We have included predicted noise levels for all PPFs, for all scenarios, in the tables in Appendix A. The locations of these dwellings are shown in the maps in Appendix B.

Noise criteria categories for the PPFs are shown as a graphic representation by colouring the buildings with a colour scale, showing NZS 6806 Category A buildings in green, Category B buildings in orange and Category C buildings in red. Any buildings not shown in these three colours on the figures are outside the assessment area, or are not PPFs, e.g. garages, sheds or business premises.

4.4.3 Noise contour plans

Noise contour plans are a useful tool to obtain a graphical overview of a project area including currently vacant land that may be developed in the future. The contours are calculated in SoundPLAN by interpolating a large number of individual points. Therefore, noise contour maps should not be used to “read” noise levels for specific locations. For individual noise levels for each PPF, the receiver noise levels in the tables in Appendix A should be used.

Noise contour plans are contained in maps in Appendix B. These plans show interpolated noise level bands at 5 decibel intervals from 55 dB to 70 dB L_{Aeq(24h)}.

4.5 Assessment of operational vibration

As noted in Section 3.2, vibration from well-constructed and maintained roads is not an issue that causes adverse effects. As such vibration effects are not anticipated and we have therefore not assessed road traffic vibration further.

5 Existing and future environment

5.1 Planning and land use context

The existing and anticipated future environment is further discussed in the accompanying AEE. In summary, the implementation timeframe for the Project has yet to be confirmed but is likely to be in approximately 10-15 years' time subject to funding availability. The assessment considers the effects of the Project at both the existing environment (as it exists today) and the likely future (planned) environment which consider potential urban development and intensification sought under Plan Change 78 (**PC78**).

The Project will be constructed and will operate in the existing urban environment or planned environment (i.e. what can be built under the existing AUP:OP live zones):

- a) **Existing environment:** The corridors are situated primarily within existing urban areas with live zoning including residential, commercial, and open space zones. There is some Future Urban Zone land in the wider area to the northeast/east. The existing activities within the area are generally reflective of the existing underlying zoning; and
- b) **Planned environment:** The planned environment is anticipated to remain urban and comprised of similar activities as the existing environment. The density of residential development is however anticipated to change and increase in future. In particular, this includes in the residential zones around Te Mahia and Takaanini stations, in line with the implementation of the National Policy Statement on Urban Development (**NPS:UD**) in the AUP:OP. The remaining residential areas will experience an uplift of density through the implementation of the Medium Density Residential Standards (**MDRS**) through the Resource Management (Enabling Housing Supply and Other Matters) Amendment Act 2021. PC78 (notified at the time of assessment) seeks to give effect to the NPS:UD and incorporate the MDRS into residential zoning. It is noted that there are some areas of existing residential zoned land (particularly east of the NIMT) that have recently been intensified (i.e., new builds), as such are unlikely to change in the near future.

The likelihood and magnitude of land use change regarding the land use planning context has been identified in Table 5-1 below. This has been used to inform the assumptions made on the likely future environment.

Table 5-1: South FTN – existing and future environment

Existing environment	Current AUP:OP Zoning	Likelihood of Change for the environment ⁶	Magnitude of potential change	Likely Receiving Environment ⁷
Residential ⁸	Residential (Mixed Housing Suburban)	Low - Moderate ⁹	Low - Moderate	Residential
	Residential (Mixed Housing Urban)	Low - Moderate ¹⁰	Low - Moderate	Residential
	Residential (Mixed Housing Suburban and Urban) around train stations	Moderate	Moderate - High	Residential and Commercial/Retail ¹¹
Business	Business (Heavy Industry)	Low	Low	Business (Industrial)
	Business (Light Industry)	Low	Low	Business (Industrial)
	Business (Neighbourhood Centre)	Low	Low	Business (Neighbourhood Centre)
	Business (Town Centre)	Low	Low	Business (Town Centre)
Open Space	Informal Recreation	Low	Low	Informal Recreation
	Community	Low	Low	Community
Greenfield areas	Future Urban	Low - Moderate	High	Urban

5.2 Existing Environment – Noise

The existing noise environments for all NoRs are controlled by traffic on existing major roads (either close by or distant) and natural sounds.

We undertook short and long duration noise level surveys in the vicinity of the Project in August and September 2023. The location of the surveys is shown in **Error! Reference source not found.**

5.2.1 Noise Monitoring Procedure

Noise survey equipment, meteorological conditions, data analysis and results are described below. The noise monitoring was undertaken in general accordance with the relevant requirements of NZS 6801, 6802 and 6806. This meant the results could adequately inform both the operational and construction noise assessments.

Measurements were undertaken at the following locations:

- 21 Great South Road, Manurewa (one hour duration);

⁶ Based on AUP:OP zoning/policy direction.

⁷ Based on AUP:OP zoning/policy direction.

⁸ Based on the NPS:UD and MDRS, these residential areas are likely to experience increased density.

⁹ There are areas of existing Residential Zone land that has recently been intensified (i.e. new build developments), as such is unlikely to change in the near future.

¹⁰ There are areas of existing Residential Zone land that has recently been intensified (i.e. new build developments), as such is unlikely to change in the near future.

¹¹ Note that much of the commercial operations between Manuia Road and Taka Street occur on residentially zoned land.

- 26 Alfriston Road (one hour duration); and
- Opposite 438 Porchester Road (one-week duration).

The measurement positions were chosen to avoid extraneous factors which could have influenced the sound levels, where practicable. Measurement and calibration details required by NZS 6801 are held on file.

5.2.2 Meteorological conditions

During the surveys, meteorological data was obtained from Auckland, Mangere Ews 2 (43711) weather station operated by NIWA. This is the closest station where data was available at an hourly resolution or less.

The meteorological data from this weather station was used to identify periods when conditions were likely to have been outside the meteorological restrictions given in NZS 6801, and therefore data measured during these periods has been excluded from the noise analysis.

5.2.3 Data Analysis

Road traffic was the dominant noise source at all measurement locations. There is a natural variation in the noise environment throughout the day, and often variations for the weekends. The $L_{Aeq(24h)}$ and L_{A90} was calculated for each day where there was sufficient data after unsatisfactory meteorological conditions and abnormal events were excluded. The average $L_{Aeq(24h)}$ and L_{A90} for the unattended measurement are shown in Table 5-2. It should be noted that measurement positions MP1 and MP2 were attended 1-hour measurements, while MP3 was an unattended measurement taken over a seven-day duration.



Figure 5-1: Noise survey locations

Table 5-2: Noise survey results

Measurement Position	Location	NoR	Ambient noise level	Background noise level
			dB LAeq(24h)	dB LA90
MP1	21 Great South Road, Manurewa	NoR 3	66	59
MP2	26 Alfriston Road, Manurewa East	NoR 1	67	60
MP3	Opposite 438 Porchester Road, Randwick Park	NoR 4	72	60

6 Measures available to avoid, remedy or mitigate effects

Traffic on the roads will generate noise that may require mitigation. The below noise mitigation measures have been applied to the NoRs as required and are described in more detail for each NoR in the following sections.

There are broadly three mitigation options that can be applied to manage road traffic noise, and are discussed in NZS6806:

- The choice of road surface material: a mitigation option that reduces noise at the source (especially for roads with speeds above 40-50 km/h where the road-tyre interaction is the controlling noise source rather than engine noise);
- The installation of noise barriers either on the roadside or on the property boundary; and
- The inclusion (for new builds) or retrofitting (for existing buildings) of Building Modification Mitigation (e.g., alternative ventilation to enable windows and doors to remain closed, improved joinery and/or glazing, or, in rare cases, the installation of additional wall and ceiling lining).

NZS6806 states:

The noise criteria are intended to address the adverse effects of road-traffic noise on people. Land-use planning is the preferred method of avoiding these effects. Where this is impracticable, the Standard sets out procedures and methods of the prediction, measurement and assessment, and guidelines for mitigation of road-traffic noise in accordance with the duty to adopt the best practicable option.¹²

This indicates that NZS6806 deals with the residual noise effects after land-use planning has been implemented (or where it has been omitted in the planning stage).

Generally, mitigation is implemented from source to receiver. This means that the road surface is the first choice of mitigation measure as it protects the largest extent of receivers. Second are barriers placed either on the road edge or the property boundary. Barriers protect the area behind them, so are not suitable to shield upper floors of multi storey buildings; however, they are suitable to protect ground floors and outdoor living areas where these are facing a road. Barriers may also not be appropriate in suburban and urban environments for urban design reasons – this would be discussed when the BPO is confirmed. Lastly, building modification can be implemented to existing PPFs where these are not sufficiently designed to reduce internal noise levels. Building modification is the last choice as it only protects individual living areas and has no benefit to the wider community.

Where future developments are not yet implemented, the road controlling authorities and developers have a shared responsibility to implement reasonable and appropriate mitigation. This is normally achieved:

- by the road controlling authority through the use of low noise road surface materials in suburban and urban areas; and
- by the developers through appropriate placement, orientation and design of noise sensitive activities to achieve reasonable internal and, as far as practicable, external noise levels.

¹² NZS6806, Section 1.1.1.

7 NoR 1 – Great South Road FTN Upgrade

As outlined in the Project description (see Section 2), NoR 1 comprises a range of interventions providing for the Great South Road FTN route along Great South Road between Manukau and Drury. These include eight intersection upgrades, and the replacement of the Otūwairoa / Slippery Creek bridge. The wider corridor will provide for either three or four lanes in the midblock including bus lanes in one or both directions, and active mode facilities.

Due to their proximity, NoR 1-A and NoR 1-B have been considered within the same noise modelling scenario. This modelling scenario is therefore referred to from here as NoR 1-A-B.

Buildings that are within the designation area for this NoR and are assumed will be removed are included in Table 4-1.

7.1 NOR 1-A-B

NoR 1-A-B includes the length of road proposed to be designated along Great South Road between Browns Road and Halsey Road (Figure 7-1). In the Do Minimum scenario, AC-14 has been modelled as the road surface, with chipseal along Grande Vue Road. This is shown in Figure 7-1.

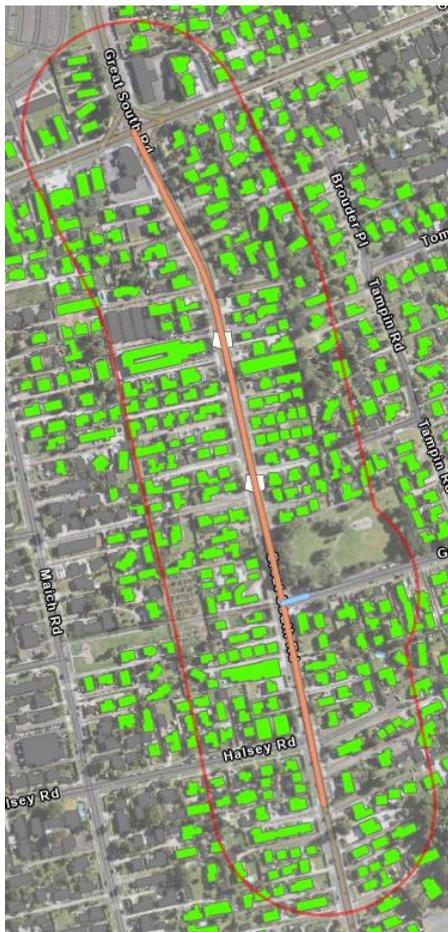


Figure 7-1: NoR 1-A-B – extent and road surface finishes (orange – AC-14, blue – chipseal)

7.1.1 NoR 1-A-B NZS 6806 Assessment

NoR 1-A-B has been assessed against the Altered Road criteria (refer section 3.1.2). NoR 1-A-B falls within an urban area (as defined by Stats NZ), meaning that PPFs within 100m of the road edges were assessed.

In the Existing scenario, almost all PPFs are predicted to receive noise levels within Category A, with 17 PPFs falling in Category B and three PPFs falling in Category C. These categories are defined in Table 3-1.

In the Do-nothing scenario (where the Project does not go ahead but traffic changes over time), traffic volumes are predicted to increase compared to the Existing scenario, resulting in an average 1 decibel noise level increase for most PPFs, and therefore resulting in noise levels at some PPFs in less stringent noise criteria categories.

In the Do Minimum scenario (considering only Project roads without surrounding roads), almost all PPFs fall within Category A, with twelve PPFs in Category B and three PPFs in Category C.

The road does not meet the definition of an Altered Road under NZS 6806, as the noise level increases between the Do-nothing and Do Minimum scenario as set out in Section 3.1.2 are not met. Therefore, the Standard does not apply, and mitigation options do not need to be considered further under the Standard.

A summary of the results of the NZS 6806 assessment is presented in Table 7-1.

Table 7-1: Summary of NZS 6806 assessment – NoR 1-A-B, Altered Roads

Scenario	Number of PPFs		
	NZS 6806 Categories		
	Category A	Category B	Category C
Existing	244	14	3
Do-nothing	243	12	6
Do Minimum	246	12	3

7.1.2 Assessment of noise effects

Noise effects can be described based on the change in noise level with and without the Project by comparing the Do-nothing and Do Minimum scenarios.

Figure 7-2 shows the predicted change in noise level at PPFs when comparing the Do-nothing and Do Minimum scenarios.

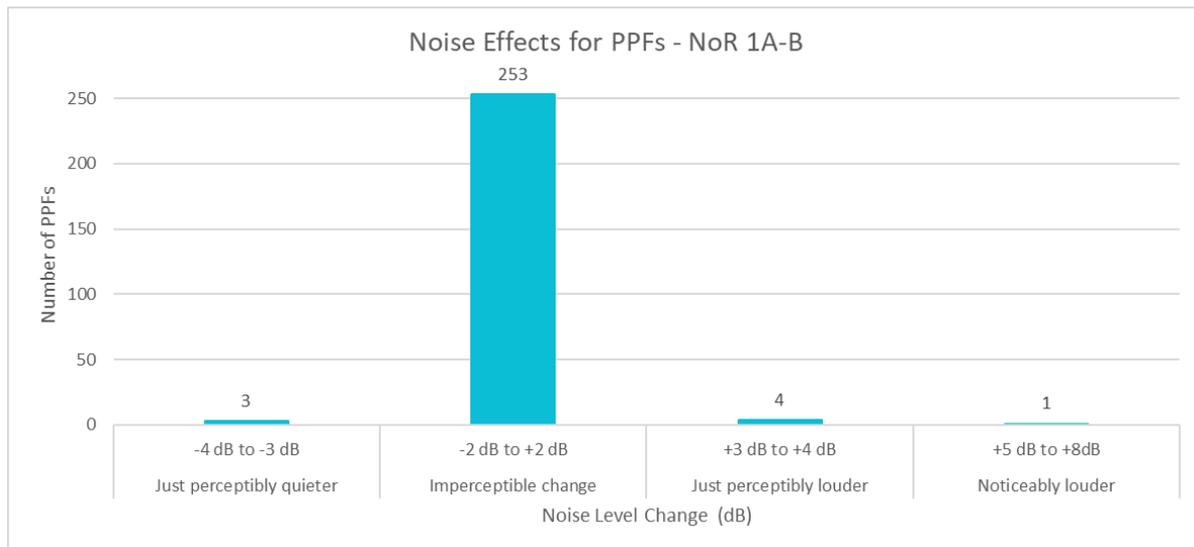


Figure 7-2: Change in noise level – NoR 1-A-B

When comparing the Do-nothing and Do Minimum scenario, noise levels at PPFs are generally expected to remain similar with the majority of PPFs predicted to experience a negligible change in noise level of 2 dB or less. One PPF is predicted to experience an increase in noise level of 5-8 dB resulting in a noticeable increase in noise. Four PPFs are predicted to experience an increase in noise level of 3-4 dB resulting in a just-perceptible increase in noise.

The increases in noise levels at PPFs are primarily due to the demolition of dwellings which would otherwise provide acoustic shielding to PPFs behind in the Do-nothing scenario when compared to the Do Minimum scenario. Nevertheless, all PPFs that are predicted to experience noise level increases will still receive noise levels in Category A.

A reduction of 3-4 dB is predicted at three PPFs resulting in slight positive effects. This is due to changes in the road alignment causing reductions in noise levels at these PPFs.

7.1.3 Summary of effects for NoR 1-A-B

The PPFs in the assessment area for NoR 1-A-B have been assessed against the Altered Roads criteria in accordance with NZS 6806. The Project section does not meet the definition of an Altered Road under NZS 6806, therefore mitigation does not need to be considered further under the Standard. 246 PPFs are predicted to achieve noise levels in Category A under the Do Minimum scenario, and 15 PPFs are predicted to fall into Categories B and C.

When considering noise contributions from other roads in the vicinity of NoR 1-A-B, noise levels are predicted to remain similar at the vast majority of PPFs when comparing the Do-nothing and Do Minimum scenarios.

It is noted that some PPFs may no longer exist at the time of road construction. Therefore, the predicted effects may not be experienced by current residents, particularly where buildings between the proposed corridor and the PPFs have been demolished.

7.2 NoR 1-C

NoR 1-C includes the length of Great South Road proposed to be designated near its intersection with Mahia Road (Figure 7-3). In the Do Minimum scenario, AC-14 has been modelled as the road surface. This is shown in Figure 7-2.



Figure 7-3: NoR 1-C – extent and road surface finishes (orange – AC-14)

7.2.1 NZS 6806 Assessment

NoR 1-C has been assessed against the Altered Road criteria (refer Section 3.1.2). NoR 1-C falls within an urban area (as defined by Stats NZ), meaning that PPFs within 100m of the road edges were assessed.

In the Existing scenario, almost all PPFs are predicted to receive noise levels within Category A, with two PPFs falling in Category B. These categories are defined in Table 3-1.

In the Do-nothing scenario, the traffic volumes are predicted to increase compared to the Existing scenario, resulting in an average 3 decibel noise level increase for most PPFs, and therefore resulting in four PPFs moving to Category B.

In the Do Minimum scenario (considering only Project roads without surrounding roads), almost all PPFs are predicted to fall within Category A, with three PPFs predicted to remain to Category B.

The road does not meet the definition of an Altered Road under NZS 6806, as the noise level increases between the Do-nothing and Do Minimum scenario as set out in Section 3.1.2 are not met. Therefore, the Standard does not apply, and mitigation options do not need to be considered further under the Standard.

A summary of the results of the NZS 6806 assessment is shown in Table 7-2.

Table 7-2: Summary of NZS 6806 assessment – NoR 1-C, Altered Roads

Scenario	Number of PPFs		
	NZS 6806 Categories		
	Category A	Category B	Category C
Existing	37	2	0
Do-nothing	35	4	0
Do Minimum	36	3	0

7.2.2 Assessment of noise effects

Noise effects can be described based on the change in noise level with and without the Project by comparing the Do-nothing and Do Minimum scenarios. Figure 7-4 shows the predicted change in noise level at PPFs when comparing the Do-nothing and Do Minimum scenarios.

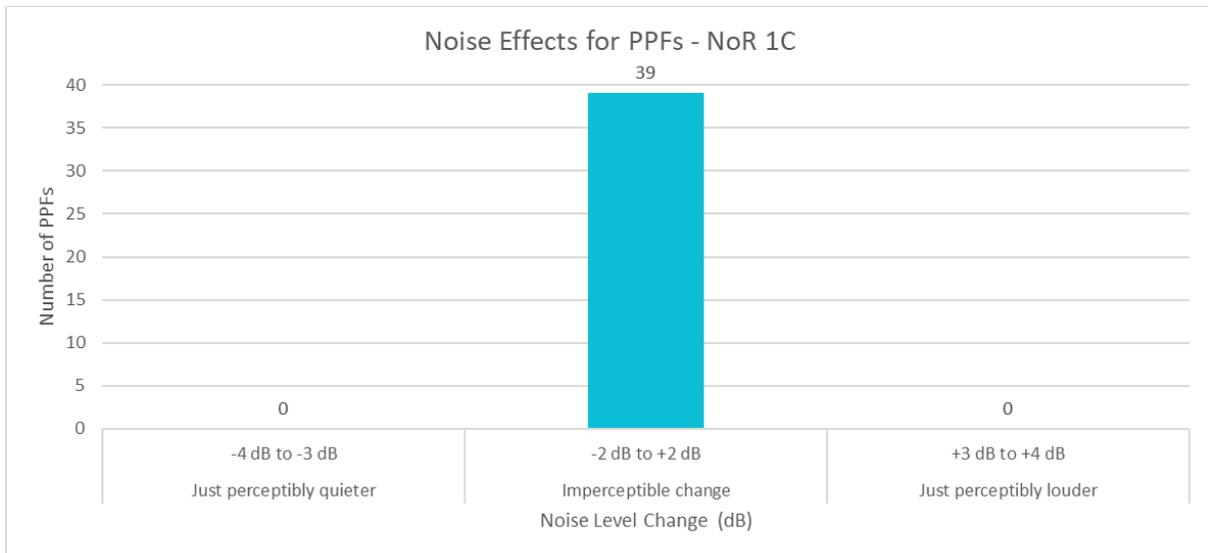


Figure 7-4: Change in noise level – NoR 1-C

When considering noise contributions from other roads in the vicinity of NoR 1-C, noise levels at all PPFs are predicted to change only by an imperceptible margin when comparing the Do-nothing and Do Minimum scenarios.

7.2.3 Summary of effects for NoR 1-C

The PPFs in the assessment area for NoR 1-C have been assessed against the Altered Roads criteria in accordance with NZS 6806. The Project section does not meet the definition of an Altered

Road under NZS 6806, therefore mitigation does not need to be considered further under the Standard. In the Do Minimum scenario, 36 PPFs are predicted to fall in Category A and three PPFs are predicted to fall in Category B.

When considering noise contributions from other roads in the vicinity of NoR 1-C, noise levels are predicted to remain similar at all PPFs when comparing the Do-nothing and Do Minimum scenarios.

It is noted that some PPFs may no longer exist at the time of road construction. Therefore, the predicted effects may not be experienced by current residents, particularly where buildings between the proposed corridor and the PPFs have been demolished.

7.3 NoR 1-D

NoR 1-D includes the intersection of Great South Road Taka Street and Walter Strevens Drive (Figure 7-5). In the Do Minimum scenario, AC-14 has been modelled as the road surface along Great South Road and Taka Street, with chipseal along Walter Strevens Drive. This is shown in Figure 7-5.



Figure 7-5: NoR 1-D – extent and road surface finishes (orange – AC-14, blue – chipseal)

7.3.1 NZS 6806 Assessment

NoR 1-D has been assessed against the Altered road criteria (refer section 3.1.2). NoR 1-D falls within an urban area (as defined by Stats NZ), meaning that PPFs within 100m of the road edges were assessed. Note that some PPFs may not exist anymore at the time of construction of the Project.

In the Existing scenario, almost all PPFs receive noise levels within Category A, with one PPF falling in Category B. These categories are defined in Table 3-1.

In the Do-nothing scenario, noise levels are predicted to change across most PPFs due to a redistribution in traffic in the local area compared to the Existing scenario. This is predicted to result in one Category B PPF moving to Category A between the Existing and Do Nothing scenarios.

In the Do Minimum scenario (considering only Project roads without surrounding roads), almost all PPFs fall within Category A, and one PPF is predicted to move to Category B.

The road does not meet the definition of an Altered Road under NZS 6806, as the noise level increases between the Do-nothing and Do Minimum scenario as set out in section 3.1.2 are not met. Therefore, the Standard does not apply, and mitigation options do not need to be considered further under the Standard.

A summary of the results of the noise predictions is presented in Table 7-3.

Table 7-3: Summary of NZS 6806 assessment – NoR 1-D, Altered Roads

Scenario	Number of PPFs		
	NZS 6806 Categories		
	Category A	Category B	Category C
Existing	51	1	0
Do-nothing	52	0	0
Do Minimum	51	1	0

7.3.2 Assessment of noise effects

Noise effects can be described based on the change in noise level with and without the Project by comparing the Do-nothing and Do Minimum scenario (while including noise from surrounding roads).

Figure 7-6 shows the distribution of noise level changes when comparing the Do-nothing and Do Minimum scenarios.

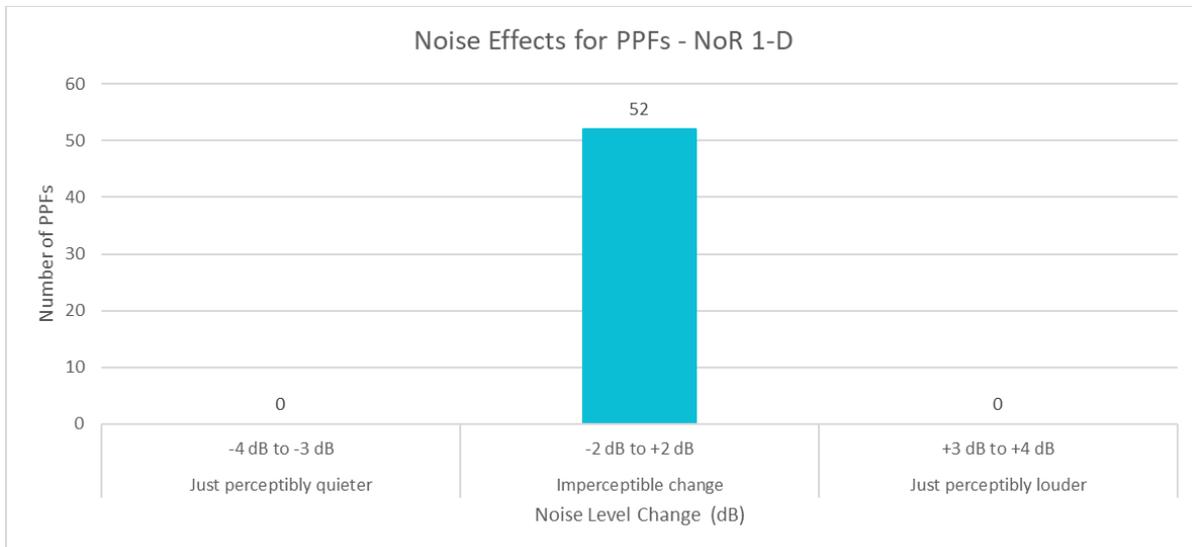


Figure 7-6: Change in noise level – NoR 1-D

When considering noise contributions from other roads in the vicinity of NoR 1-D, noise levels at all PPFs are predicted to change only by an imperceptible margin when comparing the Do-nothing and Do Minimum scenarios.

7.3.3 Summary of effects for NoR 1-D

The PPFs near NoR 1-D have been assessed against the Altered Roads criteria in accordance with NZS 6806. The Project section does not meet the definition of an Altered Road under NZS 6806, therefore mitigation does not need to be considered further under the Standard. 51 PPFs are predicted to fall in Category A and only one PPF is predicted to fall in Category B under the Do Minimum scenario.

When considering noise contributions from other roads in the vicinity of NoR 1-D, noise levels are predicted to remain similar at all PPFs when comparing the Do-nothing and Do Minimum scenarios.

It is noted that some PPFs may no longer exist at the time of road construction. Therefore, the predicted effects may not be experienced by current residents, particularly where buildings between the proposed corridor and the PPFs have been demolished.

7.4 NOR 1-E

NoR 1-E includes the intersection of Great South Road with Coles Crescent, Subway Road and O'Shannessey Street (Figure 7-7). In the Do Minimum scenario, AC-14 has been modelled as the road surface. This is shown in Figure 7-7.



Figure 7-7: NOR 1-E – extent and road surface finishes (orange – AC-14)

7.4.1 NZS 6806 Assessment

NoR 1-E has been assessed against the Altered road criteria (refer section 3.1.2). NoR 1-E falls within an urban area (as defined by Stats NZ), meaning that PPFs within 100m of the road edges were assessed.

In the Existing scenario, all PPFs are predicted to receive noise levels within Category A. These categories are defined in Table 3-1.

In the Do-nothing scenario, traffic volumes are predicted to increase slightly compared to the Existing scenario, resulting in an average 1 decibel noise level increase for most PPFs. However, no noise criteria Category changes are predicted at any PPFs.

In the Do Minimum scenario (considering only Project roads without surrounding roads), all PPFs are still predicted to fall within Category A.

The road does not meet the definition of an Altered Road under NZS 6806, as the noise level increases between the Do-nothing and Do Minimum scenario as set out in section 3.1.2 are not met. Therefore, the Standard does not apply, and mitigation options do not need to be considered further under the Standard.

A summary of the results of the noise predictions is presented in Table 7-4.

Table 7-4: Summary of NZS 6806 assessment – NoR 1-E, Altered Roads

Scenario	Number of PPFs		
	NZS 6806 Categories		
	Category A	Category B	Category C
Existing	18	0	0
Do-nothing	18	0	0
Do Minimum	18	0	0

7.4.2 Assessment of noise effects

Noise effects can be described based on the change in noise level with and without the Project by comparing the Do-nothing and Do Minimum scenarios.

Figure 7-8 shows the distribution of noise level changes when comparing the Do-nothing and Do Minimum scenarios.

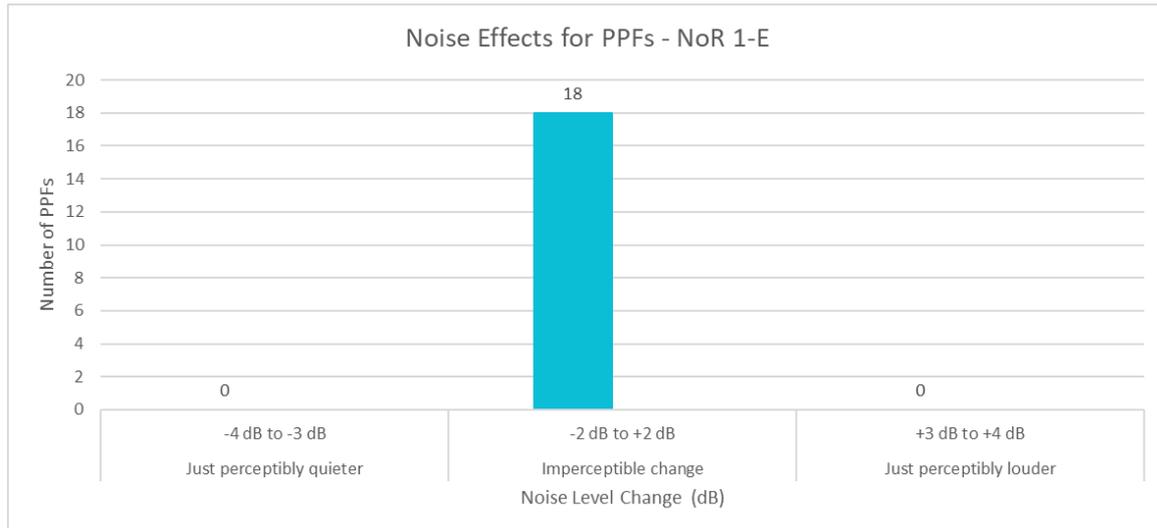


Figure 7-8: Change in noise level – NoR 1-E

When considering noise contributions from other roads in the vicinity of NoR 1-E, noise levels at all PPFs are predicted to change only by an imperceptible margin when comparing the Do-nothing and Do Minimum scenarios.

7.4.3 Summary of effects for NoR 1-E

The PPFs near NoR 1-E have been assessed against the Altered Roads criteria in accordance with NZS 6806. The Project section does not meet the definition of an Altered Road under NZS 6806, therefore mitigation does not need to be considered further under the Standard. All PPFs are predicted to fall in Category A under the Do Minimum scenario.

When considering noise contributions from other roads in the vicinity of NoR 1-E, noise levels are predicted to remain similar at all PPFs when comparing the Do-nothing and Do Minimum scenarios.

It is noted that some PPFs may no longer exist at the time of road construction. Therefore, the predicted effects may not be experienced by current residents, particularly where buildings between the proposed corridor and the PPFs have been demolished.

7.5 NoR 1-F

NoR 1-F includes the intersection of Great South Road with Wellington Street (Figure 7-9). In the Do Minimum scenario, AC-14 has been modelled as the road surface along Great South Road, with chipseal along Opaheke Road and Wellington Street. This is shown in Figure 7-5.



Figure 7-9: NOR 1-F – extent and road surface finishes (orange – AC-14, blue – chipseal)

7.5.1 NZS 6806 Assessment

NoR 1-F has been assessed against the Altered Road criteria (refer Section 3.1.2). NoR 1-F falls within an urban area (as defined by Stats NZ), meaning that PPFs within 100m of the road edges were assessed.

In the Existing scenario, all PPFs are predicted to receive noise levels within Category A. These categories are defined in Table 3-1.

In the Do-nothing scenario, the traffic volumes are predicted to increase slightly compared to the Existing scenario, resulting in an average 1 dB noise level increase for most PPFs. However, no noise criteria Category changes are predicted at any PPFs.

In the Do Minimum scenario (considering only Project roads without surrounding roads), all PPFs are predicted to fall within Category A.

The road does not meet the definition of an Altered Road under NZS 6806, as the noise level increases between the Do-nothing and Do Minimum scenario as set out in section 3.1.2 are not met. Therefore, the Standard does not apply, and mitigation options do not need to be considered further under the Standard.

A summary of the results of the noise predictions is presented in Table 7-5.

Table 7-5: Summary of NZS 6806 assessment – NoR 1-F, Altered Roads

Scenario	Number of PPFs		
	NZS 6806 Categories		
	Category A	Category B	Category C
Existing	29	0	0
Do-nothing	29	0	0
Do Minimum	29	0	0

7.5.2 Assessment of noise effects

Noise effects can be described based on the change in noise level with and without the Project by comparing the Do-nothing and Do Minimum scenarios.

Figure 7-10 shows the distribution of noise level changes when comparing the Do-nothing and Do Minimum scenarios.

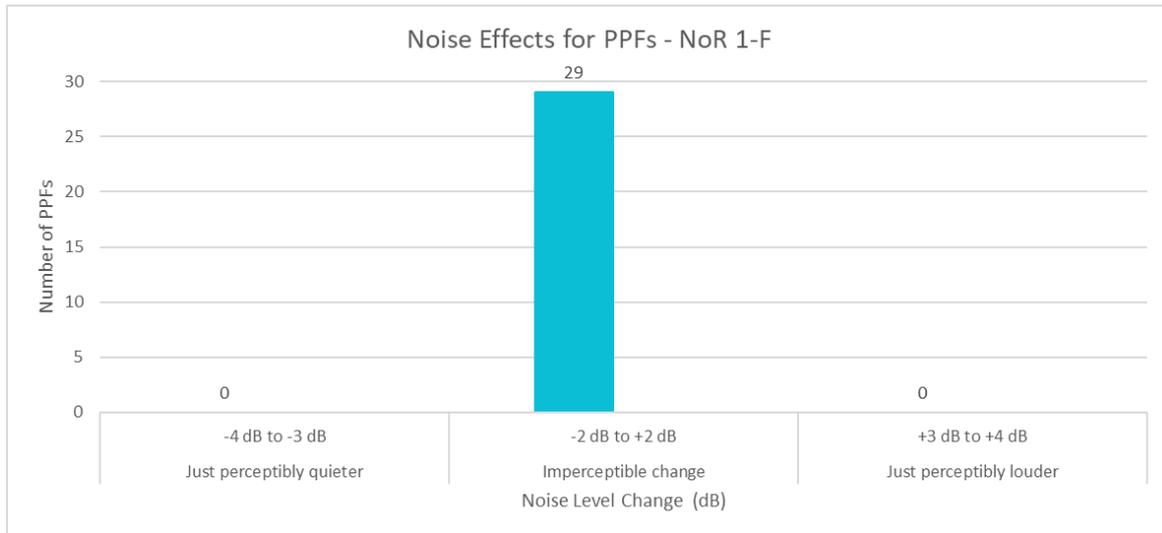


Figure 7-10: Change in noise level – NoR 1-F

When considering noise contributions from other roads in the vicinity of NoR 1-F, noise levels at all PPFs are predicted to change only by an imperceptible margin between the Do-nothing and Do Minimum scenarios.

7.5.3 Summary of effects for NoR 1-F

The PPFs near NoR 1-F have been assessed against the Altered Roads criteria in accordance with NZS 6806. The Project section does not meet the definition of an Altered Road under NZS 6806, therefore mitigation does not need to be considered further under the Standard. All PPFs are predicted to fall in Category A under the Do Minimum scenario.

When considering noise contributions from other roads in the vicinity of NoR 1-F, noise levels are predicted to remain similar at all PPFs when comparing the Do-nothing and Do Minimum scenarios.

It is noted that some PPFs may no longer exist at the time of road construction. Therefore, the predicted effects may not be experienced by current residents, particularly where buildings between the proposed corridor and the PPFs have been demolished.

7.6 NoR 1-G

NoR 1-G includes the intersection of Great South Road with Settlement Road, Beach Road and Liverpool Street. In the Do Minimum scenario, AC-14 has been modelled as the road surface along all roads, as shown in Figure 7-11.



Figure 7-11: NoR 1-G – extent and road surface finishes (orange – AC-14)

7.6.1 NZS 6806 Assessment

In the Existing scenario, all PPFs are predicted to receive noise levels within Category A. These categories are defined in Table 3-1.

In the Do-nothing scenario, the traffic volumes are predicted to increase slightly compared to the Existing scenario. However, no noise criteria Category changes are predicted at any PPFs.

In the Do Minimum scenario (considering only Project roads without surrounding roads), all PPFs are predicted to fall within Category A.

The road does not meet the definition of an Altered Road under NZS 6806, as the noise level increases between the Do-nothing and Do Minimum scenario as set out in section 3.1.2 are not met. Therefore, the Standard does not apply, and mitigation options do not need to be considered further under the Standard.

A summary of the results of the NZS 6806 assessment is shown in Table 7-6.

Table 7-6: Summary of NZS 6806 assessment – NoR 1-G, Altered Roads

Scenario	Number of PPFs		
	NZS 6806 Categories		
	Category A	Category B	Category C
Existing	91	0	0
Do-nothing	91	0	0
Do Minimum	91	0	0

7.6.2 Assessment of noise effects

The effects associated with a change in noise level have been considered in addition to the NZS 6806 assessment. The Do-nothing scenario and Do Minimum scenario can be compared to determine the predicted noise level increase or decrease at PPFs as a result of the Project. Figure 7-12 shows the predicted change in noise level at PPFs when comparing the Do-nothing and Do Minimum scenarios.

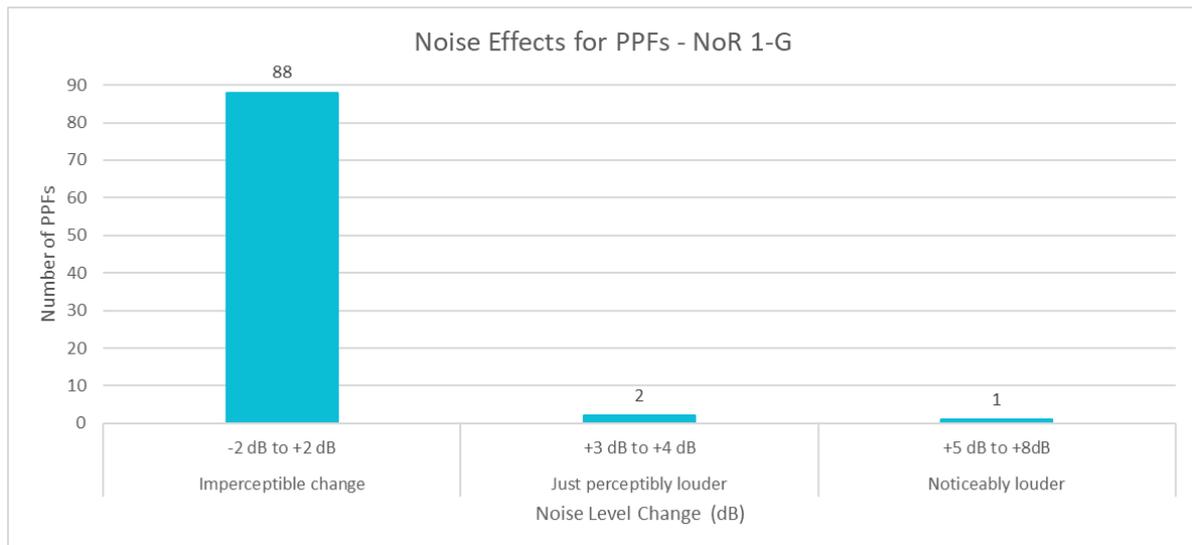


Figure 7-12: Change in noise level – NoR 1-G

When comparing the Do Minimum scenario and the Do-nothing scenario, noise levels at PPFs are generally expected to remain similar with the majority of PPFs predicted to experience a negligible change in noise level of 2 dB or less as shown in Figure 7-12.

Two PPFs are predicted to experience a 3-4 dB increase in noise which would be just perceptibly louder. One PPF is predicted to experience an increase in noise level of 5-8 dB which would be noticeably louder. The increases in noise levels at PPFs are due to the demolition of several dwellings which would otherwise provide acoustic shielding to PPFs behind in the Do-nothing scenario when compared to the Do Minimum scenario, along with predicted increases in traffic volumes. Despite these predicted noise level increases, these PPFs are still predicted to fall within Category A in the Do Minimum scenario.

7.6.3 Summary of effects for NoR 1-G

The PPFs in the assessment area for NoR 1-G have been assessed against the Altered Roads criteria in accordance with NZS 6806. The Project section does not meet the definition of an Altered Road under NZS 6806, therefore mitigation does not need to be considered further under the Standard. Under the Do Minimum scenario, all 87 PPFs are predicted to achieve noise levels within Category A.

When considering noise contributions from other roads in the vicinity of NoR 1-F, noise levels are predicted to remain similar at the vast majority of PPFs when comparing the Do-nothing and Do Minimum scenarios.

It is noted that some PPFs may no longer exist at the time of road construction. Therefore, the predicted effects may not be experienced by current residents, particularly where buildings between the proposed corridor and the PPFs have been demolished.

7.7 NoR 1-H

NoR 1-H includes the intersection of Great South Road with Park Estate Road (Figure 7-13). In the Do Minimum scenario, AC-14 has been modelled as the road surface along Great South Road, with chipseal along Park Estate Road. This is shown in Figure 7-11.

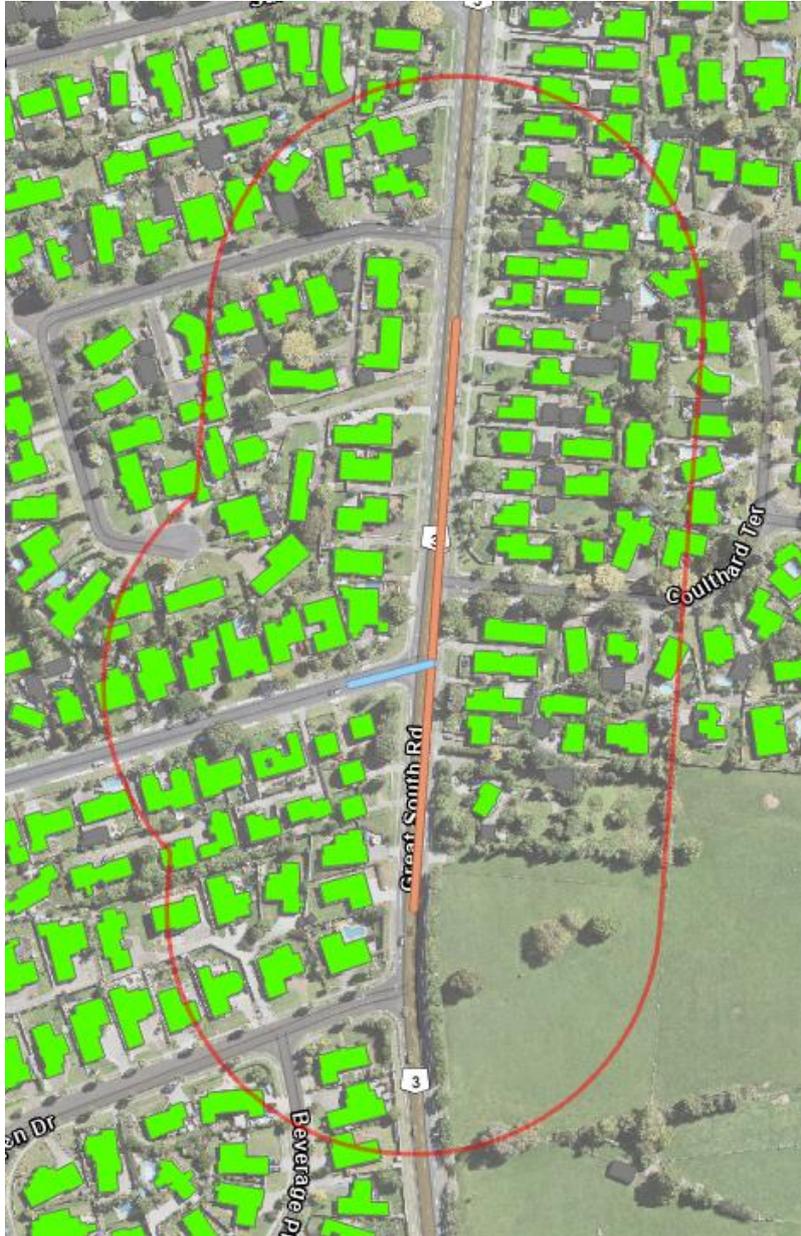


Figure 7-13: NOR 1-H – extent and road surface finishes (orange – AC-14, blue – chipseal)

7.7.1 NZS 6806 Assessment

NoR 1-H has been assessed against the Altered Road criteria (refer Section 3.1.2). NoR 1-H falls within an urban area (as defined by Stats NZ), meaning that PPFs within 100m of the road edges were assessed.

In the Existing scenario, almost all PPFs receive noise levels within Category A, with one PPF predicted to receive noise levels within Category B. These categories are defined in Table 3-1.

In the Do-nothing scenario, traffic volumes are predicted to increase slightly compared to the Existing scenario, resulting in an average 1 decibel noise level increase for most PPFs; therefore resulting in three PPFs moving to Category B.

In the Do Minimum scenario (considering only Project roads without surrounding roads), one more PPF is predicted to move to Category B.

The road does not meet the definition of an Altered Road under NZS 6806, as the noise level increases between the Do-nothing and Do Minimum scenario as set out in Section 3.1.2 are not met. Therefore, the Standard does not apply, and mitigation options do not need to be considered further under the Standard.

A summary of the results of the noise predictions is presented in Table 7-7.

Table 7-7: Summary of NZS 6806 assessment – NoR 1-H, Altered Roads

Scenario	Number of PPFs		
	NZS 6806 Categories		
	Category A	Category B	Category C
Existing	105	1	0
Do-nothing	102	4	0
Do Minimum	101	5	0

7.7.2 Assessment of noise effects

Noise effects can be described based on the change in noise level with and without the Project by comparing the Do-nothing and Do Minimum scenarios.

Figure 7-14 shows the distribution of noise level changes when comparing the Do-nothing and Do Minimum scenarios.

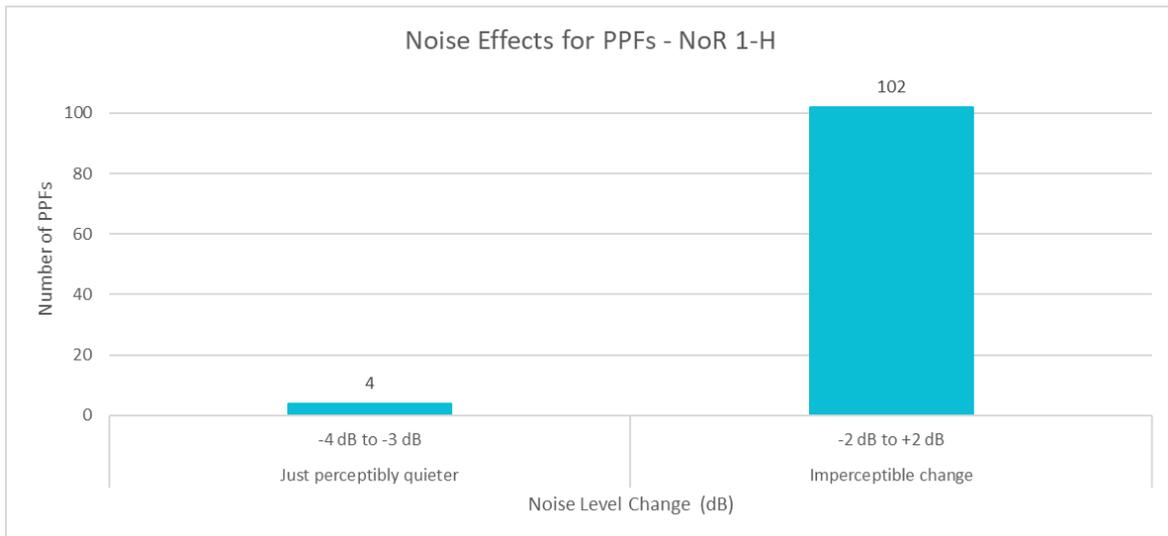


Figure 7-14: Change in noise level – NoR 1-H

When considering noise contributions from other roads in the vicinity of NoR 1-H, noise levels at all PPFs are predicted to either reduce or change only by an imperceptible margin when comparing the Do-nothing and Do Minimum scenarios.

7.7.3 Summary of effects for NoR 1-H

The PPFs near NoR 1-H have been assessed against the Altered Roads criteria in accordance with NZS 6806. The Project section does not meet the definition of an Altered Road under NZS 6806, therefore mitigation does not need to be considered further under the Standard. The majority of PPFs are predicted to fall in Category A under the Do Minimum scenario.

When considering noise contributions from other roads in the vicinity of NoR 1-H, noise levels are predicted to remain similar or reduce at all PPFs when comparing the Do-nothing and Do Minimum scenarios.

It is noted that some PPFs may no longer exist at the time of road construction. Therefore, the predicted effects may not be experienced by current residents, particularly where buildings between the proposed corridor and the PPFs have been demolished.

7.8 NoR 1-Bridge

NoR 1-Bridge includes the section of the bridge along Great South Road over Slippery Creek. In the Do Minimum scenario, AC-14 has been modelled as the road surface along Great South Road. This is shown in Figure 7-15.



Figure 7-15: NOR 1-Bridge – extent and road surface finishes (orange – AC-14)

7.8.1 NZS 6806 Assessment

NoR 1-Bridge has been assessed against the Altered Road criteria (refer Section 3.1.2). NoR 1-Bridge falls within an urban area (as defined by Stats NZ), meaning that PPFs within 100m of the road edges were assessed.

In the Existing scenario, all PPFs are predicted to receive noise levels within Category A. These categories are defined in Table 3-1.

In the Do-nothing scenario, traffic volumes are predicted to increase compared to the Existing scenario, resulting in an average 1 decibel noise level increase at most PPFs; therefore resulting in one PPF moving to Category B. In the Do Minimum scenario (taking into account only Project roads without adjacent roads), all PPFs are predicted to fall within Category A.

The road does not meet the definition of an Altered Road under NZS 6806, as the noise level increases between the Do-nothing and Do Minimum scenario as set out in section 3.1.2 are not met. Therefore, the Standard does not apply, and mitigation options do not need to be considered further under the Standard.

A summary of the results of the NZS 6806 assessment is shown in Table 7-8.

Table 7-8: Summary of NZS 6806 assessment – NoR 1-Bridge, Altered Roads

Scenario	Number of PPFs		
	NZS 6806 Categories		
	Category A	Category B	Category C
Existing	33	0	0
Do-nothing	32	1	0
Do Minimum	33	0	0

7.8.2 Assessment of noise effects

The effects associated with a change in noise level have been considered in addition to the NZS 6806 assessment. The Do-nothing scenario and Do Minimum scenarios can be compared to determine the predicted noise level increase or decrease at PPFs as a result of the Project.

Figure 8-2 shows the predicted change in noise level at PPFs when comparing the Do-nothing and Do Minimum scenarios.

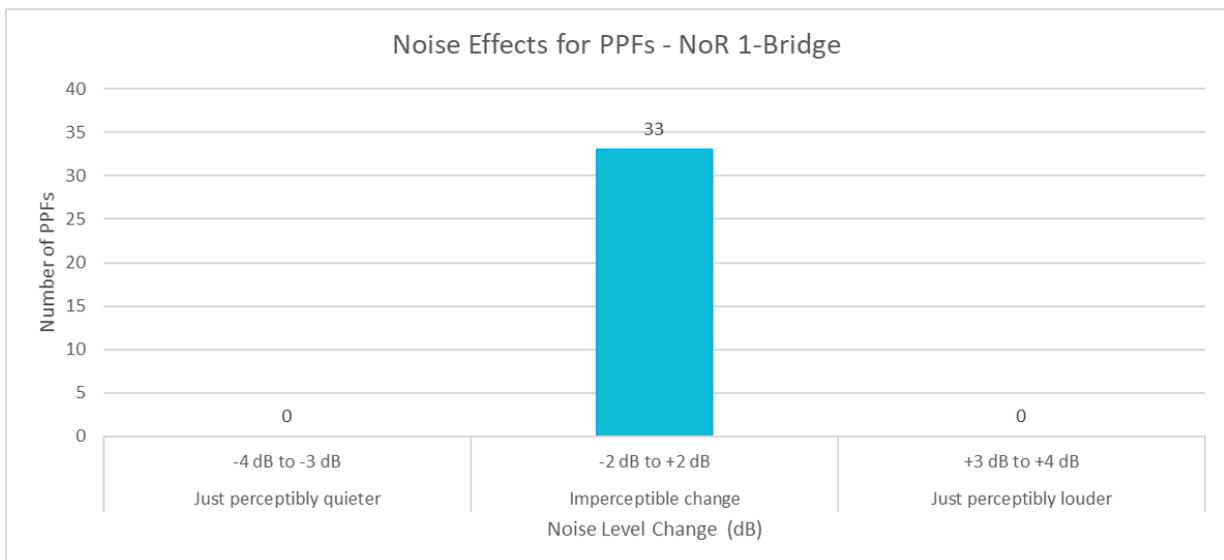


Figure 7-16: Change in noise level – NoR 1-Bridge

When considering noise contributions from other roads in the vicinity of NoR 1-H, noise levels at all PPFs are predicted to change only by an imperceptible margin when comparing the Do-nothing and Do Minimum scenarios.

7.8.3 Summary of effects for NoR 1-Bridge

The PPFs in NoR 1-Bridge have been assessed against the Altered Roads criteria in accordance with NZS 6806. The Project section does not meet the definition of an Altered Road under NZS 6806, therefore mitigation does not need to be considered further under the Standard. All PPFs are predicted to fall in Category A under the Do Minimum scenario.

When considering noise contributions from other roads in the vicinity of NoR 1-Bridge, noise levels are predicted to remain similar at all PPFs when comparing the Do-nothing and Do Minimum scenarios.

It is noted that some PPFs may no longer exist at the time of road construction. Therefore, the predicted effects may not be experienced by current residents, particularly where buildings between the proposed corridor and the PPFs have been demolished.

8 NoR 2 – Great South Road (Drury section)

As outlined in the Project description (see Section 2), NoR 2 comprises a range of interventions providing for the upgrade of Great South Road in Drury between Waihoehoe Road and the SH1 Drury Interchange. These include road widening to provide four lanes, active mode facilities, and the replacement of the Hingaia Stream bridge. In the Do Minimum scenario, AC-14 has been modelled as the road surface along Great South Road, with chipseal along Firth Street. This is shown in Figure 7-11.

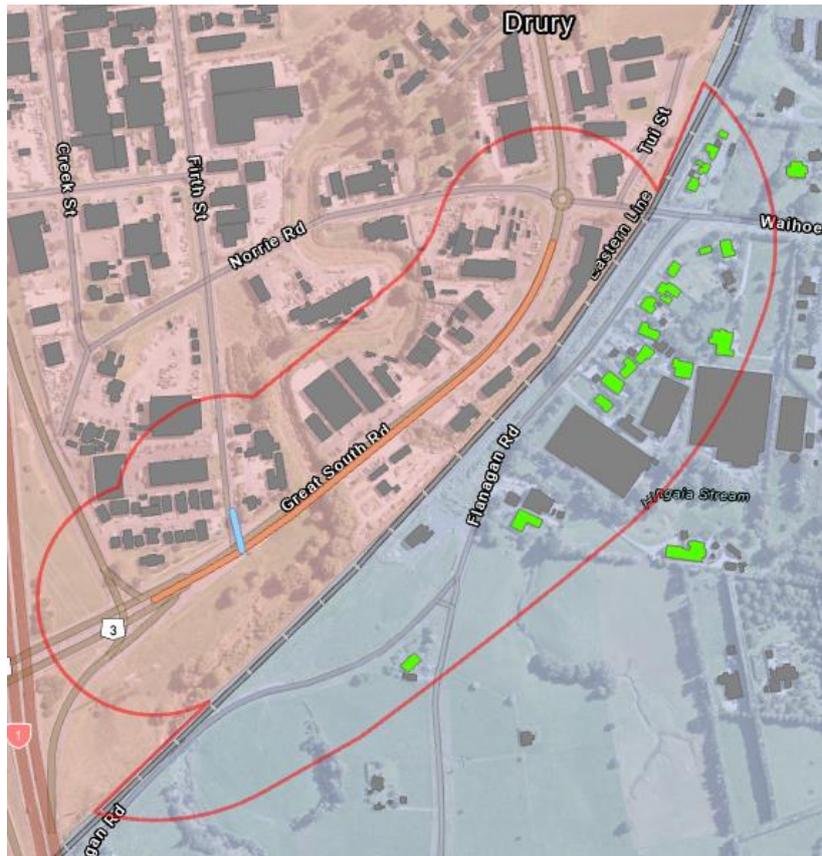


Figure 8-1: Road surface finishes (orange – AC-14, blue – chipseal), and urban (orange) and rural (light blue) areas

Buildings that are within the designation area for this NoR and are assumed will be removed are included in Table 4-1.

8.1 NZS 6806 Assessment

NoR 2 has been assessed against the Altered Road criteria (refer Section 3.1.2). The majority of NoR 2 falls within an urban area (as defined by Stats NZ), meaning that PPFs within 100m of the road edges were assessed for the majority of the alignment. Where NoR 2 fell within the rural area, PPFs within 200m of the road edges were assessed.

In the Existing scenario, all PPFs fall within Category A, due to their distance from the road. These categories are defined in Table 3-1.

In the Do-nothing scenario, the traffic volumes are predicted to increase compared to the Existing scenario, resulting in an average 2 decibel noise level increase for most PPFs; however no changes in noise criteria Categories are predicted at any PPFs.

In the Do Minimum scenario (considering only Project roads without surrounding roads), all PPFs are predicted to fall within Category A.

The road does not meet the definition of an Altered Road under NZS 6806, as the noise level increases between the Do-nothing and Do Minimum scenario as set out in section 3.1.2 are not met. Therefore, the Standard does not apply, and mitigation options do not need to be considered further under the Standard.

A summary of the results of the noise predictions is presented in Table 8-1.

Table 8-1: Summary of NZS 6806 assessment – NoR 2, Altered Roads

Scenario	Number of PPFs		
	NZS 6806 Categories		
	Category A	Category B	Category C
Existing	18	0	0
Do-nothing	18	0	0
Do Minimum	18	0	0

8.2 Assessment of noise effects

Noise effects can be described based on the change in noise level with and without the Project by comparing the Do-nothing and Do Minimum scenarios.

Figure 8-2 shows the distribution of noise level changes when comparing the Do-nothing and Do Minimum scenarios.

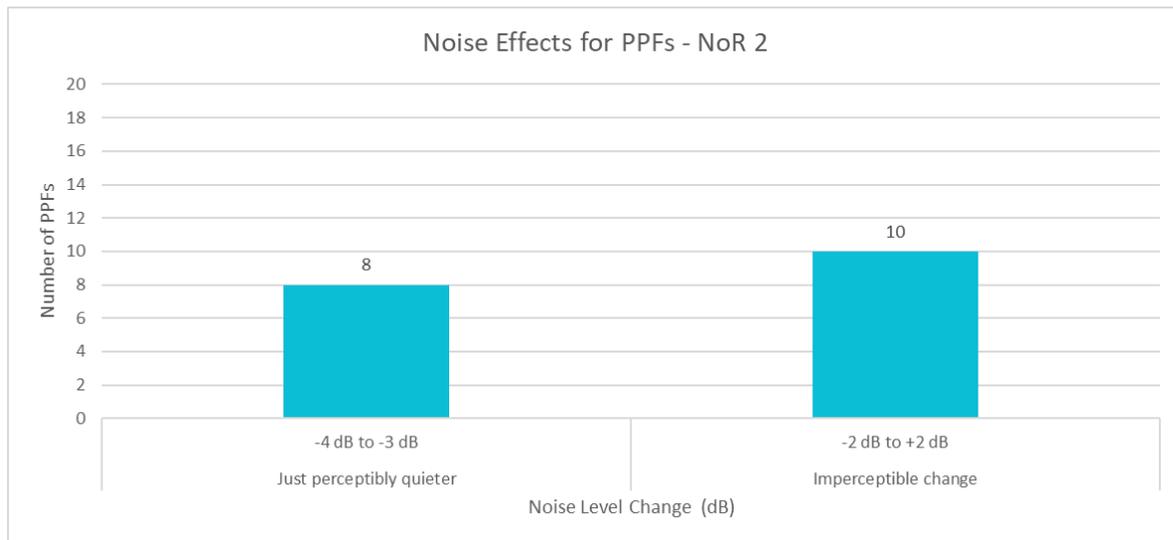


Figure 8-2: Change in noise level – NoR2

When considering noise contributions from other roads in the vicinity of NoR 2, noise levels are predicted to remain similar or reduce at all PPFs when comparing the Do-nothing and Do Minimum scenarios.

8.3 Summary of effects for NoR 2

The PPFs near NoR 2 have been assessed against the Altered Roads criteria in accordance with NZS 6806. This NoR does not meet the definition of an Altered Road under NZS 6806, therefore mitigation does not need to be considered further under the Standard. All PPFs are predicted to fall in Category A under the Do Minimum scenario.

When considering noise contributions from other roads in the vicinity of NoR 2, noise levels are predicted to remain similar or reduce at all PPFs when comparing the Do-nothing and Do Minimum scenarios.

It is noted that some PPFs may no longer exist at the time of road construction, particularly given the proposed zone changes in the area allowing for urban development. Therefore, the predicted effects may not be experienced by current residents, particularly where buildings between the proposed corridor and the PPFs have been demolished.

9 NoR 3 – Takaanini FTN – Weymouth Road, Alfriston Road and Great South Road Upgrades

As outlined in the Project description (see Section 2), NoR 3 comprises a range of interventions providing for the Takaanini FTN route along Weymouth and Alfriston Roads generally between Selwyn Road and Alfriston Park; as well as for the Great South Road FTN route between Alfriston Road and Myers Road (Figure 7-9). These interventions include road widening to provide for four lanes (general traffic and bus lanes in both directions), active mode facilities, eight intersection upgrades, stormwater treatment wetlands, and replacements of bridges over the NIMT and SH1. In the Do Minimum scenario, AC-14 has been modelled as the road surface along Great South Road and Alfriston Road, with chipseal along other roads. This is shown in Figure 9-1.

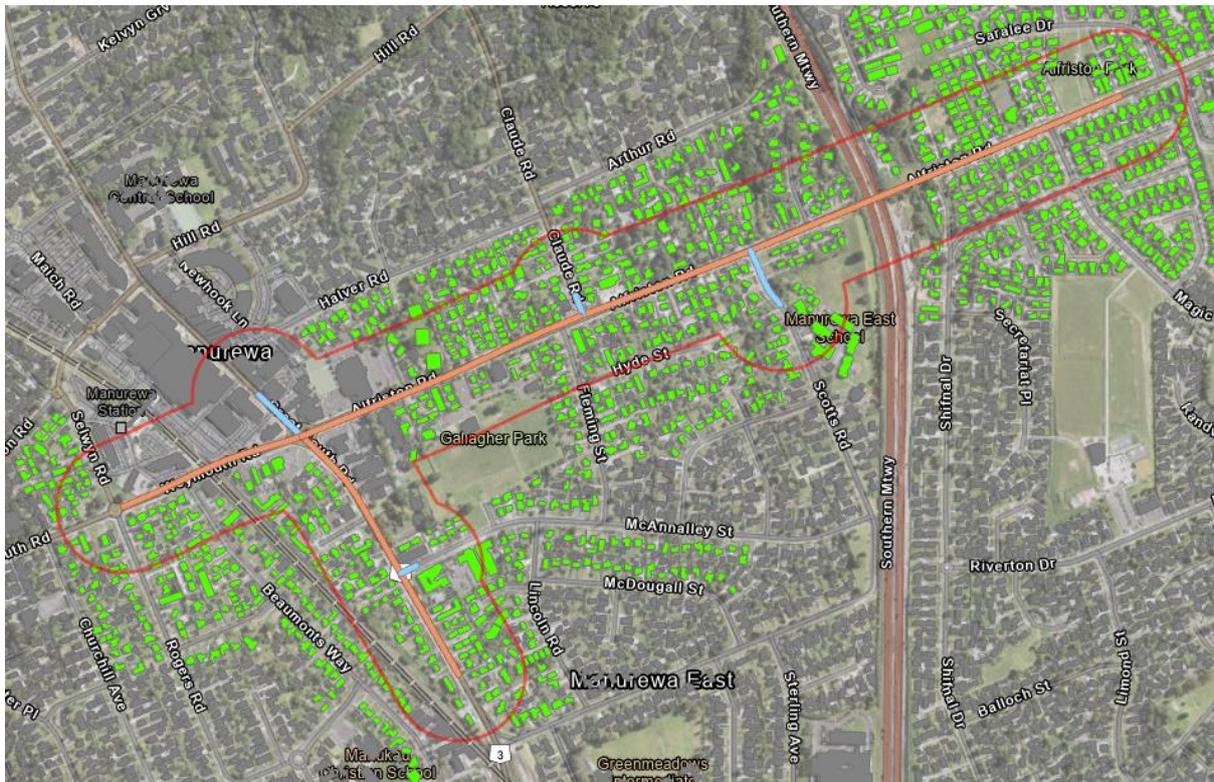


Figure 9-1: NOR 3 – extent and road surface finishes (orange – AC-14, blue – chipseal)

Buildings that are within the designation area for this NoR and are assumed will be removed are included in Table 4-1.

9.1 NZS 6806 Assessment

NoR 3 has been assessed against the Altered Road criteria (refer Section 3.1.2). NoR 3 falls within an urban area (as defined by Stats NZ), meaning that PPFs within 100m of the road edges have been assessed.

In the Existing scenario, the majority of PPFs are predicted to receive noise levels within Category A, with seven PPFs predicted to fall within Category B. These categories are defined in Table 3-1.

In the Do-nothing scenario, traffic volumes are predicted to increase compared to the Existing scenario, resulting in an average 2 decibel noise level increase for most PPFs, and therefore resulting in noise levels in less stringent noise criteria categories at a number of PPFs.

In the Do Minimum scenario (taking into account only Project roads without adjacent roads), 39 PPFs are predicted to fall within Category B and two PPFs are predicted to fall within Category C.

The road meets the definition of an Altered Road under NZS 6806, as the noise level increases between the Do-nothing and Do Minimum scenario as set out in Section 3.1.2 are met.

As a low-noise road surface is already implemented along the length of roads for NoR 3 under the Do Minimum scenario where the Category B and C PPFs are located, noise barriers were considered as a potential mitigation option.

However, noise barriers were not considered to be an appropriate mitigation measure as there is a need to maintain access to houses via driveways, which would mean that line-of-sight would still be retained between the PPF and the road where screening would be required. This means that the minimum 5 dB reduction at individual PPFs as required by NZS 6806 (refer Section 2.1.5) would not be achieved at the PPF façades where barriers would be implemented. Therefore, noise barriers were not considered a suitable mitigation option.

Noise barriers should be re-assessed at the Category B and C PPFs at the time of detailed design to determine if they represent the BPO.

For any PPFs predicted to receive noise levels in Category C once the BPO mitigation has been determined, we recommend that building modification is investigated at the implementation of the Project.

A summary of the results of the NZS 6806 assessment is shown in Table 9.

Table 9-1: Summary of NZS 6806 assessment – NoR 3, Altered Roads

Scenario	Number of PPFs		
	NZS 6806 Categories		
	Category A	Category B	Category C
Existing	473	7	0
Do-nothing	438	37	5
Do Minimum	439	39	2

9.2 Assessment of noise effects

The effects associated with a change in noise level have been considered in addition to the NZS 6806 assessment. The Do-nothing scenario and Do Minimum scenarios can be compared to determine the predicted noise level increase or decrease at PPFs as a result of the Project. Figure 9-2 shows the predicted change in noise level at PPFs when comparing the Do-nothing and Do Minimum scenarios.

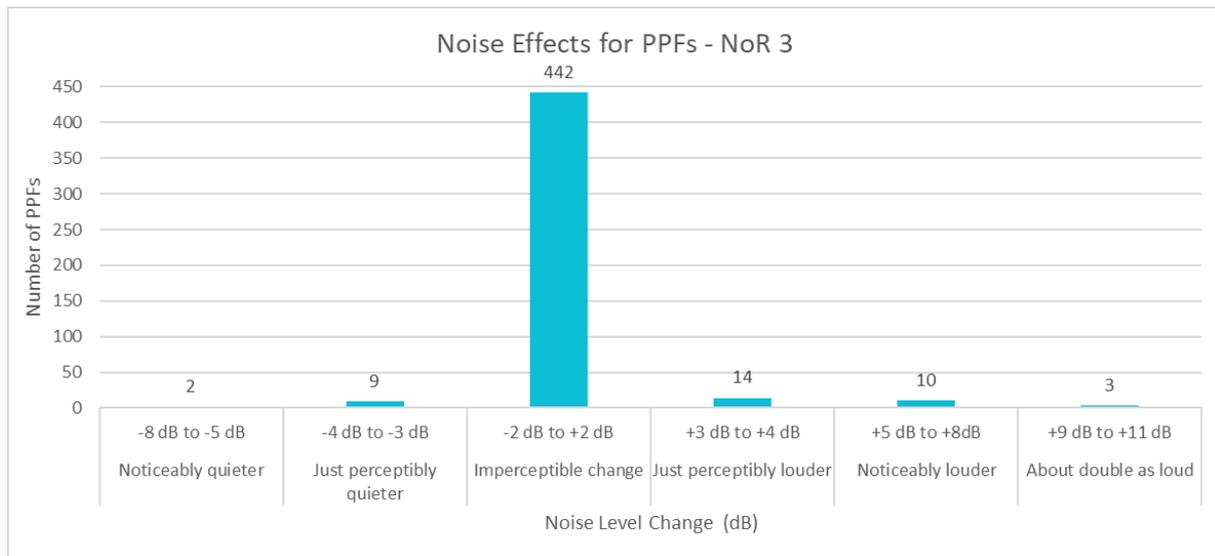


Figure 9-2: Change in noise level – NoR3

When considering noise contributions from other roads in the vicinity of NoR 3, noise levels at the vast majority of PPFs are expected to remain similar between the Do-nothing and Do Minimum scenarios, with a negligible change in noise level of 2 dB or less.

14 PPFs are predicted to experience a 3-4 dB increase in noise which would be just perceptibly louder. Ten PPFs are predicted to experience an increase in noise level of 5-8 dB which would be a noticeable increase in noise. Three PPFs are predicted to experience a noise increase of 9 dB, which would be perceived as approximately a doubling in loudness. The increases in noise levels at PPFs is due to the demolition of several dwellings which would otherwise provide acoustic shielding to PPFs behind. Almost all 14 of these PPFs are predicted to remain in Category A despite the noise level increases, with one PPF predicted to move from Category A to Category B.

11 PPFs are predicted to experience a perceptible decrease in noise levels overall, with nine PPFs experiencing a reduction of 3 to 4 dB resulting in a just-perceptible decrease in noise levels, and two PPFs having reduced noise levels of 5 to 8 dB resulting in a noticeable decrease in noise levels. Predicted reductions in noise levels are due to changes in the road geometry.

It is noted that some PPFs may no longer exist at the time of road construction. Therefore, the predicted effects may not be experienced by current residents, where buildings between the proposed corridor and the residence have been demolished.

9.3 Summary of effects for NoR 3

The PPFs near NoR 3 have been assessed against the Altered Roads criteria in accordance with NZS 6806. This NoR meets the definition of an Altered Road under NZS 6806.

39 PPFs will be in Category B and two PPFs in Category C in the Do Minimum scenario. Noise barriers at these PPFs are unlikely to provide the reduction required by the Standard due to the gaps required for driveways which would significantly reduce the performance of the barrier. An asphalt low-noise road surface has already been implemented near the Category B and C PPFs in the Do Minimum scenario.

While noise barriers are considered unlikely to be appropriate or effective now, future assessment at the detailed design stage will confirm whether barriers are or are not a practicable mitigation measure for Category B and C PPFs at the time of future implementation, and whether they represent the BPO. For any PPFs predicted to receive noise levels in Category C once the BPO mitigation has been determined, we recommend that building modification is investigated at the implementation of the Project.

When considering noise contributions from other roads in the vicinity of NoR 3, noise levels at the vast majority of PPFs are generally expected to remain similar between the Do-nothing and Do Minimum scenarios with a negligible change in noise level of 2 dB or less.

It is noted that some PPFs may no longer exist at the time of road construction. Therefore, the predicted effects may not be experienced by current residents, particularly where buildings between the proposed corridor and the PPFs have been demolished.

10 NoR 4 – Takaanini FTN – Porchester Road and Popes Road Upgrades

As outlined in the Project description (see Section 2), NoR 4 comprises a range of interventions providing for the Takaanini FTN route along Porchester Road generally between Alfriston Road and Walters Road; and for the urbanisation of Popes Road generally between Takanini School Road and Porchester Road. These interventions provide for the urbanisation of both corridors, with two traffic lanes, widening for active mode facilities, seven intersection upgrades, and stormwater treatment wetlands.

In the Do Minimum scenario, AC-14 has been modelled as the road surface along the majority of roads, with chipseal along Popes Road, Takanini School Road and Walters Road. This is shown in Figure 10-1.



Figure 10-1: NoR 4 – extent and road surface finishes (orange – AC-14, blue – chipseal)

Buildings that are within the designation area for this NoR and are assumed will be removed are included in Table 4-1.

10.1 NZS 6806 Assessment

NoR 4 has been assessed against the Altered road criteria (refer Section 3.1.2). NoR 4 falls within an urban area (as defined by Stats NZ), meaning that PPFs within 100m of the road edges have been assessed.

In the Existing scenario, the majority of PPFs are predicted to receive noise levels within Category A, with 22 PPFs falling in Category B and 6 PPFs falling in Category C. These categories are defined in Table 3-1.

In the Do-nothing scenario, traffic volumes are predicted to increase compared to the Existing scenario, resulting in an average 3 decibel noise level increase for most PPFs, and therefore resulting in noise levels in less stringent noise criteria categories at a number of PPFs.

In the Do Minimum scenario (taking into account only Project roads without adjacent roads), 64 PPFs are predicted to be within Category B and nine PPFs are predicted to be within Category C. The decrease in the number of PPFs in Category B and C compared to the Do-nothing scenario is due to a predicted re-distribution in traffic flows in the local area, along with implementation of an asphalt road surface finish along Porchester Road south of Walters Road.

The road meets the definition of an Altered Road under NZS 6806, as the noise level increases between the Do-nothing and Do Minimum scenario as set out in section 3.1.2 are met.

Two mitigation options have been considered to reduce noise levels at PPFs, noting a the full BPO assessment will be required at detailed design/outline plan stage. The options comprise of low noise road surface and localised barriers.

Mitigation option 1 involves applying AC-14 to the Altered Roads where they are chipseal roads in the Do Minimum scenario, and where there are PPFs in Category B and C under the Do Minimum scenario. This mitigation option results in six PPFs moving to Category A from Category B. However, this mitigation option leaves 58 PPFs in Category B and nine in Category C.

Mitigation option 2 involves applying AC-14 to the same roads as per the first mitigation option, and installing two-metre-high noise barriers at the remaining Category B and C PPFs.

While two-metre-high noise barriers will be effective for some of the PPFs, others would not receive any benefit from a barrier (either at the road or designation boundary). We have considered barriers where they are likely to be effective (i.e. where they will achieve a noticeable noise level reduction, or where they will achieve a noise level reduction for PPFs from Category C into Category A or B).

Modelling indicates that two-metre-high noise barriers would be effective at reducing the number of Category B PPFs by 26 and reducing the number of Category C PPFs by one, when compared to the Do Minimum scenario.

At the remaining Category B and C PPFs, the two-metre-high noise barriers would not provide the reduction required by the Standard due to the gaps required for driveways which would significantly reduce the performance of the barrier.

Where barriers may be practicable for PPFs, these will be assessed at the time of detailed design to determine if they represent the BPO.

For any PPFs predicted to receive noise levels in Category C once the BPO mitigation has been determined, we recommend that building modification is investigated at the implementation of the Project.

Based on this assessment, Mitigation Option 2 is the recommended mitigation option for the Altered Roads within NoR 4.

A summary of the results of the NZS 6806 assessment is shown in Table 10-1.

Table 10-1: Summary of NZS 6806 assessment – NoR 4, Altered Roads

Scenario	Number of PPFs		
	NZS 6806 Categories		
	Category A	Category B	Category C
Existing	606	22	6
Do-nothing	530	74	30
Do Minimum	561	64	9
Mitigation 1	567	58	9
Mitigation 2	588	38	8

10.2 Assessment of noise effects

The effects associated with a change in noise level have been considered in addition to the NZS 6806 assessment. The Do-nothing scenario and Mitigation 2 scenario can be compared to determine the predicted noise level increase or decrease at PPFs as a result of the Project. Figure 10-2 shows the predicted change in noise level at PPFs when comparing the Do-nothing and Mitigation 2 scenarios.

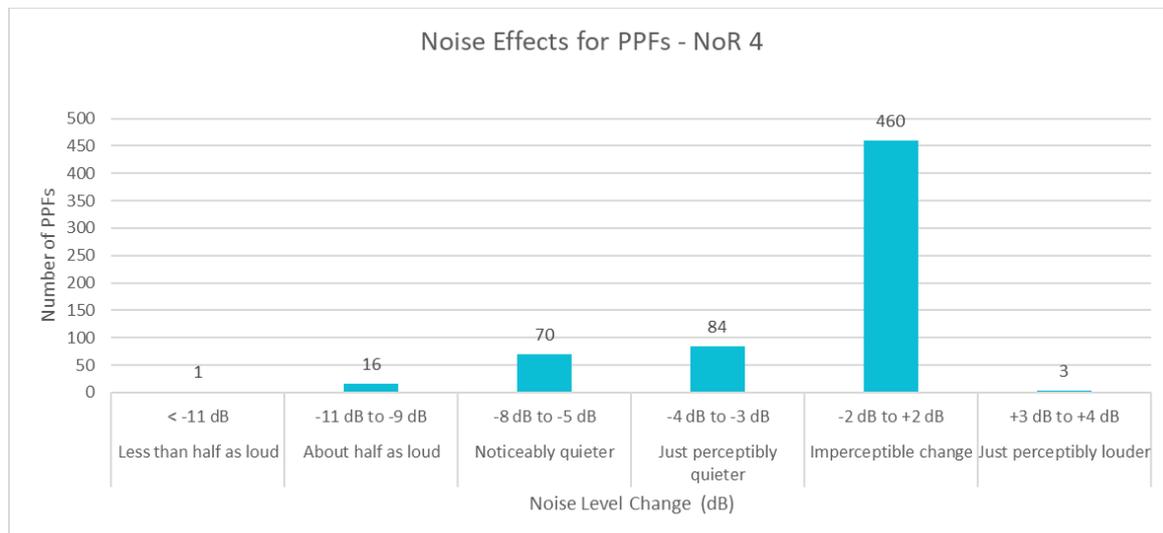


Figure 10-2: Change in noise level – NoR4

When considering noise contributions from other roads in the vicinity of NoR 4, noise levels at almost all PPFs are expected to remain similar or reduce between the Do-nothing and Mitigation 2 scenarios. Only 3 PPFs are predicted to experience a 3-4 dB increase in noise which would be just perceptibly louder, however these PPFs are predicted to move from Category B to Category C.

Noise reductions are predicted at 171 PPFs. The predicted noise reductions are due to a redistribution of traffic flows in the local area, the implementation of asphaltic concrete AC-14 road surface, and noise barriers at some PPFs through the Mitigation 2 scenario.

It is noted that some PPFs may no longer exist at the time of road construction. Therefore, the predicted effects may not be experienced by current residents, where buildings between the proposed corridor and the residence have been demolished.

Ambient noise levels will likely increase as the area urbanises and therefore changes in noise level due to the Project may not be as noticeable at the time.

10.3 Summary of effects for NoR 4

The PPFs near NoR 4 have been assessed against the Altered Roads criteria in accordance with NZS 6806. The Project meets the definition of an Altered Road under NZS 6806, as the noise level increases between the Do-nothing and Do Minimum scenario as set out in Section 3.1.2 are met.

After the application of a low-noise surface and implementation of effective noise barriers in the Mitigation 2 scenario, 38 PPFs will be in Category B and eight PPFs in Category C. Noise barriers at these PPFs would not provide the reduction required by the Standard due to the gaps required for driveways which significantly reduce the performance of the barrier.

Where barriers may be practicable for existing PPFs, these will be assessed at the time of detailed design to determine if they represent the BPO. For any PPFs predicted to receive noise levels in Category C once the BPO mitigation has been determined, we recommend that building modification is investigated at the implementation of the Project.

When considering noise contributions from other roads in the vicinity of NoR 4, noise levels are predicted to remain similar or reduce at all PPFs when comparing the Do-nothing and Mitigation 2 scenarios.

It is noted that some PPFs may no longer exist at the time of road construction, particularly given the proposed zone changes in the area allowing for urban development. Therefore, the predicted effects may not be experienced by current residents, particularly where buildings between the proposed corridor and PPFs have been demolished.

Ambient noise levels will likely increase as the area urbanises and therefore changes in noise level, due to the Project may not be as noticeable at the time.

11 Recommended measures to avoid, remedy or mitigate operational effects – summary for all NoRs

Of all NoRs assessed within the Project, only NoR 3 (Alfriston Road) and NoR 4 (Porchester Road / Popes Road) require mitigation in line with NZS 6806.

For NoR 3, noise barriers were not considered to be a suitable mitigation option, and a low-noise road surface is already proposed in the Do Minimum scenario.

For NoR 4, AC-14 low-noise road surface is proposed to replace chipseal roads in the Do Minimum scenario, and 2m barriers along the road or designation boundary have been assessed for a number of PPFs to reduce noise levels from Categories B or C to Category A or B.

Noise barriers should be re-assessed at all Category B and C PPFs in NoR 3 and NoR 4 at the time of detailed design to determine if they represent the BPO.

NoR 1 and NoR 2 cause either insufficient effects to require mitigation, or all PPFs receive noise levels within Category A.

12 Conclusion

We have assessed operational traffic noise for all four NoRs proposed to enable the South FTN.

NoR 1 and NoR 2 require no further noise mitigation under NZS 6806 as all PPFs are predicted to receive noise levels in Category A. Mitigation was considered for NoR 3, however a low-noise road surface is already implemented along the length of this NoR and noise barriers were not found to be effective at any Category B or C PPFs. NoR 4 requires some mitigation, which was assessed in the form of roadside barriers or boundary fences. While some noise level reduction is predicted assuming this mitigation, and the vast majority of PPFs are predicted to receive noise levels in Category A, a small number would still receive noise levels within Category B and C (unchanged from a scenario if the Project is not implemented). Where barriers may be practicable for Category B and C PPFs, these will be assessed at the time of detailed design to determine if they represent the BPO. For any PPFs predicted to receive noise levels in Category C once the BPO mitigation has been determined, we recommend that building modification is investigated at the implementation of the Project.

Road traffic vibration is not normally an issue, particularly for newly constructed and well-maintained roads. Therefore, it was not assessed.

Overall, the implementation of the suite of NoRs assessed in this report is predicted to result in no noticeable noise level changes across the majority of PPFs. While some PPFs are predicted to receive noise level increases, overall, with mitigation in place, noise levels at the vast majority of PPFs will be lower with the Project implemented than would have been the case without.

1 Appendix A: Noise levels for all PPFs

1.1 NoR 1-A-B

Address	Existing, dB LAeq(24hr)	Do Nothing, dB LAeq(24hr)	Do Minimum, LAeq(24hr)
44A Great South Road, Manurewa	68	69	68
46A Great South Road, Manurewa	68	68	68
1/42 Great South Road, Manurewa	67	68	68
1-16/38 Great South Road, Manurewa	67	68	67
1/55 Great South Road, Manurewa	68	68	67
50 Great South Road, Manurewa	66	67	67
33 Great South Road, Manurewa	64	65	66
43A Great South Road, Manurewa	66	67	66
69A Great South Road, Manurewa	67	68	66
1/52 Great South Road, Manurewa	65	66	66
1/34 Great South Road, Manurewa	65	66	66
1-2/61 Great South Road, Manurewa	67	67	66
1/48 Great South Road, Manurewa	65	66	66
35 Great South Road, Manurewa	65	65	66
1/54 Great South Road, Manurewa	65	65	66
24 Great South Road, Manurewa	65	66	64
74 Great South Road, Manurewa	63	63	64
1-2/45 Great South Road, Manurewa	65	65	64
3/61 Great South Road, Manurewa	66	66	64
6/34 Great South Road, Manurewa	63	64	63
1 Grande Vue Road, Hillpark	61	62	64
82 Great South Road, Manurewa	62	63	63
20 Great South Road, Manurewa	63	63	63
1-2/78A Great South Road, Manurewa	62	63	63
14 Great South Road, Manurewa	62	63	62
66 Great South Road, Manurewa	59	59	62
32 Great South Road, Manurewa	62	62	62
18 Great South Road, Manurewa	62	63	62
1-4/1A Halsey Road, Manurewa	64	64	61
1/53 Great South Road, Manurewa	62	63	61
10 Great South Road, Manurewa	61	61	61
1/49 Great South Road, Manurewa	62	62	61
63 Great South Road, Manurewa	63	64	61
31 Great South Road, Manurewa	60	61	60
3-4/79 Great South Road, Manurewa	61	62	60
51A Great South Road, Manurewa	61	61	60
1/40 Great South Road, Manurewa	59	60	60
25 Great South Road, Manurewa	61	61	60
22 Great South Road, Manurewa	60	61	60

Address	Existing, dB LAeq(24hr)	Do Nothing, dB LAeq(24hr)	Do Minimum, LAeq(24hr)
1-2/79 Great South Road, Manurewa	63	64	60
1/72 Great South Road, Manurewa	55	56	59
67 Great South Road, Manurewa	63	64	60
2/70 Great South Road, Manurewa	50	51	59
23 Great South Road, Manurewa	61	62	59
1-2/47 Great South Road, Manurewa	61	61	59
36A Great South Road, Manurewa	59	59	59
12 Great South Road, Manurewa	58	59	59
1/65 Great South Road, Manurewa	61	62	59
16 Great South Road, Manurewa	59	59	59
29 Great South Road, Manurewa	59	60	58
5-6/79 Great South Road, Manurewa	60	60	58
41 Great South Road, Manurewa	59	59	58
86 Great South Road, Manurewa	57	58	57
2/34 Great South Road, Manurewa	57	58	57
46B Great South Road, Manurewa	56	57	57
57 Great South Road, Manurewa	59	60	57
1/59 Great South Road, Manurewa	58	59	56
1/37 Great South Road, Manurewa	56	57	56
75 Great South Road, Manurewa	57	58	56
73 Great South Road, Manurewa	57	58	56
1A Grande Vue Road, Hillpark	56	57	57
74A Great South Road, Manurewa	52	52	55
2/54 Great South Road, Manurewa	54	55	55
44B Great South Road, Manurewa	54	55	55
2/42 Great South Road, Manurewa	54	55	54
43B Great South Road, Manurewa	54	55	54
39 Great South Road, Manurewa	54	55	54
81 Great South Road, Manurewa	55	56	54
2/52 Great South Road, Manurewa	54	55	54
88 Great South Road, Manurewa	54	54	54
3/54 Great South Road, Manurewa	53	54	54
6/61 Great South Road, Manurewa	56	57	54
1-5/83 Great South Road, Manurewa	56	57	54
71 Great South Road, Manurewa	55	56	53
1-2/35 Great South Road, Manurewa	52	53	53
50A Great South Road, Manurewa	53	53	53
2/16 Great South Road, Manurewa	52	53	53
1/90 Great South Road, Manurewa	52	53	53
1-2/3A Grande Vue Road, Hillpark	52	54	53
69B Great South Road, Manurewa	54	55	52
1/87 Great South Road, Manurewa	53	53	52
3/70 Great South Road, Manurewa	48	48	52
4-5/61 Great South Road, Manurewa	53	54	52
46C Great South Road, Manurewa	51	52	52

Address	Existing, dB LAeq(24hr)	Do Nothing, dB LAeq(24hr)	Do Minimum, LAeq(24hr)
3 Grande Vue Road, Hillpark	47	48	52
2/53 Great South Road, Manurewa	52	53	52
2/49 Great South Road, Manurewa	52	52	51
4A Halsey Road, Manurewa	52	53	51
6 Orams Road, Manurewa	51	51	51
5-8/1A Halsey Road, Manurewa	52	53	51
56 Great South Road, Manurewa	50	51	51
51B Great South Road, Manurewa	51	51	51
1 Browns Road, Manurewa	48	49	51
44C Great South Road, Manurewa	50	51	51
41A Great South Road, Manurewa	50	51	51
2/55 Great South Road, Manurewa	51	52	51
6A Orams Road, Manurewa	50	51	51
2/48 Great South Road, Manurewa	50	50	50
1/45A Great South Road, Manurewa	50	51	50
26 Great South Road, Manurewa	49	50	50
1-3/2 Browns Road, Manurewa	46	46	50
22A Great South Road, Manurewa	49	50	50
82A Great South Road, Manurewa	49	50	50
3/42 Great South Road, Manurewa	49	50	50
5 Grande Vue Road, Hillpark	50	50	50
1-3/7 Grande Vue Road, Hillpark	49	50	50
3/55 Great South Road, Manurewa	50	51	50
47A Great South Road, Manurewa	50	50	50
46D Great South Road, Manurewa	49	50	50
32A Great South Road, Manurewa	49	49	50
26B Great South Road, Manurewa	49	49	49
3/52 Great South Road, Manurewa	49	50	49
3/34 Great South Road, Manurewa	49	49	49
1A Orams Road, Hillpark	48	49	49
3-4/3A Grande Vue Road, Hillpark	46	47	49
50B Great South Road, Manurewa	49	49	49
1/78 Great South Road, Manurewa	49	49	49
69C Great South Road, Manurewa	49	50	49
6 Great South Road, Manurewa	48	49	49
44D Great South Road, Manurewa	48	49	49
3/48 Great South Road, Manurewa	49	49	49
4/52 Great South Road, Manurewa	48	49	49
2/65 Great South Road, Manurewa	50	51	50
5/34 Great South Road, Manurewa	48	49	49
84A Great South Road, Manurewa	48	49	49
2/45A Great South Road, Manurewa	49	49	49
63B Great South Road, Manurewa	50	52	50
2/90 Great South Road, Manurewa	49	49	49
2/92A Great South Road, Manurewa	49	49	49
1/67 Great South Road, Manurewa	49	50	49
7 Sime Road, Hillpark	48	48	49

Address	Existing, dB LAeq(24hr)	Do Nothing, dB LAeq(24hr)	Do Minimum, LAeq(24hr)
25A Great South Road, Manurewa	48	49	48
44E Great South Road, Manurewa	47	48	48
1/14 Great South Road, Manurewa	47	48	48
1-2/5 Great South Road, Manurewa	47	48	48
6 Sime Road, Hillpark	47	48	48
23A Great South Road, Manurewa	48	48	48
30 Great South Road, Manurewa	47	48	48
28 Great South Road, Manurewa	47	47	48
2/78 Great South Road, Manurewa	48	48	48
51C Great South Road, Manurewa	48	49	48
75A Great South Road, Manurewa	48	49	48
46E Great South Road, Manurewa	47	48	48
2/37 Great South Road, Manurewa	47	48	48
1-2/3 Browns Road, Manurewa	45	45	48
43C Great South Road, Manurewa	47	48	48
1-2/7 Great South Road, Manurewa	47	48	48
3/40 Great South Road, Manurewa	47	48	48
14 Brouder Place, Hillpark	47	47	48
2/72 Great South Road, Manurewa	46	47	48
4/42 Great South Road, Manurewa	47	47	48
16 Tampin Road, Hillpark	46	47	47
27 Great South Road, Manurewa	47	47	47
3/78 Great South Road, Manurewa	47	47	47
26A Great South Road, Manurewa	47	47	47
16 Brouder Place, Hillpark	46	47	47
76A Great South Road, Manurewa	46	47	47
1/49A Great South Road, Manurewa	47	47	47
69D Great South Road, Manurewa	48	48	47
1/47A Great South Road, Manurewa	47	48	47
7-8/61 Great South Road, Manurewa	47	48	47
36 Great South Road, Manurewa	46	47	47
9/61 Great South Road, Manurewa	47	48	47
1/6 Halsey Road, Manurewa	47	48	47
53A Great South Road, Manurewa	47	47	47
3/45A Great South Road, Manurewa	46	47	47
76B Great South Road, Manurewa	44	45	47
4/34 Great South Road, Manurewa	46	47	47
5 Sime Road, Hillpark	46	46	47
2-3/59 Great South Road, Manurewa	47	48	47
4-6/2 Browns Road, Manurewa	45	46	46
3/1 Halsey Road, Manurewa	47	47	47
63A Great South Road, Manurewa	46	47	46
5B Browns Road, Manurewa	43	44	46
33A Great South Road, Manurewa	45	46	46

Address	Existing, dB LAeq(24hr)	Do Nothing, dB LAeq(24hr)	Do Minimum, LAeq(24hr)
1-2/1 Great South Road, Manurewa	47	47	46
51 Great South Road, Manurewa	46	47	46
4/45A Great South Road, Manurewa	46	46	46
1-2/93 Great South Road, Manurewa	46	47	46
3C Orams Road, Hillpark	45	46	46
2-4/47A Great South Road, Manurewa	46	47	46
3B Orams Road, Hillpark	45	46	46
76 Great South Road, Manurewa	45	46	46
43D Great South Road, Manurewa	45	46	46
1/55A Great South Road, Manurewa	45	46	46
1/84A Great South Road, Manurewa	45	46	46
3/137 Maich Road, Manurewa	45	45	46
26 Tampin Road, Hillpark	45	46	46
5/3A Grande Vue Road, Hillpark	45	46	46
69E Great South Road, Manurewa	46	46	46
1/94 Great South Road, Manurewa	46	46	46
1/3 Halsey Road, Manurewa	46	47	46
18 Brouder Place, Hillpark	45	45	46
2/1 Halsey Road, Manurewa	46	46	46
2/49A Great South Road, Manurewa	45	46	45
41B Great South Road, Manurewa	45	46	45
1/1 Halsey Road, Manurewa	45	46	45
71B Great South Road, Manurewa	45	46	45
22 Tampin Road, Hillpark	44	45	45
43E Great South Road, Manurewa	45	45	45
5A Grande Vue Road, Hillpark	45	45	45
1-2/3 Great South Road, Manurewa	44	44	45
59A Great South Road, Manurewa	45	46	45
4 Sime Road, Hillpark	44	45	45
30 Tampin Road, Hillpark	44	45	45
2/55A Great South Road, Manurewa	44	45	45
2/25A Great South Road, Manurewa	44	44	45
3A Orams Road, Hillpark	44	45	45
1/5 Halsey Road, Manurewa	45	46	45
4B Halsey Road, Manurewa	45	45	45
71C Great South Road, Manurewa	44	45	45
2/53A Great South Road, Manurewa	44	45	45
2/3 Halsey Road, Manurewa	44	45	45
12 Brouder Place, Hillpark	44	45	44
8 Halsey Road, Manurewa	45	46	44
80 Great South Road, Manurewa	44	44	44

Address	Existing, dB LAeq(24hr)	Do Nothing, dB LAeq(24hr)	Do Minimum, LAeq(24hr)
3/84C Great South Road, Manurewa	44	44	44
71A Great South Road, Manurewa	44	45	44
3 Sime Road, Hillpark	44	44	44
4C Halsey Road, Manurewa	44	45	44
2/87 Great South Road, Manurewa	45	45	44
27A Great South Road, Manurewa	44	44	44
91 Great South Road, Manurewa	44	44	44
2/41A Great South Road, Manurewa	43	44	44
1-4/4A Browns Road, Manurewa	43	43	43
92 Great South Road, Manurewa	43	44	43
3/5 Halsey Road, Manurewa	43	44	43
141B Maich Road, Manurewa	43	43	43
4 Browns Road, Manurewa	43	43	43
3/145 Maich Road, Manurewa	42	43	43
8 Orams Road, Hillpark	42	43	43
141A Maich Road, Manurewa	42	43	43
81A Great South Road, Manurewa	43	43	43
2/5 Halsey Road, Manurewa	43	43	43
3D Orams Road, Hillpark	42	43	43
1/84 Great South Road, Manurewa	42	43	42
2/6 Halsey Road, Manurewa	42	43	42
9 Grande Vue Road, Hillpark	41	42	42
1/89 Great South Road, Manurewa	42	42	42
3 Orams Road, Hillpark	41	42	42
1-2/7 Halsey Road, Manurewa	41	42	42
2/8 Halsey Road, Manurewa	41	42	41
3/87 Great South Road, Manurewa	41	42	41
2/89 Great South Road, Manurewa	41	41	41
1/75 Maich Road, Manurewa	41	41	41
5 Orams Road, Hillpark	40	40	40
3/89 Great South Road, Manurewa	40	40	40
4/87 Great South Road, Manurewa	40	40	40
92B Great South Road, Manurewa	39	40	40
1-2/3 Costar Place, Wiri	39	40	40
3/7 Halsey Road, Manurewa	39	40	40
1-3/6 Browns Road, Manurewa	39	39	39
85 Great South Road, Manurewa	39	40	39
2/94 Great South Road, Manurewa	38	39	39
3/90 Great South Road, Manurewa	39	39	39
1/91A Great South Road, Manurewa	39	39	39
2/91A Great South Road, Manurewa	38	39	39
94A Great South Road, Manurewa	37	38	38
4 Great South Road, Manurewa	37	37	37
8A Orams Road, Hillpark	36	37	36
96A Great South Road, Manurewa	35	36	36

1.2 NoR 1-C

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
315 Great South Road, Manurewa	65	67	66
313 Great South Road, Manurewa	65	67	65
307A Great South Road, Manurewa	64	67	65
1/305 Great South Road, Manurewa	62	65	63
301 Great South Road, Manurewa	62	64	63
1/299 Great South Road, Manurewa	58	61	60
1/297 Great South Road, Manurewa	58	61	60
307 Great South Road, Manurewa	55	58	57
1-3/295 Great South Road, Manurewa	56	58	57
1-3/293 Great South Road, Manurewa	54	56	55
1-2/291 Great South Road, Manurewa	53	55	54
2/305 Great South Road, Manurewa	52	54	53
289 Great South Road, Manurewa	52	54	52
1/301 Great South Road, Manurewa	51	53	52
313A Great South Road, Manurewa	49	51	50
122 Beaumonts Way, Manurewa	49	51	50
2/299 Great South Road, Manurewa	47	50	49
35B Ferguson Street, Manurewa East	46	49	48
114A Beaumonts Way, Manurewa	46	49	48
112 Beaumonts Way, Manurewa	45	48	47
33B Ferguson Street, Manurewa East	45	48	46
120 Beaumonts Way, Manurewa	44	47	46
118 Beaumonts Way, Manurewa	44	46	45
110 Beaumonts Way, Manurewa	43	46	45
114 Beaumonts Way, Manurewa	43	46	45
2/116 Beaumonts Way, Manurewa	43	45	44
108 Beaumonts Way, Manurewa	42	45	44
106 Beaumonts Way, Manurewa	42	44	43
2/297 Great South Road, Manurewa	42	44	43
1/116 Beaumonts Way, Manurewa	42	44	43
104 Beaumonts Way, Manurewa	41	44	43

Address	Existing, dB L _{Aeq(24hr)}	Do Nothing, dB L _{Aeq(24hr)}	Do Minimum, L _{Aeq(24hr)}
102 Beaumonts Way, Manurewa	41	44	42
100 Beaumonts Way, Manurewa	40	43	42
2/98 Beaumonts Way, Manurewa	40	43	42
96A Beaumonts Way, Manurewa	40	42	41
1/98 Beaumonts Way, Manurewa	40	42	41
25 Ferguson Street, Manurewa East	39	41	41
96 Beaumonts Way, Manurewa	39	42	41
4/291 Great South Road, Manurewa	39	41	40

1.3 NoR 1-D

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
1-2/2 Walter Strevens Drive, Conifer Grove, Takanini	63	64	65
159 Great South Road, Takanini	65	64	64
160A Great South Road, Takanini	64	63	63
1 Walter Strevens Drive, Conifer Grove, Takanini	63	63	64
155 Great South Road, Takanini	64	64	63
157 Great South Road, Takanini	64	63	62
162 Great South Road, Takanini	63	62	62
4 Walter Strevens Drive, Conifer Grove, Takanini	61	62	64
8 Walter Strevens Drive, Conifer Grove, Takanini	55	56	58
2/6 Taka Street, Takanini	55	56	56
3 Walter Strevens Drive, Conifer Grove, Takanini	54	55	57
3-4/6 Taka Street, Takanini	54	54	55
1/6 Taka Street, Takanini	53	54	54
1-2/10 Walter Strevens Drive, Conifer Grove, Takanini	53	53	55
1/10 Taka Street, Takanini	51	52	53
9 Walter Strevens Drive, Conifer Grove, Takanini	50	51	53
144 Great South Road, Takanini	52	52	52
5-6/7 Maru Road, Takanini	52	52	52
1-2/6 Walter Strevens Drive, Conifer Grove, Takanini	51	51	52
144B Great South Road, Takanini	51	51	51
1-4/5 Maru Road, Takanini	51	50	51
1-2/5 Walter Strevens Drive, Conifer Grove, Takanini	51	50	50
5-6/9 Maru Road, Takanini	50	51	51
1-2/12 Taka Street, Takanini	49	50	51
9-11 Taka Street, Takanini	49	50	50
11 Walter Strevens Drive, Conifer Grove, Takanini	48	49	51
12 Walter Strevens Drive, Conifer Grove, Takanini	48	49	50
144A Great South Road, Takanini	49	48	48
5-6/6 Taka Street, Takanini	48	48	49
3 Maru Road, Takanini	48	48	48
11A Maru Road, Takanini	47	47	48
7-8/6 Taka Street, Takanini	47	47	48
3-4/7 Maru Road, Takanini	47	47	47
1-2/27 Waimana Road, Conifer Grove, Takanini	46	46	48
7 Walter Strevens Drive, Conifer Grove, Takanini	46	46	46

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
1-2/7 Maru Road, Takanini	45	45	45
3-4/9 Maru Road, Takanini	45	45	45
1-2/25 Waimana Road, Conifer Grove, Takanini	45	45	45
3/10 Taka Street, Takanini	44	44	45
2/10 Taka Street, Takanini	44	44	45
7A Takanini Road, Takanini	44	44	44
3/12 Taka Street, Takanini	44	44	44
1/6 Maru Road, Takanini	44	43	44
2-3/6 Maru Road, Takanini	44	43	43
2/32 Waimana Road, Conifer Grove, Takanini	43	43	43
1/32 Waimana Road, Conifer Grove, Takanini	43	43	43
1 Kirrama Place, Conifer Grove, Takanini	43	42	43
1-2/13 Walter Strevens Drive, Conifer Grove, Takanini	42	42	42
8 Maru Road, Takanini	42	42	42
1/10 Maru Road, Takanini	41	41	42
9A Takanini Road, Takanini	41	40	41
144C Great South Road, Takanini	38	38	39

1.4 NoR 1-E

Address	Existing, dB L _{Aeq(24hr)}	Do Nothing, dB L _{Aeq(24hr)}	Do Minimum, L _{Aeq(24hr)}
6-8 Coles Crescent, Papakura	46	48	48
1 Coles Crescent, Papakura	39	40	40
4/30 Coles Crescent, Papakura	40	41	40
6 Coles Crescent, Papakura	38	39	39
3/30 Coles Crescent, Papakura	38	39	38
26B Coles Crescent, Papakura	38	39	38
1-6/18 Coles Crescent, Papakura	36	38	37
4/32 Coles Crescent, Papakura	35	36	36
3/34 Coles Crescent, Papakura	35	36	36
3-3A Coles Crescent, Papakura	35	36	36
3/32 Coles Crescent, Papakura	34	35	35
11 Coles Crescent, Papakura	34	35	35
9 Coles Crescent, Papakura	34	35	35
7 Coles Crescent, Papakura	32	34	34
5-5A Coles Crescent, Papakura	32	33	34
63 Great South Road, Papakura	31	32	32
5B Coles Crescent, Papakura	31	32	32
3B Coles Crescent, Papakura	30	31	32

1.5 NoR 1-F

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
1 Opaheke Road, Papakura	59	60	60
1/327 Great South Road, Papakura	57	58	57
280A/B Great South Road, Papakura	57	58	57
1-3/3 Opaheke Road, Papakura	54	54	53
6/327 Great South Road, Papakura	54	54	53
284 Great South Road, Papakura	53	53	52
331 Great South Road, Papakura	51	51	50
4-5/3 Opaheke Road, Papakura	52	53	53
1/5 Opaheke Road, Papakura	48	50	50
2/327 Great South Road, Papakura	47	48	47
329 Great South Road, Papakura	47	48	48
14-27/52 East Street, Papakura	47	48	48
1/7 Opaheke Road, Papakura	47	48	48
1-13/52 East Street, Papakura	46	47	47
3/327 Great South Road, Papakura	44	45	45
51 Wood Street, Papakura	43	43	43
5/327 Great South Road, Papakura	43	44	44
329A Great South Road, Papakura	42	43	43
2/54 East Street, Papakura	41	41	42
331A Great South Road, Papakura	41	42	42
1-3/56 East Street, Papakura	40	41	41
1/54 East Street, Papakura	40	40	41
1/1 Nelson Street, Papakura	40	41	41
286 Great South Road, Papakura	39	40	40
1A Nelson Street, Papakura	39	40	40
2-3/5 Opaheke Road, Papakura	38	39	39
333 Great South Road, Papakura	39	40	40
2-3/7 Opaheke Road, Papakura	37	38	38
1-2/288 Great South Road, Papakura	34	34	34

1.6 NoR 1-G

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
1/332 Great South Road, Ōpaheke, Papakura	64	64	64
336 Great South Road, Ōpaheke, Papakura	63	63	63
357 Great South Road, Ōpaheke, Papakura	64	64	62
361 Great South Road, Ōpaheke, Papakura	63	63	62
1/326 Great South Road, Ōpaheke, Papakura	63	63	62
328 Great South Road, Ōpaheke, Papakura	62	62	61
320 Great South Road, Ōpaheke, Papakura	62	62	61
377 Great South Road, Ōpaheke, Papakura	62	62	61
1/359 Great South Road, Ōpaheke, Papakura	63	63	61
322A Great South Road, Ōpaheke, Papakura	59	59	58
334 Great South Road, Ōpaheke, Papakura	60	61	59
1/1 Manse Road, Pahurehure, Papakura	62	62	60
1 Butterworth Avenue, Ōpaheke, Papakura	55	54	53
2/326 Great South Road, Ōpaheke, Papakura	50	50	49
338 Great South Road, Ōpaheke, Papakura	55	53	53
330A Great South Road, Ōpaheke, Papakura	50	50	50
2/324 Great South Road, Ōpaheke, Papakura	50	51	50
2/3 Liverpool Street, Papakura	58	58	57
2/332 Great South Road, Ōpaheke, Papakura	51	51	50
18 McCall Place, Ōpaheke, Papakura	56	56	55
4 McCall Place, Ōpaheke, Papakura	50	50	51
4-4A Butterworth Avenue, Ōpaheke, Papakura	51	50	50
3 Butterworth Avenue, Ōpaheke, Papakura	52	51	51
1/3 Liverpool Street, Papakura	56	56	54
340 Great South Road, Ōpaheke, Papakura	52	51	51
5A Liverpool Street, Papakura	54	54	53
5 Beach Road, Pahurehure, Papakura	54	54	54
2/4 Beach Road, Pahurehure, Papakura	53	53	53

6 McCall Place, Ōpaheke, Papakura	49	49	50
2/1 Manse Road, Pahurehure, Papakura	54	55	53
4 Clark Road, Pahurehure, Papakura	54	54	52
1/4 Beach Road, Pahurehure, Papakura	52	52	52
7A Liverpool Street, Papakura	53	53	51
10 McCall Place, Ōpaheke, Papakura	48	48	48
12 McCall Place, Ōpaheke, Papakura	47	47	48
16 McCall Place, Ōpaheke, Papakura	52	52	48
8 McCall Place, Ōpaheke, Papakura	47	47	51
14 McCall Place, Ōpaheke, Papakura	47	47	48
7 Beach Road, Pahurehure, Papakura	50	51	50
5 Settlement Road, Papakura	51	51	50
2/359 Great South Road, Ōpaheke, Papakura	51	51	51
357A Great South Road, Ōpaheke, Papakura	52	52	50
2/355 Great South Road, Ōpaheke, Papakura	51	51	49
8B Beach Road, Pahurehure, Papakura	48	48	48
2/10 Beach Road, Pahurehure, Papakura	48	47	48
346A Great South Road, Ōpaheke, Papakura	47	47	47
6 Beach Road, Pahurehure, Papakura	49	50	49
2A Manse Road, Pahurehure, Papakura	50	50	49
6 Butterworth Avenue, Ōpaheke, Papakura	46	46	47
7A Butterworth Avenue, Ōpaheke, Papakura	46	46	45
8A Beach Road, Pahurehure, Papakura	49	49	48
2/9 Liverpool Street, Papakura	48	48	47
1/1 Clark Road, Pahurehure, Papakura	50	50	48
357B Great South Road, Ōpaheke, Papakura	49	49	48
2/6 Clark Road, Pahurehure, Papakura	48	49	47
3B Butterworth Avenue, Ōpaheke, Papakura	45	44	44
20 McCall Place, Ōpaheke, Papakura	47	47	47
2 Manse Road, Pahurehure, Papakura	47	47	47
5 Liverpool Street, Papakura	47	47	47

2/1 Clark Road, Pahurehure, Papakura	49	49	46
1-2/4 Liverpool Street, Papakura	47	47	46
9 Butterworth Avenue, Ōpaheke, Papakura	44	44	43
11A Liverpool Street, Papakura	46	46	46
15 McCall Place, Ōpaheke, Papakura	45	45	45
7 Liverpool Street, Papakura	46	46	46
1/1A Clark Road, Pahurehure, Papakura	48	48	45
6 Manse Road, Pahurehure, Papakura	46	46	46
4A Clark Road, Pahurehure, Papakura	47	47	45
7B Argyle Avenue, Pahurehure, Papakura	46	46	45
5 Argyle Avenue, Pahurehure, Papakura	45	45	45
1/9 Liverpool Street, Papakura	45	45	44
3A Butterworth Avenue, Ōpaheke, Papakura	424	42	43
4 Manse Road, Pahurehure, Papakura	45	45	45
11 Liverpool Street, Papakura	44	44	43
2/3 Clark Road, Pahurehure, Papakura	46	46	43
1/6 Clark Road, Pahurehure, Papakura	43	44	43
2/3 Argyle Avenue, Pahurehure, Papakura	43	43	42
346 Great South Road, Ōpaheke, Papakura	40	38	38
8 Butterworth Avenue, Ōpaheke, Papakura	40	39	39
2A South Street, Papakura	43	43	42
5A Argyle Avenue, Pahurehure, Papakura	42	43	42
7A Argyle Avenue, Pahurehure, Papakura	42	43	42
1/10 Beach Road, Pahurehure, Papakura	41	41	43
2 South Street, Papakura	43	43	42
342 Great South Road, Ōpaheke, Papakura	40	39	40
2/1A Clark Road, Pahurehure, Papakura	42	43	41
9 Manse Road, Pahurehure, Papakura	42	42	42
1/3 Argyle Avenue, Pahurehure, Papakura	42	42	42
1 Argyle Avenue, Pahurehure, Papakura	41	41	41
1/3 Clark Road, Pahurehure, Papakura	41	41	40
2/4 South Street, Papakura	40	41	40

1.7 NoR 1-H

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
466 Great South Road, Ōpaheke, Papakura	64	65	65
1/468 Great South Road, Ōpaheke, Papakura	63	65	65
1 Park Estate Road, Rosehill, Papakura	65	66	65
3-4/464 Great South Road, Ōpaheke, Papakura	63	64	65
1/2 Park Estate Road, Rosehill, Papakura	64	66	65
1-2/465 Great South Road, Ōpaheke, Papakura	62	63	62
2/469 Great South Road, Ōpaheke, Papakura	62	63	62
1-2/461 Great South Road, Ōpaheke, Papakura	62	62	62
463A/B Great South Road, Ōpaheke, Papakura	62	62	62
459 Great South Road, Ōpaheke, Papakura	62	62	61
469 Great South Road, Ōpaheke, Papakura	61	63	61
471 Great South Road, Ōpaheke, Papakura	61	62	61
1-2/462 Great South Road, Ōpaheke, Papakura	62	63	62
470 Great South Road, Ōpaheke, Papakura	61	62	60
453 Great South Road, Ōpaheke, Papakura	61	61	60
1-2/3 Park Estate Road, Rosehill, Papakura	61	64	63
1/450 Great South Road, Ōpaheke, Papakura	62	62	59
473 Great South Road, Ōpaheke, Papakura	59	60	59
452 Great South Road, Ōpaheke, Papakura	62	62	59
456 Great South Road, Ōpaheke, Papakura	61	61	58
1/458 Great South Road, Ōpaheke, Papakura	61	61	58
1/446 Great South Road, Ōpaheke, Papakura	61	61	58
1/454 Great South Road, Ōpaheke, Papakura	61	61	58
2/451 Great South Road, Ōpaheke, Papakura	58	58	57
1/444 Great South Road, Ōpaheke, Papakura	59	59	56
448 Great South Road, Ōpaheke, Papakura	57	57	55
2/2 Park Estate Road, Rosehill, Papakura	56	59	59

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
1 Parkhaven Drive, Rosehill, Papakura	54	55	54
5 Park Estate Road, Rosehill, Papakura	55	58	57
6 Park Estate Road, Rosehill, Papakura	55	58	57
1/442A Great South Road, Ōpaheke, Papakura	55	55	53
7 Park Estate Road, Rosehill, Papakura	55	57	57
1 Magnolia Avenue, Ōpaheke, Papakura	53	53	53
4 Beverage Place, Rosehill, Papakura	51	53	52
2/446 Great South Road, Ōpaheke, Papakura	52	52	51
1 Coulthard Terrace, Ōpaheke, Papakura	51	51	51
4 Magnolia Avenue, Ōpaheke, Papakura	50	51	51
2 Beverage Place, Rosehill, Papakura	50	51	51
1/438 Great South Road, Ōpaheke, Papakura	51	52	50
2/468 Great South Road, Ōpaheke, Papakura	49	51	50
1/4 Park Estate Road, Rosehill, Papakura	50	51	50
440 Great South Road, Ōpaheke, Papakura	50	50	49
2/458 Great South Road, Ōpaheke, Papakura	50	51	50
1/436 Great South Road, Ōpaheke, Papakura	50	51	49
9 Park Estate Road, Rosehill, Papakura	50	52	53
28 Magnolia Avenue, Ōpaheke, Papakura	49	49	49
2/450 Great South Road, Ōpaheke, Papakura	49	49	48
466A Great South Road, Ōpaheke, Papakura	48	50	49
8 Park Estate Road, Rosehill, Papakura	50	52	52
2/444 Great South Road, Ōpaheke, Papakura	48	49	48
2/454 Great South Road, Ōpaheke, Papakura	49	49	48
1-2/457 Great South Road, Ōpaheke, Papakura	48	48	48
3 Coulthard Terrace, Ōpaheke, Papakura	48	48	48
452A Great South Road, Ōpaheke, Papakura	48	49	48
1/455 Great South Road, Ōpaheke, Papakura	47	48	48

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
4 Coulthard Terrace, Ōpaheke, Papakura	48	48	47
11 Park Estate Road, Rosehill, Papakura	47	49	50
1-2/10 Park Estate Road, Rosehill, Papakura	47	50	50
20 Coulthard Terrace, Ōpaheke, Papakura	46	46	46
26 Magnolia Avenue, Ōpaheke, Papakura	46	46	46
14 Magnolia Avenue, Ōpaheke, Papakura	45	46	46
2/442A Great South Road, Ōpaheke, Papakura	45	46	46
6 Magnolia Avenue, Ōpaheke, Papakura	45	45	45
3 Parkhaven Drive, Rosehill, Papakura	45	46	45
8 Magnolia Avenue, Ōpaheke, Papakura	45	45	45
5 Parkhaven Drive, Rosehill, Papakura	45	46	45
12 Coulthard Terrace, Ōpaheke, Papakura	45	45	45
5 Coulthard Terrace, Ōpaheke, Papakura	44	45	45
3 Magnolia Avenue, Ōpaheke, Papakura	44	44	45
24 Magnolia Avenue, Ōpaheke, Papakura	44	45	45
13 Park Estate Road, Rosehill, Papakura	45	47	47
2/455 Great South Road, Ōpaheke, Papakura	44	45	45
2/4 Park Estate Road, Rosehill, Papakura	44	45	44
37 Magnolia Avenue, Ōpaheke, Papakura	44	45	45
6 Beverage Place, Rosehill, Papakura	41	42	44
6 Coulthard Terrace, Ōpaheke, Papakura	44	45	44
7 Coulthard Terrace, Ōpaheke, Papakura	43	44	44
22 Coulthard Terrace, Ōpaheke, Papakura	43	43	44
10 Magnolia Avenue, Ōpaheke, Papakura	43	43	43
442 Great South Road, Ōpaheke, Papakura	43	44	43
8 Coulthard Terrace, Ōpaheke, Papakura	43	43	43
10 Coulthard Terrace, Ōpaheke, Papakura	43	43	43
2/12 Park Estate Road, Rosehill, Papakura	43	44	43

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
1 Beverage Place, Rosehill, Papakura	42	43	43
7 Parkhaven Drive, Rosehill, Papakura	42	43	43
13 Parkhaven Drive, Rosehill, Papakura	42	43	42
12 Magnolia Avenue, Ōpaheke, Papakura	42	42	42
35 Magnolia Avenue, Ōpaheke, Papakura	42	43	43
1/12 Park Estate Road, Rosehill, Papakura	41	43	42
35A Magnolia Avenue, Ōpaheke, Papakura	41	42	42
16 Coulthard Terrace, Ōpaheke, Papakura	41	42	41
5 Magnolia Avenue, Ōpaheke, Papakura	41	41	41
7 Magnolia Avenue, Ōpaheke, Papakura	41	41	41
440B Great South Road, Ōpaheke, Papakura	41	41	41
26 Coulthard Terrace, Ōpaheke, Papakura	41	41	41
14 Coulthard Terrace, Ōpaheke, Papakura	41	41	41
24 Coulthard Terrace, Ōpaheke, Papakura	41	41	41
445A Great South Road, Ōpaheke, Papakura	39	40	40
2/438 Great South Road, Ōpaheke, Papakura	40	41	40
9 Parkhaven Drive, Rosehill, Papakura	40	41	40
447 Great South Road, Ōpaheke, Papakura	39	40	40
15 Parkhaven Drive, Rosehill, Papakura	39	40	40
2/436 Great South Road, Ōpaheke, Papakura	39	40	40
18 Coulthard Terrace, Ōpaheke, Papakura	38	39	39
2/445 Great South Road, Ōpaheke, Papakura	36	37	37
434 Great South Road, Ōpaheke, Papakura	36	36	36

1.8 NoR 1-Bridge

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
134 Great South Road, Drury	64	65	64
595 Great South Road, Rosehill, Papakura	61	63	64
593 Great South Road, Rosehill, Papakura	61	63	64
589E Great South Road, Rosehill, Papakura	60	61	62
589B Great South Road, Rosehill, Papakura	57	58	58
136 Great South Road, Drury	58	60	58
591 Great South Road, Rosehill, Papakura	53	55	57
600 Great South Road, Rosehill, Papakura	55	56	57
589A Great South Road, Rosehill, Papakura	55	57	57
134A Great South Road, Drury	58	60	57
138A Great South Road, Drury	55	57	56
589 Great South Road, Rosehill, Papakura	52	54	55
597 Great South Road, Rosehill, Papakura	51	52	54
585 Great South Road, Rosehill, Papakura	49	50	53
136A Great South Road, Drury	54	55	53
587 Great South Road, Rosehill, Papakura	49	51	53
147 Great South Road, Drury	51	52	52
1/2 Miro Street, Drury	51	53	52
149 Great South Road, Drury	50	51	51
2/2 Miro Street, Drury	50	52	51
136B Great South Road, Drury	50	51	49
589D Great South Road, Rosehill, Papakura	44	45	48
1/140 Great South Road, Drury	45	47	46
138C Great South Road, Drury	46	47	46
589C Great South Road, Rosehill, Papakura	42	43	45
3/140 Great South Road, Drury	40	42	42
30 Kilmacrennan Drive, Rosehill, Papakura	39	40	42
28 Kilmacrennan Drive, Rosehill, Papakura	38	39	41
2/140 Great South Road, Drury	38	39	40
138B Great South Road, Drury	38	40	40
4 Miro Street, Drury	37	38	39
26 Kilmacrennan Drive, Rosehill, Papakura	36	37	39
1-2/6 Miro Street, Drury	37	38	39

1.9 NoR 2

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
108 Flanagan Road, Drury	48	50	50
64 Flanagan Road, Drury	43	45	48
32 Flanagan Road, Drury	43	44	45
36 Flanagan Road, Drury	42	44	45
28 Flanagan Road, Drury	41	43	43
24 Flanagan Road, Drury	41	42	43
22 Flanagan Road, Drury	39	41	42
20 Flanagan Road, Drury	39	41	41
37 Waihoehoe Road, Drury	38	40	40
8 Flanagan Road, Drury	37	39	40
35 Waihoehoe Road, Drury	37	39	39
16 Flanagan Road, Drury	36	38	39
31 Waihoehoe Road, Drury	35	37	39
4 Flanagan Road, Drury	33	35	35
16 Waihoehoe Road, Drury	32	34	34
18 Waihoehoe Road, Drury	31	33	34
18A Waihoehoe Road, Drury	31	32	34
18B Waihoehoe Road, Drury	30	32	34

1.10 NoR 3

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
250 Great South Road, Manurewa	67	70	69
250A Great South Road, Manurewa	67	69	69
1/254 Great South Road, Manurewa	66	69	67
1/256 Great South Road, Manurewa	65	68	67
1-3/245 Great South Road, Manurewa	65	67	66
240 Great South Road, Manurewa	64	67	66
1/124 Alfriston Road, Manurewa	63	66	66
137 Alfriston Road, Manurewa	63	65	66
116 Alfriston Road, Manurewa	63	66	66
1/28 Alfriston Road, Manurewa East	63	65	66
131A Alfriston Road, Manurewa	63	66	66
128 Alfriston Road, Manurewa	63	65	66
1/72 Alfriston Road, Manurewa East	64	66	66
246 Great South Road, Manurewa	64	67	66
122A Alfriston Road, Manurewa	63	65	66
1/66 Alfriston Road, Manurewa East	63	65	66

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
2/26 Alfriston Road, Manurewa East	63	66	66
217 Great South Road, Manurewa	63	66	66
215 Great South Road, Manurewa	63	66	66
112 Alfriston Road, Manurewa	62	64	66
22 Weymouth Road, Manurewa	63	66	66
219 Great South Road, Manurewa	64	67	66
130 Alfriston Road, Manurewa	62	65	66
106 Alfriston Road, Manurewa	62	64	66
1/252 Great South Road, Manurewa	64	67	66
1/20 Weymouth Road, Manurewa	63	66	65
2A-C Fleming Street, Manurewa East	65	67	65
100 Alfriston Road, Manurewa	62	64	65
143 Alfriston Road, Manurewa	62	64	65
1-3/78 Alfriston Road, Manurewa East	64	66	65
135 Alfriston Road, Manurewa	62	65	65
141B Alfriston Road, Manurewa	62	65	65
1/24 Weymouth Road, Manurewa	62	65	65
141E Alfriston Road, Manurewa	62	64	65
20A Alfriston Road, Manurewa East	63	66	65
141C Alfriston Road, Manurewa	62	64	65
221 Great South Road, Manurewa	64	67	65
49 Alfriston Road, Manurewa East	63	65	65
45 Alfriston Road, Manurewa East	63	66	65
2/32 Alfriston Road, Manurewa East	56	59	65
141D Alfriston Road, Manurewa	62	64	65
60 Claude Road, Manurewa East	61	61	64
1/24 Alfriston Road, Manurewa East	62	65	64
1/57 Alfriston Road, Manurewa East	62	65	64
1/15 Alfriston Road, Manurewa East	60	62	64
16 Alfriston Road, Manurewa East	63	66	64
141F Alfriston Road, Manurewa	61	64	64
233 Great South Road, Manurewa	61	64	64
26 Weymouth Road, Manurewa	62	64	64
80 Alfriston Road, Manurewa East	62	65	64
122H Alfriston Road, Manurewa	61	63	64
68 Alfriston Road, Manurewa East	60	62	64
42A Alfriston Road, Manurewa East	51	53	64
49 Claude Road, Hillpark	58	59	63
2/110 Alfriston Road, Manurewa	50	53	63
40A Alfriston Road, Manurewa East	52	54	63
22/110 Alfriston Road, Manurewa	52	54	63

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
139 Alfriston Road, Manurewa	62	64	63
1/258 Great South Road, Manurewa	65	68	63
1-8/261 Great South Road, Manurewa	62	64	63
34 Alfriston Road, Manurewa East	58	60	63
229 Great South Road, Manurewa	60	63	63
18A Weymouth Road, Manurewa	62	65	63
133 Alfriston Road, Manurewa	58	60	63
260 Great South Road, Manurewa	62	65	63
1/55 Alfriston Road, Manurewa East	63	65	63
64 Alfriston Road, Manurewa East	59	62	63
36 Alfriston Road, Manurewa East	52	55	62
120 Alfriston Road, Manurewa	59	62	62
1/262 Great South Road, Manurewa	61	63	62
47 Alfriston Road, Manurewa East	61	63	62
1/63 Alfriston Road, Manurewa East	60	62	62
129 Alfriston Road, Manurewa	62	65	62
1/71 Alfriston Road, Manurewa East	58	60	62
132 Alfriston Road, Manurewa	59	61	62
52A Alfriston Road, Manurewa East	52	55	62
30B Alfriston Road, Manurewa East	51	54	62
38A Alfriston Road, Manurewa East	48	51	62
5/15 Alfriston Road, Manurewa East	49	51	61
65 Alfriston Road, Manurewa East	60	62	61
61 Alfriston Road, Manurewa East	60	63	61
52 Alfriston Road, Manurewa East	57	60	61
62 Alfriston Road, Manurewa East	56	58	61
25A Alfriston Road, Manurewa East	62	64	61
223 Great South Road, Manurewa	61	64	61
2/84 Alfriston Road, Manurewa East	56	59	61
143A Alfriston Road, Manurewa	58	61	61
60A Alfriston Road, Manurewa East	54	56	60
1A Scotts Road, Manurewa East	59	60	60
70A Alfriston Road, Manurewa East	54	56	60
2/79 Alfriston Road, Manurewa East	53	55	60
39 Alfriston Road, Manurewa East	61	64	60
27A Alfriston Road, Manurewa East	61	63	60
56 Claude Road, Hillpark	56	56	60

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
2/72 Alfriston Road, Manurewa East	56	58	59
235 Great South Road, Manurewa	59	61	59
59B Alfriston Road, Manurewa East	54	56	59
37 Alfriston Road, Manurewa East	59	62	59
1 Scotts Road, Manurewa East	58	59	59
33 Alfriston Road, Manurewa East	59	62	59
67 Alfriston Road, Manurewa East	58	61	59
134 Alfriston Road, Manurewa	56	59	59
2/86 Alfriston Road, Manurewa East	52	55	59
1/51 Alfriston Road, Manurewa East	62	64	59
2/243 Great South Road, Manurewa	49	52	59
41 Alfriston Road, Manurewa East	59	61	59
1/240 Great South Road, Manurewa	57	59	59
237A Great South Road, Manurewa	52	55	58
266 Great South Road, Manurewa	57	60	58
2/19 Alfriston Road, Manurewa East	53	55	58
2/241 Great South Road, Manurewa	50	52	58
259 Great South Road, Manurewa	58	61	58
1-2/54 Claude Road, Hillpark	53	54	58
2/71 Alfriston Road, Manurewa East	51	53	58
2-3/66 Alfriston Road, Manurewa East	54	57	58
92A Alfriston Road, Manurewa	54	57	58
2/15 Alfriston Road, Manurewa East	51	53	57
263 Great South Road, Manurewa	56	58	57
47 Claude Road, Hillpark	54	55	57
11 Alfriston Road, Manurewa East	47	49	57
45 Claude Road, Hillpark	53	54	57
88 Alfriston Road, Manurewa East	58	60	57
268A Great South Road, Manurewa	55	58	57
2/28 Alfriston Road, Manurewa East	54	56	57
2/124 Alfriston Road, Manurewa	53	55	56
1/26 Alfriston Road, Manurewa East	54	56	56
2 Beaumonts Way, Manurewa	50	52	56
3-7/72 Alfriston Road, Manurewa East	53	55	56
2 Saralee Drive, Manurewa	53	56	56
102 Alfriston Road, Manurewa	51	53	56
2/24 Alfriston Road, Manurewa East	54	56	56

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
5 Scotts Road, Manurewa East	55	56	56
8F Scotts Road, Manurewa East	52	53	56
29 Index Place, Manurewa	53	56	56
265 Great South Road, Manurewa	54	57	56
88 Magic Way, Randwick Park	50	53	56
8 Weymouth Road, Manurewa	49	52	56
3/243 Great South Road, Manurewa	49	52	56
3/32 Alfriston Road, Manurewa East	51	54	56
1/18A Weymouth Road, Manurewa	52	55	55
2/249 Great South Road, Manurewa	48	51	55
22A Saralee Drive, Manurewa	52	55	55
1 Beaumonts Way, Manurewa	53	55	55
21A/B Selwyn Road, Manurewa	51	54	55
8 Scotts Road, Manurewa East	54	55	55
20B Alfriston Road, Manurewa East	52	55	55
1/16 McAnnalley Street, Manurewa East	53	56	55
143B Alfriston Road, Manurewa	54	57	55
2/251 Great South Road, Manurewa	49	52	55
17 Selwyn Road, Manurewa	50	52	55
122G Alfriston Road, Manurewa	52	54	55
3/81 Alfriston Road, Manurewa East	48	51	55
122B Alfriston Road, Manurewa	51	54	55
2 Brough Road, Manurewa East	51	53	55
143D Alfriston Road, Manurewa	52	54	55
48 Beaumonts Way, Manurewa	51	53	55
90A Alfriston Road, Manurewa East	52	54	55
1/21 Weymouth Road, Manurewa	52	54	54
1/2 Woodside Road, Manurewa	50	53	54
23B Weymouth Road, Manurewa	51	54	54
2/18A Weymouth Road, Manurewa	48	51	54
2/256 Great South Road, Manurewa	53	56	54
116A Alfriston Road, Manurewa	51	53	54
59 Magic Way, Randwick Park	50	52	54
4 Beaumonts Way, Manurewa	50	53	54
1/13 Selwyn Road, Manurewa	48	51	54
25B Alfriston Road, Manurewa East	52	55	54
3 Scotts Road, Manurewa East	53	54	54
32 Skelton Avenue, Randwick Park	46	48	54
8-9/72 Alfriston Road, Manurewa East	50	53	54
46 Beaumonts Way, Manurewa	50	53	54

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
6 Skelton Avenue, Randwick Park	51	54	54
213 Great South Road, Manurewa	49	52	54
54 Beaumonts Way, Manurewa	49	52	54
4/81 Alfriston Road, Manurewa East	49	51	54
3/28 Alfriston Road, Manurewa East	51	53	54
52 Beaumonts Way, Manurewa	50	53	54
31 Index Place, Manurewa	50	53	54
252B Great South Road, Manurewa	52	55	54
35A Alfriston Road, Manurewa East	53	56	53
2/21 Weymouth Road, Manurewa	50	53	53
3 Beaumonts Way, Manurewa	48	51	53
50 Beaumonts Way, Manurewa	48	51	53
2/239 Great South Road, Manurewa	50	53	53
3/110 Alfriston Road, Manurewa	49	51	53
2/2 Woodside Road, Manurewa	47	49	53
2-3/254 Great South Road, Manurewa	51	54	53
2/51 Alfriston Road, Manurewa East	54	56	53
7 Scotts Road, Manurewa East	51	52	53
4/110 Alfriston Road, Manurewa	49	51	53
3 Brough Road, Manurewa East	47	50	53
2/258 Great South Road, Manurewa	52	54	53
2/1A Woodside Road, Manurewa	51	54	53
1/239 Great South Road, Manurewa	48	51	53
17A Selwyn Road, Manurewa	48	51	53
5 Beaumonts Way, Manurewa	49	51	53
3/24 Alfriston Road, Manurewa East	50	53	53
16 McAnnalley Street, Manurewa East	50	53	53
5/81 Alfriston Road, Manurewa East	50	53	53
2/262 Great South Road, Manurewa	51	54	53
1-2/219A Great South Road, Manurewa	51	54	53
94 Alfriston Road, Manurewa	51	53	53
4/15 Alfriston Road, Manurewa East	46	48	52
1/124A Alfriston Road, Manurewa	49	52	52
52 Claude Road, Hillpark	48	50	52
3/241 Great South Road, Manurewa	49	51	52
4/28 Alfriston Road, Manurewa East	50	52	52
21/110 Alfriston Road, Manurewa	49	51	52

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
2/20 Weymouth Road, Manurewa	48	51	52
1 Brough Road, Manurewa East	49	51	52
2/55 Alfriston Road, Manurewa East	52	54	52
4/243 Great South Road, Manurewa	46	49	52
4/32 Alfriston Road, Manurewa East	48	51	52
4/239 Great South Road, Manurewa	47	50	52
8E Scotts Road, Manurewa East	50	51	52
1-2/32 Weymouth Road, Manurewa	49	51	52
56 Alfriston Road, Manurewa East	46	49	52
131 Alfriston Road, Manurewa	49	51	52
6A Skelton Avenue, Randwick Park	46	48	52
3/19 Alfriston Road, Manurewa East	50	53	52
22 Saralee Drive, Manurewa	49	51	52
10-13/72 Alfriston Road, Manurewa East	47	50	52
28-30 Weymouth Road, Manurewa	49	51	52
4 Woodside Road, Manurewa	50	52	52
7 Brough Road, Manurewa East	47	50	52
57 Magic Way, Randwick Park	47	50	52
1/14A Alfriston Road, Manurewa East	50	52	52
5/110 Alfriston Road, Manurewa	48	50	52
35 Alfriston Road, Manurewa East	51	54	52
4 Brough Road, Manurewa East	47	49	52
61C Alfriston Road, Manurewa East	49	51	52
122F Alfriston Road, Manurewa	49	51	52
1 Woodside Road, Manurewa	49	52	52
94A Alfriston Road, Manurewa	49	51	52
1/52 Claude Road, Hillpark	46	49	52
4/54 Claude Road, Hillpark	46	48	52
27B Alfriston Road, Manurewa East	49	51	51
3B Woodside Road, Manurewa	48	50	51
4/20 Weymouth Road, Manurewa	47	50	51
18A Saralee Drive, Manurewa	48	51	51
3/239 Great South Road, Manurewa	48	51	51
48 Claude Road, Hillpark	47	49	51
1/39 Claude Road, Hillpark	47	49	51
3/15 Alfriston Road, Manurewa East	46	49	51
33 Index Place, Manurewa	49	51	51
8D Scotts Road, Manurewa East	45	47	51
21 Alfriston Road, Manurewa East	46	49	51
5A Woodside Road, Manurewa	47	50	51

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
60B Alfriston Road, Manurewa East	46	49	51
3 Shifnal Drive, Randwick Park	50	52	51
2/124A Alfriston Road, Manurewa	48	51	51
6/110 Alfriston Road, Manurewa	47	50	51
11 Selwyn Road, Manurewa	46	49	51
1A Beaumonts Way, Manurewa	46	49	51
1-5/7 Woodside Road, Manurewa	49	51	51
5A Scotts Road, Manurewa East	49	50	51
3/20 Weymouth Road, Manurewa	47	49	51
56B Claude Road, Hillpark	46	48	51
18 McAnnalley Street, Manurewa East	49	51	51
30A Saralee Drive, Manurewa	48	50	51
5/54 Claude Road, Hillpark	46	48	51
45A Alfriston Road, Manurewa East	50	51	51
2/41 Alfriston Road, Manurewa East	50	52	51
2/24 Weymouth Road, Manurewa	47	50	51
1/9 Scotts Road, Manurewa East	48	49	51
86 Magic Way, Randwick Park	48	50	51
5 Brough Road, Manurewa East	47	49	51
30C/D Alfriston Road, Manurewa East	47	50	51
1/39 Alfriston Road, Manurewa East	50	52	51
1/6 Woodside Road, Manurewa	48	51	51
4/24 Alfriston Road, Manurewa East	48	51	51
1/1A Woodside Road, Manurewa	49	51	51
14-17/72 Alfriston Road, Manurewa East	45	48	51
30 Skelton Avenue, Randwick Park	44	47	51
2/57 Alfriston Road, Manurewa East	48	50	51
59A Alfriston Road, Manurewa East	49	51	51
46A Claude Road, Hillpark	47	48	51
22 Skelton Avenue, Randwick Park	48	50	50
3/51 Alfriston Road, Manurewa East	51	53	50
3/262 Great South Road, Manurewa	49	52	50
70C Alfriston Road, Manurewa East	45	47	50
20/110 Alfriston Road, Manurewa	47	49	50
33A Alfriston Road, Manurewa East	49	52	50
4/6 Woodside Road, Manurewa	47	50	50
98 Alfriston Road, Manurewa	46	48	50

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
54A Alfriston Road, Manurewa East	45	47	50
2-3/63 Alfriston Road, Manurewa East	48	50	50
59 Alfriston Road, Manurewa East	48	51	50
3/256 Great South Road, Manurewa	49	52	50
5/32 Alfriston Road, Manurewa East	47	49	50
1/5 Woodside Road, Manurewa	47	49	50
4/262 Great South Road, Manurewa	48	51	50
1/35 Claude Road, Hillpark	46	48	50
96 Alfriston Road, Manurewa	47	49	50
5 Shifnal Drive, Randwick Park	48	51	50
2/1 Scotts Road, Manurewa East	46	48	50
6 Brough Road, Manurewa East	45	48	50
3/252 Great South Road, Manurewa	48	51	50
8 Rogers Road, Manurewa	45	48	50
4 Skelton Avenue, Randwick Park	48	51	50
122C Alfriston Road, Manurewa	46	49	50
6-8/7 Woodside Road, Manurewa	45	48	50
143C Alfriston Road, Manurewa	49	52	50
70D Alfriston Road, Manurewa East	44	47	50
66 Saralee Drive, Manurewa	46	49	50
43 Claude Road, Hillpark	45	47	50
45A Claude Road, Hillpark	45	47	50
56A Claude Road, Hillpark	44	46	50
6 Sonterra Close, Randwick Park	45	47	49
2 Villino Place, Randwick Park	45	48	49
1/12 Skelton Avenue, Randwick Park	44	46	49
26A/B Hyde Street, Manurewa East	44	46	49
6 Hyde Street, Manurewa East	47	49	49
41 Claude Road, Hillpark	45	47	49
1-3/5 Beaumonts Way, Manurewa	45	47	49
1/62A Alfriston Road, Manurewa East	46	48	49
34 Saralee Drive, Manurewa	47	49	49
114A Alfriston Road, Manurewa	46	49	49
7 McAnnalley Street, Manurewa East	47	49	49
24 Hyde Street, Manurewa East	44	46	49
30 Saralee Drive, Manurewa	46	49	49
4 Sonterra Close, Randwick Park	44	47	49
35 Index Place, Manurewa	46	48	49
1/68A Alfriston Road, Manurewa East	45	47	49
122E Alfriston Road, Manurewa	46	49	49

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
3 Woodside Road, Manurewa	47	49	49
6 Camberley Court, Manurewa East	47	50	49
3/21 Weymouth Road, Manurewa	46	49	49
52 Saralee Drive, Manurewa	46	48	49
3/258 Great South Road, Manurewa	48	50	49
4 Rogers Road, Manurewa	44	47	49
8B Scotts Road, Manurewa East	44	46	49
2 Hyde Street, Manurewa East	48	50	49
3/6 Woodside Road, Manurewa	46	49	49
2/14A Alfriston Road, Manurewa East	47	49	49
1 Rogers Road, Manurewa	47	49	49
8C Scotts Road, Manurewa East	46	48	49
70B Alfriston Road, Manurewa East	45	47	49
18 Saralee Drive, Manurewa	46	48	49
2/10 Scotts Road, Manurewa East	44	47	49
22 McAnnalley Street, Manurewa East	46	49	49
114 Alfriston Road, Manurewa	46	48	49
1 Fleming Street, Manurewa East	47	50	49
2/68A Alfriston Road, Manurewa East	44	46	49
65A Alfriston Road, Manurewa East	46	49	49
20 McAnnalley Street, Manurewa East	46	49	49
10 Scotts Road, Manurewa East	45	47	49
36 Skelton Avenue, Randwick Park	45	48	49
20A Lincoln Road, Manurewa East	47	49	48
18 Hyde Street, Manurewa East	46	48	48
20 Hyde Street, Manurewa East	44	46	48
6 Beaumonts Way, Manurewa	45	48	48
5/6 Woodside Road, Manurewa	45	48	48
32A Alfriston Road, Manurewa East	45	47	48
19/110 Alfriston Road, Manurewa	45	47	48
24A McAnnalley Street, Manurewa East	46	48	48
8A Scotts Road, Manurewa East	45	47	48
2/12 Skelton Avenue, Randwick Park	44	47	48
10A Lincoln Road, Manurewa East	46	49	48
9 Shifnal Drive, Randwick Park	46	48	48
61A Alfriston Road, Manurewa East	46	48	48
20 Lincoln Road, Manurewa East	47	49	48
4-5/66 Alfriston Road, Manurewa East	45	47	48
3 Fleming Street, Manurewa East	46	48	48

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
2 Skelton Avenue, Randwick Park	46	48	48
4/9 Scotts Road, Manurewa East	46	47	48
16 Hyde Street, Manurewa East	45	48	48
24 Skelton Avenue, Randwick Park	44	46	48
2A Rogers Road, Manurewa	45	47	48
61B Alfriston Road, Manurewa East	45	47	48
2 Sonterra Close, Randwick Park	43	45	48
3/9 Scotts Road, Manurewa East	45	47	48
18 Lincoln Road, Manurewa East	46	49	48
12 Sonterra Close, Randwick Park	45	48	48
1/10 Scotts Road, Manurewa East	44	46	48
53B Halver Road, Hillpark	44	47	48
2 Rogers Road, Manurewa	44	47	48
37 Claude Road, Hillpark	44	45	48
50 Claude Road, Hillpark	43	45	48
3/54 Claude Road, Hillpark	44	46	48
51B Halver Road, Hillpark	45	47	48
10 Sonterra Close, Randwick Park	45	47	48
34 Skelton Avenue, Randwick Park	42	45	47
18/110 Alfriston Road, Manurewa	44	46	47
10 Lincoln Road, Manurewa East	45	48	47
24 McAnnalley Street, Manurewa East	45	47	47
2/62A Alfriston Road, Manurewa East	43	46	47
5/20 Weymouth Road, Manurewa	44	47	47
50 Saralee Drive, Manurewa	44	46	47
20 Skelton Avenue, Randwick Park	43	46	47
3 Sonterra Close, Randwick Park	43	45	47
8 Sonterra Close, Randwick Park	44	47	47
3A Fleming Street, Manurewa East	45	48	47
122D Alfriston Road, Manurewa	44	46	47
2/6 Woodside Road, Manurewa	44	47	47
12 Saralee Drive, Manurewa	44	46	47
2/39 Claude Road, Hillpark	43	46	47
10 Hyde Street, Manurewa East	45	48	47
37 Halver Road, Hillpark	43	46	47
34A Alfriston Road, Manurewa East	43	46	47
7 Camberley Court, Manurewa East	45	48	47
14A Saralee Drive, Manurewa	43	45	47
4/26 Alfriston Road, Manurewa East	44	46	47
1/22 Alfriston Road, Manurewa East	44	46	47
8 Hyde Street, Manurewa East	44	46	47
22 Hyde Street, Manurewa East	43	45	47

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
1 Sonterra Close, Randwick Park	43	45	46
13 Scotts Road, Manurewa East	42	44	46
12 Hyde Street, Manurewa East	45	48	46
8 Camberley Court, Manurewa East	45	47	46
64 Saralee Drive, Manurewa	43	46	46
5 Camberley Court, Manurewa East	44	47	46
14 Hyde Street, Manurewa East	43	46	46
1/3 Rogers Road, Manurewa	43	46	46
4 Camberley Court, Manurewa East	44	47	46
32B Alfriston Road, Manurewa East	43	45	46
264A/B Great South Road, Manurewa	44	47	46
6-7/66 Alfriston Road, Manurewa East	43	45	46
5 Sonterra Close, Randwick Park	42	44	46
4 Hyde Street, Manurewa East	44	46	46
53 Halver Road, Hillpark	43	46	46
2/11 Scotts Road, Manurewa East	41	44	46
5 Fleming Street, Manurewa East	45	47	46
3/26 Alfriston Road, Manurewa East	43	46	46
28 Skelton Avenue, Randwick Park	43	45	46
10 Skelton Avenue, Randwick Park	42	44	46
41A Claude Road, Hillpark	43	45	46
268B Great South Road, Manurewa	44	47	46
14 Saralee Drive, Manurewa	42	44	46
8 Skelton Avenue, Randwick Park	42	44	46
18 Skelton Avenue, Randwick Park	42	45	46
7 Sonterra Close, Randwick Park	41	44	46
26 Skelton Avenue, Randwick Park	42	44	46
1/11 Scotts Road, Manurewa East	42	44	45
4/21 Weymouth Road, Manurewa	40	43	45
1A Rogers Road, Manurewa	43	45	45
264 Great South Road, Manurewa	43	46	45
36 Saralee Drive, Manurewa	42	45	45
33A Hyde Street, Manurewa East	41	43	45
6 Rogers Road, Manurewa	42	45	45
16 Skelton Avenue, Randwick Park	41	44	45
2-3/35 Claude Road, Hillpark	42	44	45
31 Claude Road, Hillpark	42	44	45
2-3/13 Selwyn Road, Manurewa	42	45	45
2/46A Claude Road, Hillpark	41	43	45
270 Great South Road, Manurewa	43	45	45

Address	Existing, dB L _{Aeq(24hr)}	Do Nothing, dB L _{Aeq(24hr)}	Do Minimum, L _{Aeq(24hr)}
46 Claude Road, Hillpark	41	44	45
51A Halver Road, Hillpark	42	44	45
272 Great South Road, Manurewa	42	44	44
2/22 Alfriston Road, Manurewa East	42	44	44
14 Sonterra Close, Randwick Park	41	44	44
10 Saralee Drive, Manurewa	41	43	44
2/9 Scotts Road, Manurewa East	41	43	44
1 Saralee Drive, Manurewa	40	43	44
4 Saralee Drive, Manurewa	40	43	44
51 Halver Road, Hillpark	41	44	44
8D Lincoln Road, Manurewa East	42	45	44
2/3 Rogers Road, Manurewa	40	43	44
5 Short Street, Manurewa East	40	42	44
13 McAnnalley Street, Manurewa East	42	44	44
6 Saralee Drive, Manurewa	40	43	43
9 Sonterra Close, Randwick Park	39	42	43
45G Halver Road, Manurewa East	40	43	43
34 Weymouth Road, Manurewa	38	40	43
1/5 Rogers Road, Manurewa	40	42	43
23A Weymouth Road, Manurewa	40	42	42
16 Sonterra Close, Randwick Park	39	42	42
24 Sonterra Close, Randwick Park	38	41	42
8 Saralee Drive, Manurewa	38	41	41
18 Sonterra Close, Randwick Park	38	41	41
20 Sonterra Close, Randwick Park	38	41	41
3 Saralee Drive, Manurewa	38	40	41
1-2/2 Myers Road, Manurewa East	39	41	41
22 Sonterra Close, Randwick Park	37	39	39
4A Churchill Avenue, Manurewa	37	39	39
62 Saralee Drive, Manurewa	36	39	39
15 Scotts Road, Manurewa East	36	39	39
140 Alfriston Road, Manurewa	36	38	39
143E Alfriston Road, Manurewa	35	38	38
25A/B Weymouth Road, Manurewa	34	36	36

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Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
7 Giani Court, Manurewa	64	68	69
8 Giani Court, Manurewa	63	67	69
222 Alfriston Road, Manurewa	68	71	69
216 Alfriston Road, Manurewa	65	68	68
9-15 Whakarato Way, Takanini	66	70	68
224 Alfriston Road, Alfriston	70	73	68
214 Alfriston Road, Manurewa	63	67	68
7 Sarteano Drive, Manurewa	66	69	68
206 Alfriston Road, Manurewa	62	65	68
200 Alfriston Road, Manurewa	62	65	67
208 Alfriston Road, Manurewa	62	65	67
1/263 Porchester Road, Takanini	65	69	67
261 Porchester Road, Takanini	65	69	67
2 Berwyn Avenue, Takanini	64	68	67
295B Porchester Road, Takanini	64	68	67
234 Alfriston Road, Alfriston	69	72	67
31 Calumet Way, Takanini	63	62	66
1-2/299 Porchester Road, Takanini	63	67	66
5 Sarteano Drive, Manurewa	65	68	66
164A Porchester Road, Papakura	68	71	66
238 Alfriston Road, Alfriston	68	71	66
2 Bruce Pulman Drive, Takanini	62	60	66
526 Porchester Road, Randwick Park	63	67	66
446 Porchester Road, Randwick Park	63	67	66
17 Sheriff Place, Randwick Park	64	68	66
3 Sarteano Drive, Manurewa	64	68	66
506 Porchester Road, Randwick Park	64	67	66
49 Walters Road, Papakura	68	71	66
13 Sheriff Place, Randwick Park	63	67	66
1/480 Porchester Road, Randwick Park	63	67	66
448 Porchester Road, Randwick Park	63	67	66
15 Sheriff Place, Randwick Park	63	67	66
1/482 Porchester Road, Randwick Park	63	67	66
1/258 Porchester Road, Takanini	64	68	66
160 Manuroa Road, Takanini	63	67	66
3 Sheriff Place, Randwick Park	63	67	66
1-2/286 Porchester Road, Takanini	65	69	66
3/286 Porchester Road, Takanini	64	68	66
33 Calumet Way, Takanini	62	61	66
11 Sheriff Place, Randwick Park	63	67	66
168 Porchester Road, Takanini	67	68	66
2 Ricardo Court, Manurewa	59	63	66
170 Porchester Road, Takanini	65	67	66

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
460 Porchester Road, Randwick Park	62	66	65
1 Sarteano Drive, Manurewa	63	67	65
472 Porchester Road, Randwick Park	62	66	65
2B Sheriff Place, Randwick Park	64	68	65
508 Porchester Road, Randwick Park	63	67	65
438 Porchester Road, Randwick Park	62	66	65
430 Porchester Road, Randwick Park	63	66	65
1/281 Porchester Road, Takanini	64	67	65
454 Porchester Road, Randwick Park	62	66	65
440 Porchester Road, Randwick Park	62	66	65
391 Porchester Road, Randwick Park	61	65	65
2 Sarteano Drive, Manurewa	63	66	65
114 Riverton Drive, Randwick Park	63	66	65
172 Porchester Road, Takanini	64	66	65
1/277 Porchester Road, Takanini	63	67	65
37 Calumet Way, Takanini	60	59	65
174 Porchester Road, Takanini	64	66	65
432 Porchester Road, Randwick Park	62	66	65
129 Riverton Drive, Randwick Park	62	66	65
1/474 Porchester Road, Randwick Park	62	65	65
49A Walters Road, Papakura	67	70	65
1/274 Porchester Road, Takanini	64	67	65
1 Sheriff Place, Randwick Park	62	66	65
273 Porchester Road, Takanini	63	67	65
1/160 Porchester Road, Papakura	66	69	65
39 Calumet Way, Takanini	60	59	65
494 Porchester Road, Randwick Park	61	65	65
56 Airfield Road, Takanini	64	68	65
305 Porchester Road, Takanini	61	65	65
2A Sheriff Place, Randwick Park	62	66	65
176 Porchester Road, Takanini	63	65	64
498 Porchester Road, Randwick Park	61	65	64
35 Calumet Way, Takanini	59	58	64
487 Porchester Road, Randwick Park	60	64	64
456 Porchester Road, Randwick Park	62	66	64
245 Porchester Road, Takanini	61	65	64
1-2/162 Porchester Road, Papakura	66	69	64
279 Porchester Road, Takanini	62	66	64
1/133 Manuroa Road, Takanini	60	63	64

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
158 Manuroa Road, Takanini	59	62	64
2 Sheriff Place, Randwick Park	62	65	64
182 Porchester Road, Takanini	62	64	64
180 Porchester Road, Takanini	62	64	64
178 Porchester Road, Takanini	62	64	64
141 Porchester Road, Papakura	66	69	64
70 Walters Road, Takanini	64	65	64
307-309 Porchester Road, Takanini	61	65	64
166A Porchester Road, Papakura	67	68	64
2-12 Whakarato Way, Takanini	56	64	63
51 Popes Road, Takanini	64	67	63
496 Porchester Road, Randwick Park	61	64	63
56A Airfield Road, Takanini	63	67	63
269 Porchester Road, Takanini	62	65	63
15A Phar Lap Crescent, Takanini	67	67	63
186 Porchester Road, Takanini	62	63	63
166B Porchester Road, Papakura	67	68	63
184 Porchester Road, Takanini	62	63	63
252A-D Porchester Road, Takanini	62	65	63
1-3/150 Porchester Road, Papakura	65	68	63
272 Porchester Road, Takanini	61	65	63
58 Airfield Road, Takanini	61	64	63
255 Porchester Road, Takanini	61	64	63
284 Porchester Road, Takanini	63	66	63
149 Porchester Road, Takanini	62	64	63
2/133 Manuroa Road, Takanini	58	61	63
271 Porchester Road, Takanini	61	65	63
15 Phar Lap Crescent, Takanini	67	67	63
257 Porchester Road, Takanini	62	65	63
301 Porchester Road, Takanini	59	63	63
423 Porchester Road, Randwick Park	59	62	63
267 Porchester Road, Takanini	61	65	63
4 Berwyn Avenue, Takanini	57	63	63
151 Porchester Road, Takanini	61	63	63
458 Porchester Road, Randwick Park	62	66	63
260 Porchester Road, Takanini	63	67	62
52 Popes Road, Takanini	61	65	62
1/268 Porchester Road, Takanini	61	64	62
270 Porchester Road, Takanini	61	64	62
297A Porchester Road, Takanini	59	63	62
145 Porchester Road, Takanini	63	64	62
266 Porchester Road, Takanini	61	65	62
135 Hyperion Drive, Randwick Park	62	66	62
155 Porchester Road, Takanini	61	63	62
70A Walters Road, Takanini	61	62	62
510 Porchester Road, Randwick Park	60	63	62

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
259 Porchester Road, Takanini	61	64	62
147 Porchester Road, Takanini	62	64	62
279E Porchester Road, Takanini	60	64	62
504 Porchester Road, Randwick Park	60	63	62
13 Zoe Court, Manurewa	55	58	62
188 Porchester Road, Takanini	60	62	62
333 Porchester Road, Takanini	58	62	62
511 Porchester Road, Randwick Park	57	61	62
2/460 Porchester Road, Randwick Park	59	63	62
131 Manuroa Road, Takanini	57	60	61
262 Porchester Road, Takanini	61	65	61
37 Walters Road, Takanini	66	67	61
139A Porchester Road, Papakura	64	66	61
157 Porchester Road, Takanini	60	62	61
226 Alfriston Road, Alfriston	60	63	61
60 Airfield Road, Takanini	58	62	61
503 Porchester Road, Randwick Park	57	60	61
153 Porchester Road, Takanini	59	61	61
1/256 Porchester Road, Takanini	61	64	60
35 Walters Road, Takanini	65	66	60
54 Airfield Road, Takanini	57	59	60
159 Porchester Road, Takanini	59	61	60
67 Stratford Road, Manurewa	63	65	60
158 Porchester Road, Papakura	62	65	60
1 Ricardo Court, Manurewa	56	59	60
11 Zoe Court, Manurewa	56	59	60
41 Walters Road, Takanini	65	66	60
484 Porchester Road, Randwick Park	56	60	60
39 Walters Road, Takanini	65	66	60
64A Popes Road, Takanini	53	57	60
1/460 Porchester Road, Randwick Park	58	61	60
190 Porchester Road, Takanini	58	60	59
2 Taipan Place, Randwick Park	55	59	59
52 Airfield Road, Takanini	55	58	59
156 Manuroa Road, Takanini	55	57	59
139 Porchester Road, Papakura	61	63	59
129 Manuroa Road, Takanini	54	57	59
7/460 Porchester Road, Randwick Park	57	61	59
3 Arion Road, Takanini	63	63	59
8A Berwyn Avenue, Takanini	54	58	59
49C Walters Road, Papakura	53	53	58
6 Berwyn Avenue, Takanini	52	58	58
4 Bruce Pulman Drive, Takanini	53	52	58
64 Airfield Road, Takanini	55	58	58
228 Alfriston Road, Alfriston	56	59	58

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
65A Stratford Road, Manurewa	59	62	58
112 Riverton Drive, Randwick Park	55	58	58
2/550S Porchester Road, Randwick Park	54	57	58
1/2 Glenburn Place, Papakura	60	62	57
463-471 Porchester Road, Randwick Park	53	57	57
3 Sires Parkway, Takanini	57	58	57
3/460 Porchester Road, Randwick Park	54	57	57
133A Manuroa Road, Takanini	56	59	57
295C Porchester Road, Takanini	54	58	57
33 Walters Road, Takanini	63	64	57
13 Phar Lap Crescent, Takanini	61	62	57
250A-E Porchester Road, Takanini	55	59	57
4 Sarteano Drive, Manurewa	54	58	57
154 Manuroa Road, Takanini	52	55	57
2/482 Porchester Road, Randwick Park	54	57	57
29 Calumet Way, Takanini	55	56	57
156A Manuroa Road, Takanini	53	57	57
17 Phar Lap Crescent, Takanini	61	61	57
2A Popes Road, Takanini	56	59	56
236 Alfriston Road, Alfriston	58	60	56
311 Porchester Road, Takanini	53	56	56
479 Porchester Road, Randwick Park	52	56	56
18 Amarillo Place, Manurewa	55	58	56
28-34 Biplane Street, Takanini	53	57	56
164B Porchester Road, Papakura	59	61	56
28 Amarillo Place, Manurewa	53	57	56
2C Sheriff Place, Randwick Park	54	57	56
1 Giani Court, Manurewa	53	57	56
5 Giani Court, Manurewa	53	56	56
8 Berwyn Avenue, Takanini	49	55	56
127 Riverton Drive, Randwick Park	52	56	56
26 Amarillo Place, Manurewa	57	60	56
6 Giani Court, Manurewa	51	55	56
1A Berwyn Avenue, Takanini	50	56	56
438A Porchester Road, Randwick Park	52	56	56
1/490 Porchester Road, Randwick Park	52	56	56
170 Alfriston Road, Manurewa	52	55	56
76 Popes Road, Takanini	53	56	55
127 Manuroa Road, Takanini	51	54	55
289 Porchester Road, Takanini	52	56	55
210 Alfriston Road, Manurewa	51	55	55
66 Airfield Road, Takanini	52	56	55
2/263 Porchester Road, Takanini	54	58	55
1 Senator Drive, Manurewa	52	55	55
152 Manuroa Road, Takanini	50	54	55

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
125A-F Manuroa Road, Takanini	49	53	55
192 Porchester Road, Takanini	54	56	55
6 Sarteano Drive, Manurewa	51	55	55
26 Biplane Street, Takanini	51	54	55
12 Nerissa Place, Randwick Park	51	55	55
2 Popes Road, Takanini	54	57	55
110 Hyperion Drive, Randwick Park	53	57	54
4/460 Porchester Road, Randwick Park	51	55	54
2/154 Manuroa Road, Takanini	51	55	54
1-2/3 Berwyn Avenue, Takanini	49	54	54
5/460 Porchester Road, Randwick Park	50	54	54
2/274 Porchester Road, Takanini	53	56	54
135 Porchester Road, Papakura	56	59	54
73 Popes Road, Takanini	53	57	54
110 Riverton Drive, Randwick Park	50	54	54
194 Porchester Road, Takanini	53	56	54
1/50 Airfield Road, Takanini	50	52	54
301A Porchester Road, Takanini	50	54	54
19 Phar Lap Crescent, Takanini	58	59	54
123 Riverton Drive, Randwick Park	50	54	54
3 Ricardo Court, Manurewa	49	52	54
3 Giani Court, Manurewa	51	55	54
2/474 Porchester Road, Randwick Park	51	54	54
4 Sires Parkway, Takanini	53	55	54
4B Berwyn Avenue, Takanini	50	54	54
140 Porchester Road, Papakura	55	58	54
29 Foxlaw Street, Randwick Park	50	53	53
3 Taipan Place, Randwick Park	50	53	53
5 Sheriff Place, Randwick Park	50	54	53
19B Phar Lap Crescent, Takanini	56	58	53
4A Berwyn Avenue, Takanini	49	53	53
212 Alfriston Road, Manurewa	50	53	53
6 Sheriff Place, Randwick Park	51	54	53
297B Porchester Road, Takanini	50	53	53
165 Porchester Road, Takanini	53	54	53
169 Alfriston Road, Manurewa	48	52	53
196 Porchester Road, Takanini	53	55	53
2/156 Porchester Road, Papakura	55	57	53
8B Berwyn Avenue, Takanini	48	52	53
14A Berwyn Avenue, Takanini	48	53	53
202 Alfriston Road, Manurewa	50	53	53
8 Sarteano Drive, Manurewa	49	53	53
125 Riverton Drive, Randwick Park	49	53	53
150 Manuroa Road, Takanini	49	52	53
2/480 Porchester Road, Randwick Park	49	53	53
167 Alfriston Road, Manurewa	51	54	53
4 Sheriff Place, Randwick Park	51	54	53

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
204 Alfriston Road, Manurewa	50	53	53
4 Giani Court, Manurewa	49	52	53
150A Manuroa Road, Takanini	49	53	53
15 Zoe Court, Manurewa	50	53	53
6A Sheriff Place, Randwick Park	49	53	53
133 Hyperion Drive, Randwick Park	51	55	53
41 Calumet Way, Takanini	48	47	53
1/478 Porchester Road, Randwick Park	49	53	53
1/5 Berwyn Avenue, Takanini	47	52	53
21 Phar Lap Crescent, Takanini	57	57	53
3/263 Porchester Road, Takanini	51	54	53
4 Ricardo Court, Manurewa	48	52	53
151A Porchester Road, Takanini	51	52	52
4A Sheriff Place, Randwick Park	49	53	52
149A Porchester Road, Takanini	50	52	52
198 Porchester Road, Takanini	52	54	52
10 Sarteano Drive, Manurewa	49	52	52
10 Amarillo Place, Manurewa	53	55	52
167 Porchester Road, Takanini	52	54	52
65 Stratford Road, Manurewa	53	56	52
11 Civita Court, Manurewa	50	52	52
1/282 Porchester Road, Takanini	50	53	52
8/460 Porchester Road, Randwick Park	49	53	52
6 Bruce Pulman Drive, Takanini	47	47	52
6 Abilene Place, Manurewa	50	54	52
281 Porchester Road, Takanini	50	53	52
12 Berwyn Avenue, Takanini	46	52	52
148A Manuroa Road, Takanini	48	52	52
2 Giani Court, Manurewa	48	52	52
230 Alfriston Road, Alfriston	52	55	52
19 Sheriff Place, Randwick Park	48	52	52
108 Hyperion Drive, Randwick Park	50	54	52
133 Porchester Road, Papakura	54	57	52
1-2/14 Nerissa Place, Randwick Park	48	52	52
48 Airfield Road, Takanini	48	51	52
248D Porchester Road, Takanini	49	52	52
2/258 Porchester Road, Takanini	51	55	52
11 Phar Lap Crescent, Takanini	56	56	52
2-14 Windfola Parkway, Takanini	51	54	52
434 Porchester Road, Randwick Park	48	51	52
2/282 Porchester Road, Takanini	49	53	51
131 Porchester Road, Papakura	54	56	51
2/2 Glenburn Place, Papakura	54	56	51
9 Abilene Place, Manurewa	49	52	51
137 Porchester Road, Papakura	54	56	51
248C Porchester Road, Takanini	49	53	51
10 Abilene Place, Manurewa	49	52	51

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
56B Airfield Road, Takanini	51	54	51
121 Riverton Drive, Randwick Park	48	51	51
239A Porchester Road, Takanini	49	53	51
1/46 Airfield Road, Takanini	48	51	51
131 Hyperion Drive, Randwick Park	50	53	51
169 Porchester Road, Takanini	51	53	51
31 Walters Road, Takanini	58	58	51
25 Calumet Way, Takanini	49	50	51
49B Walters Road, Papakura	47	47	51
115 Riverton Drive, Randwick Park	47	51	51
108 Riverton Drive, Randwick Park	48	51	51
20 Biplane Street, Takanini	47	50	51
303 Porchester Road, Takanini	47	51	51
248B Porchester Road, Takanini	49	52	51
23 Phar Lap Crescent, Takanini	55	55	51
47 Foxlaw Street, Randwick Park	47	51	51
121 Manuroa Road, Takanini	46	50	51
17 Zoe Court, Manurewa	48	51	51
27 Calumet Way, Takanini	48	49	51
1/476 Porchester Road, Randwick Park	47	51	51
171 Porchester Road, Takanini	50	52	51
64 Popes Road, Takanini	50	53	51
9 Sheriff Place, Randwick Park	47	51	51
4/263 Porchester Road, Takanini	49	52	51
23 Calumet Way, Takanini	49	50	51
490 Porchester Road, Randwick Park	47	51	51
27 Walters Road, Takanini	57	57	51
1/6 Berwyn Avenue, Takanini	47	51	51
1/1 Clarice Place, Takanini	48	52	51
5 Ricardo Court, Manurewa	47	50	51
8 Abilene Place, Manurewa	49	52	51
52A Airfield Road, Takanini	47	50	51
428 Porchester Road, Randwick Park	47	50	51
1-2/7 Berwyn Avenue, Takanini	45	50	50
5 Arion Road, Takanini	55	55	50
7 Sheriff Place, Randwick Park	47	51	50
6 Ricardo Court, Manurewa	47	50	50
63B Stratford Road, Manurewa	50	53	50
2/268 Porchester Road, Takanini	48	52	50
279A Porchester Road, Takanini	48	52	50
259A Porchester Road, Takanini	48	52	50
19 Zoe Court, Manurewa	48	51	50
2A Clarice Place, Takanini	49	52	50
200 Porchester Road, Takanini	49	51	50
45 Foxlaw Street, Randwick Park	47	50	50
248A Porchester Road, Takanini	48	52	50
6/460 Porchester Road, Randwick Park	47	50	50

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
106 Hyperion Drive, Randwick Park	48	52	50
173 Porchester Road, Takanini	49	51	50
43 Calumet Way, Takanini	45	47	50
9 Phar Lap Crescent, Takanini	54	54	50
43 Walters Road, Takanini	53	54	50
436 Porchester Road, Randwick Park	46	50	50
158A Porchester Road, Papakura	52	54	50
130 Porchester Road, Papakura	52	55	50
2/160 Porchester Road, Papakura	52	54	50
4B Sheriff Place, Randwick Park	47	50	50
14E Berwyn Avenue, Takanini	46	50	50
12 Abilene Place, Manurewa	47	50	50
478 Porchester Road, Randwick Park	46	50	50
16 Amarillo Place, Manurewa	51	54	50
263A Porchester Road, Takanini	47	51	50
271A Porchester Road, Takanini	48	51	50
117 Riverton Drive, Randwick Park	46	50	50
18 Biplane Street, Takanini	46	49	50
23A Phar Lap Crescent, Takanini	51	52	50
14D Berwyn Avenue, Takanini	46	49	50
6B Sheriff Place, Randwick Park	46	50	50
60A Airfield Road, Takanini	47	51	50
2 Clarice Place, Takanini	47	51	50
279D Porchester Road, Takanini	47	51	50
42A Airfield Road, Takanini	46	49	50
19 Calumet Way, Takanini	48	50	50
297C Porchester Road, Takanini	46	50	50
78 Popes Road, Takanini	47	51	50
2/256 Porchester Road, Takanini	47	51	49
29A Phar Lap Crescent, Takanini	50	51	49
19A Phar Lap Crescent, Takanini	52	53	49
2/277 Porchester Road, Takanini	47	51	49
106 Riverton Drive, Randwick Park	46	49	49
62 Airfield Road, Takanini	46	50	49
27 Foxlaw Street, Randwick Park	45	49	49
1/276 Porchester Road, Takanini	47	51	49
476 Porchester Road, Randwick Park	46	49	49
21 Sheriff Place, Randwick Park	46	49	49
2/280 Porchester Road, Takanini	46	50	49
7 Abilene Place, Manurewa	47	50	49
7 Ricardo Court, Manurewa	46	49	49
444 Porchester Road, Randwick Park	45	49	49
2/260 Porchester Road, Takanini	48	51	49
8 Bruce Pulman Drive, Takanini	45	46	49
24 Amarillo Place, Manurewa	50	52	49
4C Sheriff Place, Randwick Park	46	49	49
25 Phar Lap Crescent, Takanini	53	54	49

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
8 Amarillo Place, Manurewa	49	52	49
11A/B Dittmer Place, Papakura	50	53	49
8 Ricardo Court, Manurewa	46	49	49
4 Abilene Place, Manurewa	48	51	49
7 Phar Lap Crescent, Takanini	52	53	49
1/280 Porchester Road, Takanini	46	50	49
21 Zoe Court, Manurewa	45	48	49
13-17 Biplane Street, Takanini	46	49	49
265 Porchester Road, Takanini	46	50	49
129 Hyperion Drive, Randwick Park	47	50	49
5 Abilene Place, Manurewa	46	49	49
68 Airfield Road, Takanini	46	50	49
279C Porchester Road, Takanini	46	50	49
25 Walters Road, Takanini	54	55	49
49 Foxlaw Street, Randwick Park	45	49	49
25 Sheriff Place, Randwick Park	45	49	49
21 Calumet Way, Takanini	47	49	49
248E Porchester Road, Takanini	46	49	49
14 Amarillo Place, Manurewa	49	52	49
3/258 Porchester Road, Takanini	46	50	49
119 Riverton Drive, Randwick Park	45	48	49
33A Walters Road, Takanini	53	54	48
104 Hyperion Drive, Randwick Park	46	50	48
442 Porchester Road, Randwick Park	44	48	48
4 Clarice Place, Takanini	46	50	48
16 Nerissa Place, Randwick Park	45	48	48
1/278 Porchester Road, Takanini	45	49	48
63A Stratford Road, Manurewa	48	51	48
13B Clarice Place, Takanini	45	49	48
12 Sarteano Drive, Manurewa	45	49	48
127 Hyperion Drive, Randwick Park	46	50	48
17 Calumet Way, Takanini	47	48	48
452 Porchester Road, Randwick Park	45	48	48
148 Manuroa Road, Takanini	45	48	48
27 Sheriff Place, Randwick Park	45	48	48
450 Porchester Road, Randwick Park	44	48	48
31 Foxlaw Street, Randwick Park	44	48	48
273A Porchester Road, Takanini	45	49	48
35 Foxlaw Street, Randwick Park	44	48	48
23 Sheriff Place, Randwick Park	44	48	48
45 Walters Road, Takanini	50	52	48
23 Walters Road, Takanini	53	54	48
37A Walters Road, Takanini	52	53	48
1/4 Glenburn Place, Papakura	50	52	48
21A Phar Lap Crescent, Takanini	50	51	48
20 Amarillo Place, Manurewa	47	50	48
44 Airfield Road, Takanini	45	48	48
24 Calumet Way, Takanini	45	46	48

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
279B Porchester Road, Takanini	45	49	48
12 Amarillo Place, Manurewa	48	50	48
2/1 Clarice Place, Takanini	45	49	48
31A Phar Lap Crescent, Takanini	47	49	48
17A Nerissa Place, Randwick Park	44	48	48
25 Foxlaw Street, Randwick Park	44	47	48
2/50 Airfield Road, Takanini	45	48	48
49 Sheriff Place, Randwick Park	44	48	48
22 Amarillo Place, Manurewa	47	50	48
49E Walters Road, Papakura	47	49	48
109 Riverton Drive, Randwick Park	44	48	48
5 Phar Lap Crescent, Takanini	51	52	48
3 Phar Lap Crescent, Takanini	51	52	48
3 Clarice Place, Takanini	45	49	47
7 Arion Road, Takanini	52	53	47
35 Sheriff Place, Randwick Park	44	47	47
33A Phar Lap Crescent, Takanini	47	48	47
2/276 Porchester Road, Takanini	45	48	47
76 Airfield Road, Takanini	45	48	47
2/278 Porchester Road, Takanini	44	48	47
2/2 Clarice Place, Takanini	45	48	47
47 Sheriff Place, Randwick Park	44	47	47
9 Zoe Court, Manurewa	46	49	47
19 Yatterina Avenue, Takanini	44	47	47
8 Sheriff Place, Randwick Park	44	47	47
51 Foxlaw Street, Randwick Park	44	48	47
6 Amarillo Place, Manurewa	47	50	47
63C Stratford Road, Manurewa	49	52	47
29 Sheriff Place, Randwick Park	44	47	47
7 Zoe Court, Manurewa	44	47	47
10A/B Dittmer Place, Papakura	49	51	47
1/140 Manuroa Road, Takanini	44	47	47
4 Amarillo Place, Manurewa	46	49	47
11B Clarice Place, Takanini	44	48	47
10 Berwyn Avenue, Takanini	43	47	47
53 Foxlaw Street, Randwick Park	43	47	47
49D Walters Road, Papakura	45	46	47
74 Airfield Road, Takanini	44	48	47
33 Foxlaw Street, Randwick Park	43	47	47
12 Bruce Pulman Drive, Takanini	45	46	47
25A Phar Lap Crescent, Takanini	48	49	47
15 Nerissa Place, Randwick Park	43	47	47
23 Zoe Court, Manurewa	45	48	47
1-2/9 Berwyn Avenue, Takanini	43	47	47
16B Nerissa Place, Randwick Park	43	47	47
123 Manuroa Road, Takanini	44	47	47
5 Zoe Court, Manurewa	44	47	47
20 Calumet Way, Takanini	45	47	47
29 Phar Lap Crescent, Takanini	47	48	47
15A Nerissa Place, Randwick Park	43	47	47

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
49F Walters Road, Papakura	46	48	47
2/5 Berwyn Avenue, Takanini	43	47	47
113 Riverton Drive, Randwick Park	43	47	47
9 Glenburn Place, Papakura	49	50	47
1-2/13 Nerissa Place, Randwick Park	43	47	47
8A Sheriff Place, Randwick Park	43	47	47
7 Clarice Place, Takanini	44	47	47
13 Calumet Way, Takanini	46	47	47
12 Dittmer Place, Papakura	48	50	47
45 Sheriff Place, Randwick Park	43	47	47
43 Foxlaw Street, Randwick Park	43	46	46
2/4 Clarice Place, Takanini	44	47	46
41 Foxlaw Street, Randwick Park	43	46	46
10 Bruce Pulman Drive, Takanini	44	45	46
37 Sheriff Place, Randwick Park	43	46	46
11 Calumet Way, Takanini	45	47	46
9 Clarice Place, Takanini	43	47	46
15 Calumet Way, Takanini	45	47	46
17 Nerissa Place, Randwick Park	43	46	46
51 Sheriff Place, Randwick Park	43	46	46
1/6 Glenburn Place, Papakura	49	51	46
10 Nerissa Place, Randwick Park	43	46	46
67 Sheriff Place, Randwick Park	43	46	46
2/5 Clarice Place, Takanini	43	47	46
11A Clarice Place, Takanini	43	47	46
6A Braeburn Place, Takanini	49	50	46
123A Manuroa Road, Takanini	43	47	46
65 Sheriff Place, Randwick Park	42	46	46
24 Biplane Street, Takanini	43	46	46
2/8 Nerissa Place, Randwick Park	43	46	46
37A Phar Lap Crescent, Takanini	45	47	46
39 Foxlaw Street, Randwick Park	42	46	46
53 Sheriff Place, Randwick Park	42	46	46
69 Sheriff Place, Randwick Park	42	46	46
71 Sheriff Place, Randwick Park	42	46	46
18 Calumet Way, Takanini	45	46	46
2-3/46 Airfield Road, Takanini	43	47	46
4 Braeburn Place, Takanini	49	50	46
1/5 Clarice Place, Takanini	43	47	46
12A Berwyn Avenue, Takanini	42	46	46
17 Yatterina Avenue, Takanini	42	46	46
14 Phar Lap Crescent, Takanini	48	49	46
37A Foxlaw Street, Randwick Park	42	46	46
121A Manuroa Road, Takanini	43	46	46
5 Civita Court, Manurewa	43	47	46
17 Sarteano Drive, Manurewa	43	46	46
18 Yatterina Avenue, Takanini	43	46	46
22 Calumet Way, Takanini	44	46	46
21 Sarteano Drive, Manurewa	43	46	46
61 Stratford Road, Manurewa	45	48	46

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
31 Phar Lap Crescent, Takanini	49	49	46
8 Clarice Place, Takanini	43	46	46
19 Sarteano Drive, Manurewa	42	46	45
7 Glenburn Place, Papakura	47	49	45
73 Sheriff Place, Randwick Park	42	45	45
6 Clarice Place, Takanini	43	46	45
55 Foxlaw Street, Randwick Park	42	45	45
11 Biplane Street, Takanini	42	46	45
3A Glenburn Place, Papakura	48	49	45
16 Phar Lap Crescent, Takanini	48	49	45
5 Glenburn Place, Papakura	47	49	45
35A Phar Lap Crescent, Takanini	45	47	45
33 Phar Lap Crescent, Takanini	49	49	45
2/8 Clarice Place, Takanini	42	46	45
41A Phar Lap Crescent, Takanini	45	47	45
4 Phar Lap Crescent, Takanini	49	49	45
7 Civita Court, Manurewa	42	45	45
3 Glenburn Place, Papakura	48	49	45
125 Hyperion Drive, Randwick Park	41	45	45
63 Stratford Road, Manurewa	45	48	45
12 Phar Lap Crescent, Takanini	48	48	45
22 Biplane Street, Takanini	41	45	45
18 Phar Lap Crescent, Takanini	47	48	45
14C Berwyn Avenue, Takanini	41	45	44
2 Braeburn Place, Takanini	48	49	44
15 Yatterina Avenue, Takanini	41	44	44
6 Braeburn Place, Takanini	47	48	44
7 Sires Parkway, Takanini	43	44	44
10 Phar Lap Crescent, Takanini	47	48	44
8 Dittmer Place, Papakura	45	47	44
35 Phar Lap Crescent, Takanini	48	48	44
44A Airfield Road, Takanini	41	45	44
10 Braeburn Place, Takanini	46	48	44
39A Phar Lap Crescent, Takanini	44	46	44
3 Senator Drive, Manurewa	44	47	44
9 Biplane Street, Takanini	41	44	44
9 Civita Court, Manurewa	41	45	44
1/8 Glenburn Place, Papakura	46	48	44
41 Phar Lap Crescent, Takanini	44	45	44
20 Phar Lap Crescent, Takanini	46	47	44
3 Civita Court, Manurewa	41	44	44
14B Berwyn Avenue, Takanini	40	44	44
8 Braeburn Place, Takanini	46	47	44
16 Biplane Street, Takanini	41	44	44
6 Dittmer Place, Papakura	45	47	43
13 Yatterina Avenue, Takanini	40	43	43
132 Porchester Road, Papakura	45	47	43
37 Phar Lap Crescent, Takanini	47	47	43
42 Airfield Road, Takanini	40	44	43
6 Phar Lap Crescent, Takanini	46	47	43

Address	Existing, dB L _{Aeq} (24hr)	Do Nothing, dB L _{Aeq} (24hr)	Do Minimum, L _{Aeq} (24hr)
43 Phar Lap Crescent, Takanini	45	46	43
12 Biplane Street, Takanini	40	44	43
140G Porchester Road, Papakura 2110	45	47	43
39 Phar Lap Crescent, Takanini	46	47	43
14 Bruce Pulman Drive, Takanini	41	43	43
5 Senator Drive, Manurewa	39	42	43
2/4 Glenburn Place, Papakura	44	46	43
2/6 Glenburn Place, Papakura	44	46	43
8 Phar Lap Crescent, Takanini	45	46	43
43A Phar Lap Crescent, Takanini	43	45	43
1/20 Tironui Station Road East, Papakura	44	46	42
1/3 Braeburn Place, Takanini	44	46	42
5 Sires Parkway, Takanini	40	42	42
5 Braeburn Place, Takanini	44	46	42
47A Phar Lap Crescent, Takanini	42	44	42
36 Airfield Road, Takanini	39	43	42
2/20 Tironui Station Road East, Papakura	43	45	42
130A Porchester Road, Papakura	43	45	41
45A Phar Lap Crescent, Takanini	42	43	41
9 Calumet Way, Takanini	41	42	41
45 Phar Lap Crescent, Takanini	44	44	41
127-129 Porchester Road, Papakura	42	43	41
49 Phar Lap Crescent, Takanini	41	42	40
49A Phar Lap Crescent, Takanini	41	42	40
47 Phar Lap Crescent, Takanini	43	44	40
7 Calumet Way, Takanini	40	42	40
51 Phar Lap Crescent, Takanini	40	42	40
51A Phar Lap Crescent, Takanini	40	41	39
21 Walters Road, Takanini	41	43	39
128 Porchester Road, Papakura	39	41	38

2 Appendix B: noise modelling contours