

SECTOR 1 POPLAR/LEINSTER WEST OF EW

NZS 6806 – Assessment matrix

Impact key	Potential effects of noise mitigation option
3	significant positive effects
2	moderate positive effects
1	minor positive effects
0	insignificant (no effects)
-1	minor adverse effects
-2	moderate adverse effects
-3	significant adverse effects

A brief description of the basis for each rating should be added in the spaces below the ratings.

Assessment Criteria	Responsible	Option 1	Option 2	Option 3	Option 4 – Bund only	Issues/Risks
Compliance with NZS 6806 noise criteria, and requirement for building-modification measures	Acoustics	1	2	1	1	
		21 in Cat A	21 in Cat A	21 in Cat A	21 in Cat A	
Effect of changes to the existing noise environment	Acoustics	1	1	0	0	Small reduction in noise level through mitigation of existing and new road
Achievement of the NZS 6806 structural mitigation performance standards	Acoustics	2	3	0	-1	
		5 dB average structural mitigation	6 dB average structural mitigation	3 dB average structural mitigation	2 dB average structural mitigation	
Value for money, including maintenance costs and consideration of benefit cost analysis	Acoustics	2	1	3	3	
		BCR 1.4	BCR 1.2	BCR 1.6	1.8	
Difference in cost compared to Transit's Guidelines (criteria for NZTA internal monitoring purposes)	Acoustics	-3	-3	N/A	2	
		51%	99%		-28%	

Assessment Criteria	Responsible	Option 1	Option 2	Option 3	Option 4 – Bund only	Issues/Risks
Compliance with relevant safety standards and guidelines	Roading	0	0	0	0	All meet standards
	Structures	0	0	0	0	Can be designed
Constructability/technical feasibility	Roading	-2 bund	-2	-1	0	Based on fence on bund Option 4 preferred
		0 bund/fence combo	0 bund/fence combo	1 bund/fence combo		
	Structures	0	0	0	1	Option 4 preferred
		Construction	-2	-2	0	1
Availability of sufficient land for construction and maintenance and the extent to which NZTA would need to acquire land, or interests in land	NZTA	-2	-2	0	0	Ian to check
Potential effects on known heritage or cultural values	Cultural	?	?	?	?	No representative present- needs input
The extent to which the mitigation option promotes integration and establishes visual coherence and continuity in form, scale and appearance of structures and landscape proposals along the route	Visual / landscape	-2	-2	0	0	Better to have higher bund than bund plus fence. Could integrate a 1m wall on bund but any higher would have adverse effects on properties
		-1 bund only	-1 bund only	0 bund only	0 bund only	
Road users' views to the surrounding landscape and key features/ locations in particular	Visual / landscape	0	0	0	0	
Maintenance or enhancement of	Visual /	Bund +1	Bund 0	Bund 0	Bund 0	Don't want to look on to

Assessment Criteria	Responsible	Option 1	Option 2	Option 3	Option 4 – Bund only	Issues/Risks
visual amenity for surrounding residents	landscape	Bund/Fence combo -2	Bund/Fence combo -2	Bund/Fence combo -1	Bund/Fence combo 0	other peoples back yards. Existing bund with planting will be effective to resolve this.
Utilisation of materials that reflect the character of the location	Visual / landscape					Bund preferred to as it reflects environment and enhances amenity.
Maintenance or enhancement of the convenience and attractiveness of pedestrian and cycle networks	Urban design	-2 Bund/fence combo	-2 Bund/fence combo	0 Bund/fence combo	0 Bund/fence combo	Depends on wall type – some better than others.
		-2 bund	-2 Bund	0 Bund	0 Bund	
Impacts (land take, amenity and usability) on community facilities (reserve, school, playground, playing field, etc)	Urban design	0	0	0	0	
Public safety and security	Urban design	-2 wall	-2 wall	0 wall	0 wall	
Potential effects on areas of significant indigenous vegetation and significant habitats of indigenous fauna	Ecology	0	0	0	0	No impact
Natural character of the coastal environment, wetlands, lakes, rivers, and their margins	Ecology	0	0	0	0	
	Visual / landscape	0	0	0	0	
Potential flooding effects	Hydrology	0	0	0	0	More land affected will impact on secondary flows. Prefer Option 4.
		-2 bund	-2	-2	0	
Resource efficiency (including avoidance of waste)	Sustainability	0	0	0	0	No sustainability rep – if we can use peat for a bund it would be more sustainable.

Final Comment :

Preferred Mitigation Option 4 (Do-min with the existing bund and low noise road surfacing already in the model)

OR 1m wall on top of existing bund (which only provides 1 dB difference).

Additional Notes from Workshop:

Bunds reflect the character of the area, walls do not.

Many children go to school via this route.

1 m wall virtually makes no difference. Would it make a psychological difference to people?

Siiri has no preference.

The categories exclude social impacts – are we capturing these somewhere?

We have included road surface and bund – so we are doing something.

Actions

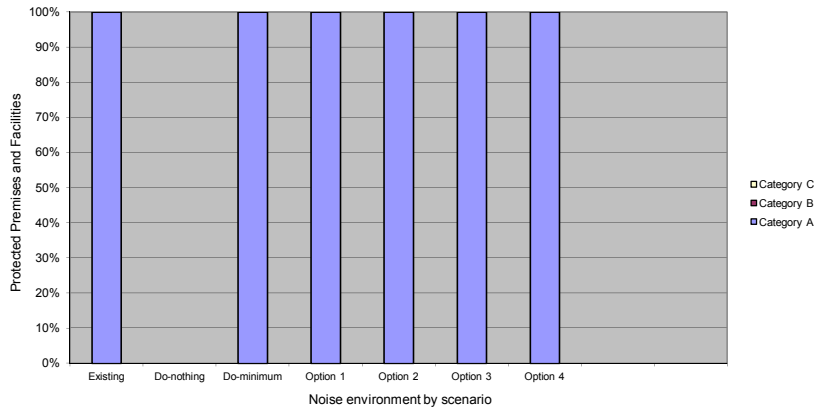
Siiri to model an option without existing bund to make it a true “do nothing” option.

Ian to check stormwater/hydrology for options.

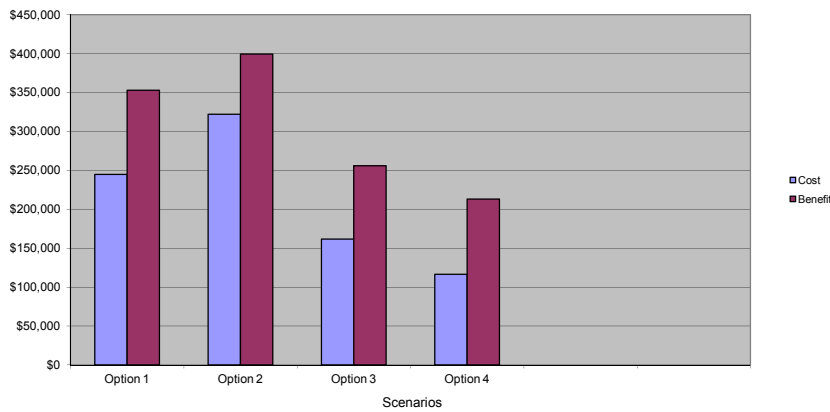
Project							
M2PP							
Sector 1 Leinster West of EW							
Protected Premises and Facilities							
	Existing	Do-nothing	Do-minimum	Option 1	Option 2	Option 3	Preferred Option 4
Category A	21	0	21	21	21	21	21
Category B	0	0	0	0	0	0	0
Category C	0	0	0	0	0	0	0
Total			21				
Benefit-Cost Ratio							
				Option 1	Option 2	Option 3	Option 4
Cost				\$244,740	\$321,940	\$161,940	\$116,340
Benefit				\$352,967	\$399,484	\$255,842	\$213,201
BCR				1.44	1.24	1.58	1.83
Transit				51%	99%	0%	-28%
Structural				4.8 dB	5.7 dB	3.0 dB	2.4 dB

Graphs

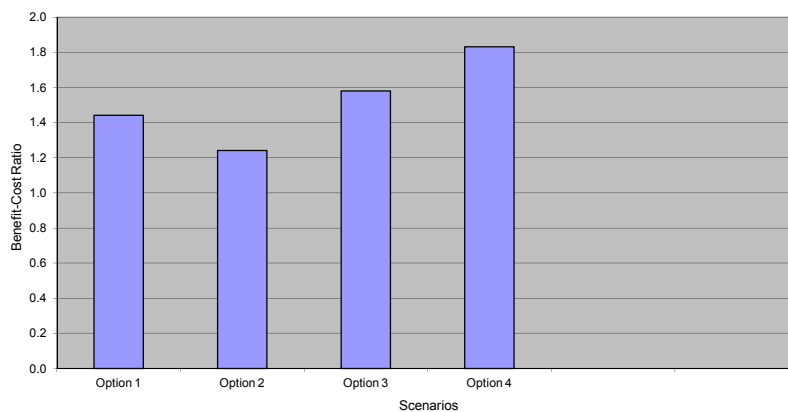
Sector 1 Leinster West of EW



Sector 1 Leinster West of EW



Sector 1 Leinster West of EW



Project: M2PP
Area: Sector 1 Leinster West of EW
AADT: 2,000 to 75,000 vehicles per day
 More than 75,000 vehicles per day
Transit: Option 3 (option to comply with Transit's Guidelines)

Preferred Mitigation Option

Protected Premises and Facilities		New or Altered	Existing L _{Aeq} (24h) dB	Do-nothing L _{Aeq} (24h) dB	Do-minimum L _{Aeq} (24h) dB	Option 1 L _{Aeq} (24h) dB	Option 2 L _{Aeq} (24h) dB	Option 3 L _{Aeq} (24h) dB	Option 4 L _{Aeq} (24h) dB
Street address	Floor								
Leinster Ave 101	1. Floor	Altered	55	55	53	51	51	52	52
Leinster Ave 103	1. Floor	Altered	55	55	55	50	49	53	53
Leinster Ave 104	1. Floor	Altered	55	55	52	49	48	50	51
Leinster Ave 105A	1. Floor	Altered	55	55	53	50	50	51	52
Leinster Ave 105B	1. Floor	Altered	55	55	59	52	50	54	55
Leinster Ave 106/106B	2. Floor	Altered	55	55	64	58	57	59	61
Leinster Ave 106A	1. Floor	Altered	55	55	53	53	52	53	53
Leinster Ave 107	1. Floor	Altered	55	55	60	53	51	55	56
Leinster Ave 107A	1. Floor	Altered	55	55	61	53	52	55	56
Leinster Ave 107B	1. Floor	Altered	55	55	61	53	51	55	56
Leinster Ave 108	2. Floor	Altered	55	55	63	58	57	59	61
Leinster Ave 108A	1. Floor	Altered	55	55	55	53	53	54	54
Leinster Ave 109	1. Floor	Altered	55	55	64	54	53	57	59
Leinster Ave 10A	1. Floor	Altered	55	55	56	56	56	56	56
Leinster Ave 110	1. Floor	Altered	55	55	57	56	56	56	56
Leinster Ave 112	1. Floor	Altered	55	55	63	58	58	59	59
Leinster Ave 115	1. Floor	Altered	55	55	61	53	52	57	57
Main Rd 242	1. Floor	Altered	58	58	60	58	56	60	60
Main Rd 256	2. Floor	Altered	58	58	59	56	55	58	58
Main Rd 260 A (Shalom)	2. Floor	Altered	58	58	57	52	51	55	56
Main Rd 260 B (Shalom)	2. Floor	Altered	58	58	56	52	51	55	55



Noise level
dB $L_{Aeq}(24h)$

	<= 64	Category A	
	64 <	<= 67	Category B
	67 <		Category C

Legend

- Cadastral bdy
- Traffic noise emis
- Road surface
- Bridge
- Bridge barrier
- Bund crown
- Noise barrier

Initials: SW
Date: 18/8/2011
Calculation No: 121

A3 Scale 1:2500

MARSHALL DAY
Acoustics

Mackays to Peka Peka

MACKAYS TO PEKA PEKA EXPRESSWAY
Sector 1
Leinster Avenue, West of Expressway
Do-minimum Scenario

NOISE PREDICTION
SCENARIOS
SHEET 1 OF 75

Document Set:
M2PP-AEE-DWG

Drawing No.:
EN-NV-020



Noise level
dB $L_{Aeq}(24h)$

	<= 64 Category A
	64 < <= 67 Category B
	67 < Category C

Legend

- Cadastral bdy
- Traffic noise emis
- Road surface
- Bridge
- Bridge barrier
- Bund crown
- Noise barrier

Initials: SW
Date: 18/8/2011
Calculation No: 122

A3 Scale 1:2500

MARSHALL DAY
Acoustics

Mackays to Peka Peka

MACKAYS TO PEKA PEKA EXPRESSWAY
Sector 1
Leinster Avenue, West of Expressway
Mitigation Option 1

NOISE PREDICTION
SCENARIOS
SHEET 2 OF 75

Document Set:
M2PP-AEE-DWG

Drawing No.:
EN-NV-021



Noise level
dB $L_{Aeq}(24h)$

■	≤ 64 Category A
■	$64 <$ ≤ 67 Category B
■	$67 <$ Category C

Legend

- Cadastral bdy
- Traffic noise emis
- Road surface
- Bridge
- Bridge barrier
- Bund crown
- Noise barrier

Initials: SW
Date: 18/8/2011
Calculation No: 123

A3 Scale 1:2500

MARSHALL DAY
Acoustics

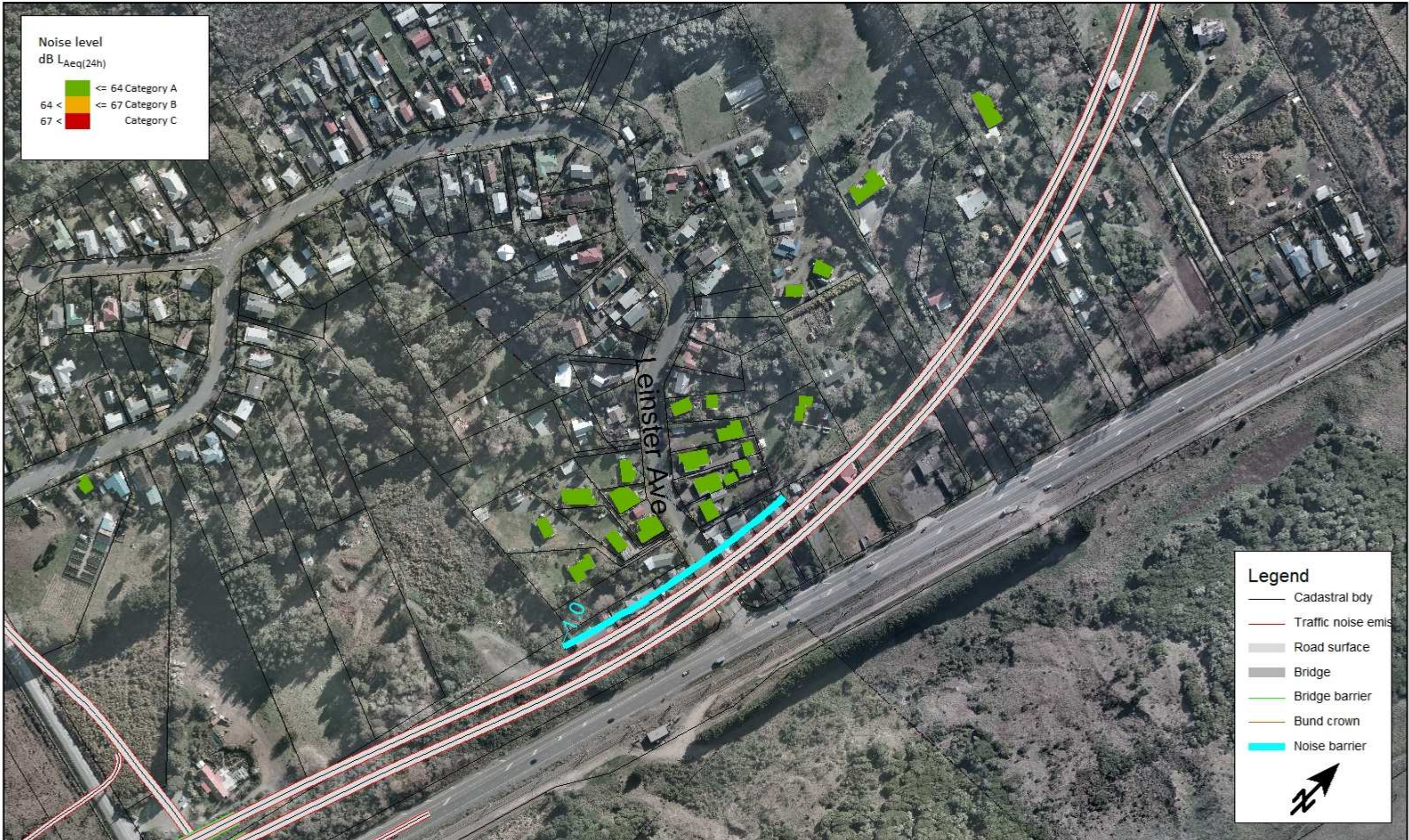
Mackays to Peka Peka

MACKAYS TO PEKA PEKA EXPRESSWAY
Sector 1
Leinster Avenue, West of Expressway
Mitigation Option 2

NOISE PREDICTION
SCENARIOS
SHEET 3 OF 75

Document Set:
M2PP-AEE-DWG

Drawing No.:
EN-NV-022



Noise level
dB $L_{Aeq}(24h)$

	<= 64 Category A
	64 < <= 67 Category B
	67 < Category C

Legend

- Cadastral bdy
- Traffic noise emis
- Road surface
- Bridge
- Bridge barrier
- Bund crown
- Noise barrier

Initials: SW
Date: 18/8/2011
Calculation No: 124

MARSHALL DAY
Acoustics

MACKAYS TO PEKA PEKA EXPRESSWAY
Sector 1
Leinster Avenue, West of Expressway
Mitigation Option 3 (Noise Guidelines)

NOISE PREDICTION
SCENARIOS
SHEET 4 OF 75

Document Set:
M2PP-AEE-DWG

Drawing No.:
EN-NV-023

A3 Scale 1:2500

Mackays to Peka Peka




Noise level
dB $L_{Aeq}(24h)$

	<= 64 Category A
	64 < <= 67 Category B
	> 67 Category C

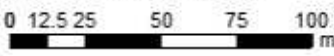
Legend

- Cadastral bdy
- Traffic noise emis
- Road surface
- Bridge
- Bridge barrier
- Bund crown
- Noise barrier



Initials: SW
Date: 18/8/2011
Calculation No: 125

A3 Scale 1:2500



MARSHALL DAY
Acoustics



Mackays to Peka Peka

MACKAYS TO PEKA PEKA EXPRESSWAY
Sector 1
Leinster Avenue, West of Expressway
Mitigation Option 4

NOISE PREDICTION
SCENARIOS
SHEET 5 OF 75

Document Set:
M2PP-AEE-DWG

Drawing No.:
EN-NV-024

SECTOR 1 RAUMATI SOUTH WEST OF EW

NZS 6806 – Assessment matrix

Impact key	Potential effects of noise mitigation option
3	significant positive effects
2	moderate positive effects
1	minor positive effects
0	insignificant (no effects)
-1	minor adverse effects
-2	moderate adverse effects
-3	significant adverse effects

A brief description of the basis for each rating should be added in the spaces below the ratings.

Assessment Criteria	Responsible	Option 1	Option 2	Option 3	Option 4	Issues/Risks
Compliance with NZS 6806 noise criteria, and requirement for building-modification measures	Acoustics	1	1	1	1	
		9 in Cat A, 3 in Cat B	10 in Cat A, 2 in Cat B	10 in Cat A, 2 in Cat B	9 in Cat A, 3 in Cat B	
Effect of changes to the existing noise environment	Acoustics	-3	-2	-2	-3	
		Average increase 8 dB, highest 13 dB	Average increase 7 dB, highest 12 dB	Average increase 7 dB, highest 12 dB	Average increase 8 dB, highest 13 dB	
Achievement of the NZS 6806 structural mitigation performance standards	Acoustics	-1	-1	-1	N/A	
		2 dB average structural mitigation	2 dB average structural mitigation	2 dB average structural mitigation	No structural mitigation, Do Min	
Value for money, including maintenance costs and consideration of benefit cost analysis	Acoustics	-1	0	0	N/A	
		BCR 0.5	BCR 0.9	BCR 0.9	No structural mitigation, Do Min	
Difference in cost compared to Transit's Guidelines (criteria for NZTA internal monitoring purposes)	Acoustics	0	0	N/A	N/A	
		Same cost, 0%	Same cost, 0%		No structural mitigation, Do Min	
Compliance with relevant safety standards	Roading	0	0	0	+1	

Assessment Criteria	Responsible	Option 1	Option 2	Option 3	Option 4	Issues/Risks
and guidelines						
	Structures	0	0	0	0	
Constructability/technical feasibility	Roading	0	0	0	0	
	Structures	-1	-1	-1	0	All designable. Option 4 preferred
	Construction	-2	-2	-2	0	
Availability of sufficient land for construction and maintenance and the extent to which NZTA would need to acquire land, or interests in land	NZTA	N/A	N/A	N/A	N/A	
Potential effects on known heritage or cultural values	Cultural	?	?	?	?	No representative present
The extent to which the mitigation option promotes integration and establishes visual coherence and continuity in form, scale and appearance of structures and landscape proposals along the route	Visual / landscape	-2	-2	-2	0	Prefer no barrier at all.
Road users' views to the surrounding landscape and key features/ locations in particular	Visual / landscape	-1	-1	-1	0	Expressway users only considered. Kapiti Island views considered.
Maintenance or enhancement of visual amenity for surrounding residents	Visual / landscape	-2	-2	-2	0	High visual effect of the bridge.
Utilisation of materials that reflect the character of the location	Visual / landscape	0	0	0	0	Concrete will integrate with the bridge which is also concrete

Assessment Criteria	Responsible	Option 1	Option 2	Option 3	Option 4	Issues/Risks
Maintenance or enhancement of the convenience and attractiveness of pedestrian and cycle networks	Urban design	-2	-2	-2	0	The expressway wall might be imposing but won't impact on safety.
Maintenance or enhancement of safe routes to school	Urban design	0	0	0	0	
Impacts (land take, amenity and usability) on community facilities (reserve, school, playground, playing field, etc)	Urban design	0	0	0	0	
Public safety and security	Urban design	0	0	0	0	
Potential effects on areas of significant indigenous vegetation and significant habitats of indigenous fauna	Ecology	NA	NA	NA	NA	
Natural character of the coastal environment, wetlands, lakes, rivers, and their margins	Ecology	NA	NA	NA	NA	
	Visual / landscape	NA	NA	NA	NA	
Potential flooding effects	Hydrology	0	0	0	0	
Resource efficiency (including avoidance of waste)	Sustainability	-1	-1	-1	0	Less concrete is better than more.

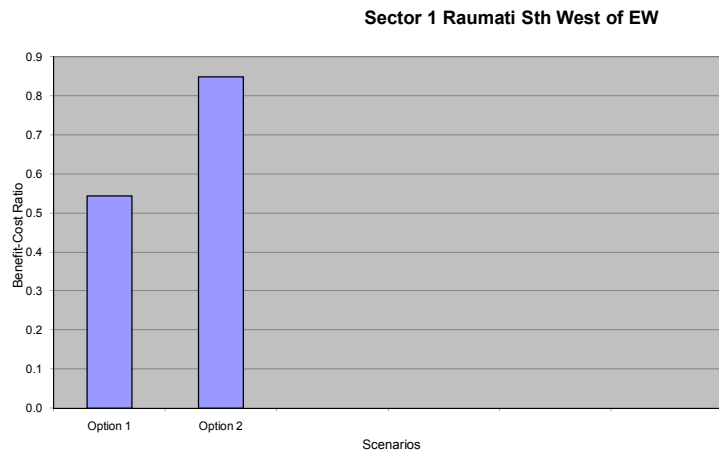
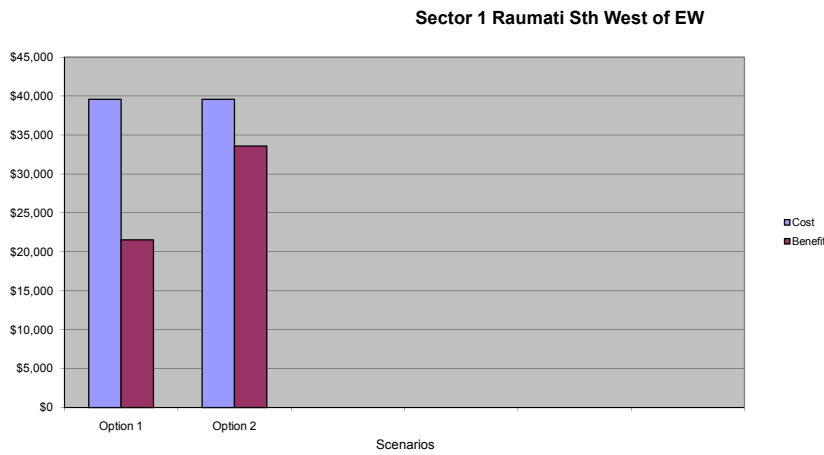
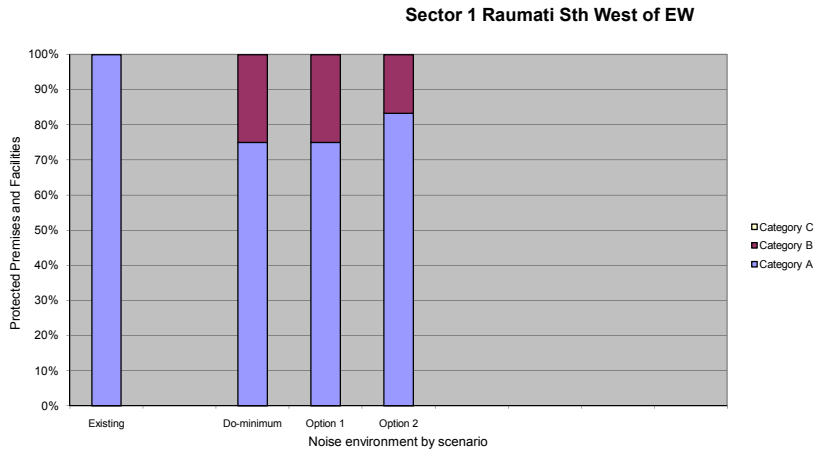
Final Comment: Option 4 (Do-minimum) preferred because less visual impact than barrier on bridge. Barrier offers insignificant noise reduction at this location.

Additional Notes from Workshop:

Questions: Could a wall be put up against boundary of the Yellow category house? Siiri responded that she could not find a suitable solution given that it is a two storey dwelling.

Project				
M2PP				
Sector 1 Raumati Sth West of EW				
Protected Premises and Facilities				
	Existing	Do-minimum	Option 1	Option 2
Category A	12	9	9	10
Category B	0	3	3	2
Category C	0	0	0	0
Total		12		
Benefit-Cost Ratio				
		Option 1	Option 2	
	Cost	\$39,600	\$39,600	
	Benefit	\$21,536	\$33,595	
	BCR	0.54	0.85	
	Transit	0%	0%	
	Structural	0.8 dB	1.1 dB	

Graphs



Project:		M2PP				
Area:		Sector 1 Raumati Sth West of EW				
AADT:		<input checked="" type="radio"/> 2,000 to 75,000 vehicles per day <input type="radio"/> More than 75,000 vehicles per day				
Transit:		Option 3 (option to comply with Transit's Guidelines)				
		Reformat	New Altered	Preferred Mitigation Option		
Protected Premises and Facilities		New or Altered	Existing L _{Aeq(24h)} dB	Do-minimum L _{Aeq(24h)} dB	Option 1 L _{Aeq(24h)} dB	Option 2 L _{Aeq(24h)} dB
Street address	Floor					
Fincham Rd 22	2. Floor	New	46	52	52	52
Fincham Rd 25	1. Floor	New	46	51	51	51
Fincham Rd 25A	1. Floor	New	46	49	49	49
Fincham Rd 25B	1. Floor	New	46	54	54	53
Fincham Rd 27	1. Floor	New	46	49	49	49
Gavin Rd 44B	1. Floor	New	46	51	51	51
Matai Rd 218	1. Floor	New	46	52	52	52
Raumati Rd 82A	2. Floor	New	47	57	57	57
Raumati Rd 82B	2. Floor	New	47	57	57	57
Raumati Rd 86	1. Floor	New	47	58	58	57
Raumati Rd 88	1. Floor	New	47	61	60	59
Raumati Rd 92	1. Floor	New	47	62	60	59

Noise level
dB LAeq(24h)

- ≤ 57 Category A
- 57 < ≤ 64 Category B
- 64 < Category C



Legend

- Cadastral bdy
- Traffic line
- Road surface
- Bridge
- Bridge barrier
- Bund crown
- Noise barrier



Initials: SW
Date: 18/8/2011
Calculation No: 181



**MACKAYS TO PEKA PEKA EXPRESSWAY
Sector 1
Raumati South area, West of Expressway
Do-minimum Scenario**

NOISE PREDICTION
SCENARIOS
SHEET 6 OF 75

Document Set:
M2PP-AEE-DWG

Drawing No.:
EN-NV-025

A3 Scale 1:2500
0 12.5 25 50 75 100 m

Noise level
dB LAeq(24h)

- ≤ 57 Category A
- 57 < ≤ 64 Category B
- 64 < Category C



Initials: SW
Date: 18/8/2011
Calculation No: 182

MARSHALL DAY
Acoustics

Mackays to Peka Peka

MACKAYS TO PEKA PEKA EXPRESSWAY
Sector 1
Raumati South area, West of Expressway
Mitigation Option 1

NOISE PREDICTION
SCENARIOS
SHEET 7 OF 75

Document Set:
M2PP-AEE-DWG

Drawing No.:
EN-NV-026

A3 Scale 1:2500
0 12.5 25 50 75 100
m

Noise level
dB LAeq(24h)

- ≤ 57 Category A
- 57 < ≤ 64 Category B
- 64 < Category C



Legend

- Cadastral bdy
- Traffic line
- Road surface
- Bridge
- Bridge barrier
- Bund crown
- Noise barrier



Initials: SW
Date: 18/8/2011
Calculation No: 183



**MACKAYS TO PEKA PEKA EXPRESSWAY
Sector 1
Raumati South area, West of Expressway
Mitigation Option 2**

NOISE PREDICTION
SCENARIOS
SHEET 8 OF 75

Document Set:
M2PP-AEE-DWG

Drawing No.:
EN-NV-027

A3 Scale 1:2500
0 12.5 25 50 75 100 m