

SECTOR 4 END FARM ROAD

NZS 6806 – Assessment matrix

Impact key	Potential effects of noise mitigation option
+++	significant positive effects
++	moderate positive effects
+	minor positive effects
0	insignificant (no effects)
-	minor adverse effects
--	moderate adverse effects
---	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	0	0	-3	+1	
		All in Cat B	All in Cat B	All in Cat C	1 in Cat A, 1 in Cat B	
Effect of changes to the existing noise environment	Acoustics	-3	-3	-3	-2	Difficult to mitigate, very low ambient noise environment.
		Average increase of 17 dB	Average increase of 15 dB	Average increase of 20 dB	Average increase of 10 dB	
Achievement of the NZS 6806 structural mitigation performance standards	Acoustics	0	+3	N/A	+3	
		3 dB average structural mitigation	5 dB average structural mitigation	No structural mitigation, building modification mitigation	10 dB average structural mitigation	
Value for money, including maintenance costs and	Acoustics	-3	-3	+3	-3	
		BCR 0.1	BCR 0.1	BCR 6.5	BCR 0.2	

Assessment Criteria	Responsible	Option 1	Option 2	Option 3	Option 4	Issues/Risks
consideration of benefit cost analysis						
Difference in cost compared to Transit's Guidelines (criteria for NZTA internal monitoring purposes)	Acoustics	+3	0	+3	N/A	
		-36% compared with Transit Guidelines	Same as TG (0%)	-93% compared with Transit Guidelines		
Compliance with relevant safety standards and guidelines	Roading	0	0	0	0	
		OK safety	OK safety			
Constructability/technical feasibility	Roading	0	-1	0	0	
		Buildable	Space constraints here.			
	Structures	0	-2 (5m high noise wall)	0	0	
Construction	0	0	0	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	0	0	0	0	
Potential effects on known heritage or cultural values	Cultural	?	?	?	?	No heritage adviser present.
The extent to which the mitigation option promotes	Visual / landscape	0	0	0	0	

Assessment Criteria	Responsible	Option 1	Option 2	Option 3	Option 4	Issues/Risks
integration and establishes visual coherence and continuity in form, scale and appearance of structures and landscape proposals along the route						
Road users' views to the surrounding landscape and key features/ locations in particular	Visual / landscape	o	o	o	o	
Maintenance or enhancement of visual amenity for surrounding residents	Visual / landscape	o	o	o	o	
Utilisation of materials that reflect the character of the location	Visual / landscape	o	o	o	o	
Maintenance or enhancement of the convenience and attractiveness of pedestrian and cycle networks	Urban design	o	o	o	o	
Impacts (land take, amenity and usability) on community facilities (reserve, school, playground, playing field, etc)	Urban design	o	o	o	o	
Potential flooding effects	Hydrology	o	o	o	o	
Resource efficiency (including avoidance of waste)	Sustainability	o	o	o	o	

Options:

Option 1 is barrier, Option 2 is OGPA, Option 3 is no mitigation apart from building insulation, and Option 4 is Transit Guidelines which are the same as Option 2,

Additional Notes:

Build bund and take more land?

Extend OGPA past Category 3 house as far as necessary?

Insulate the house?

Action:

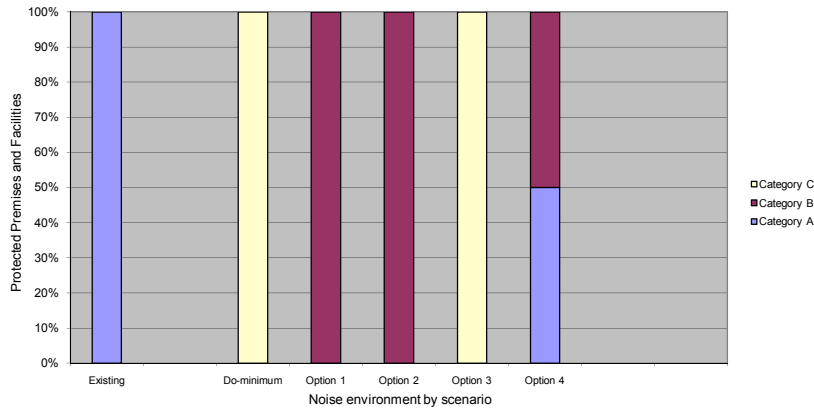
Talk to TG and PP20 projects first. Further work required before this is accepted as a BPO.

Final Comments: Mitigation option 2 chosen for noise reasons. Cost is an issue. Potential combined positive effect when extending past Smith property towards Te Moana as would require less property purchase for new designation.

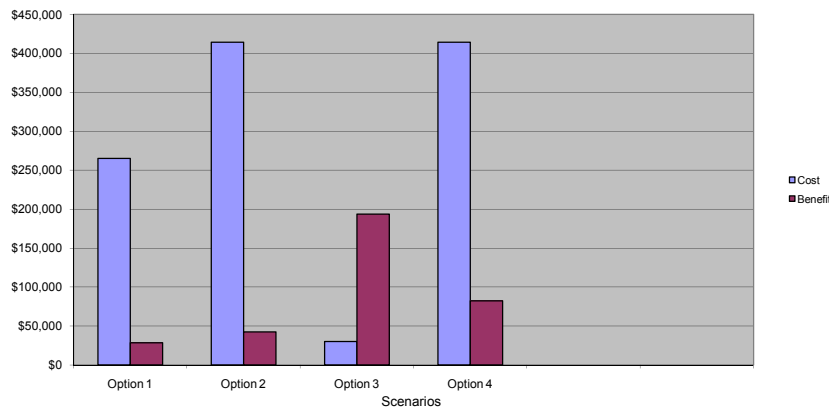
Project						
M2PP						
Sector 4 End Farm Road						
Protected Premises and Facilities						
	Existing	Do-minimum	Option 1	Option 2	Option 3	Option 4
Category A	2	0	0	0	0	1
Category B	0	0	2	2	0	1
Category C	0	2	0	0	2	0
Total	2	2	2	2	2	2
Benefit-Cost Ratio						
		Option 1	Option 2	Option 3	Option 4	
Cost		\$265,000	\$414,400	\$30,000	\$414,400	
Benefit		\$28,427	\$42,210	\$193,820	\$82,266	
BCR		0.11	0.10	6.46	0.20	
Transit		-36%	0%	-93%	0%	
Structural		3.3 dB	4.9 dB	0 dB	9.6 dB	

Graphs

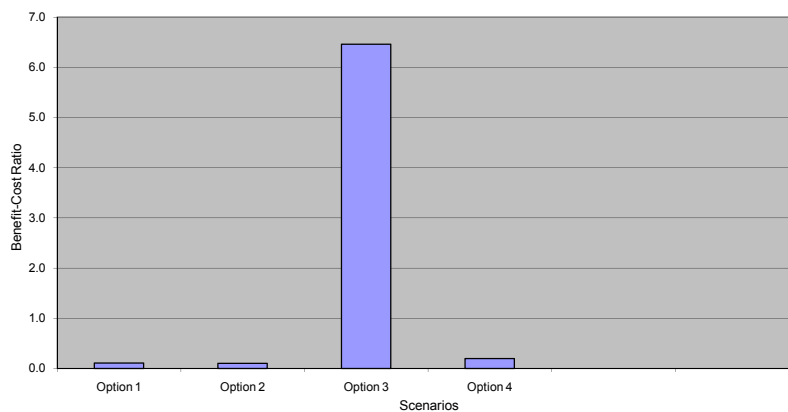
Sector 4 End Farm Road



Sector 4 End Farm Road



Sector 4 End Farm Road



Project: M2PP
Area: Sector 4 End Farm Road
AADT: 2,000 to 75,000 vehicles per day
 More than 75,000 vehicles per day
Transit: (option to comply with Transit's Guidelines)

Protected Premises and Facilities		Reformat	New	Altered	Do-minimum	Option 1	Option 2	Option 3	Option 4
Street address	Floor	New or Altered	Existing		L _{Aeq(24h)} dB	L _{Aeq(24h)} dB	L _{Aeq(24h)} dB	L _{Aeq(24h)} dB	L _{Aeq(24h)} dB
End Farm Rd 36	2. Floor	New	46		65	63	61	40	58
End Farm Rd 37	1. Floor	New	46		66	62	61	40	54



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: 501

A3 Scale 1:2500

MARSHALL DAY
Acoustics

nz TRANSPORT AGENCY
Mackays to Peka Peka

MACKAYS TO PEKA PEKA EXPRESSWAY
Sector 4
End Farm Road
Do-minimum Scenario

NOISE PREDICTION
SCENARIOS
SHEET 63 OF 75

Document Set:
M2PP-AEE-DWG

Drawing No.:
EN-NV-082



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: 502

A3 Scale 1:2500

MARSHALL DAY
Acoustics

NZ TRANSPORT AGENCY
Mackays to Peka Peka

MACKAYS TO PEKA PEKA EXPRESSWAY
Sector 4
End Farm Road
Mitigation Option 1

NOISE PREDICTION
SCENARIOS
SHEET 64 OF 75

Document Set:
M2PP-AEE-DWG

Drawing No.:
EN-NV-083

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: 503

MARSHALL DAY
Acoustics



MACKAYS TO PEKA PEKA EXPRESSWAY
Sector 4
End Farm Road
Mitigation Option 2

NOISE PREDICTION
SCENARIOS
SHEET 65 OF 75

Document Set:
M2PP-AEE-DWG

Drawing No.:
EN-NV-084

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



**Building Modification
Mitigation**



Initials: SW
Date: 18/8/2011
Calculation No: 501



**MACKAYS TO PEKA PEKA EXPRESSWAY
Sector 4
End Farm Road
Mitigation Option 3**

NOISE PREDICTION
SCENARIOS
SHEET 66 OF 75

Document Set:
M2PP-AEE-DWG

Drawing No.:
EN-NV-085

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: 504



**MACKAYS TO PEKA PEKA EXPRESSWAY
Sector 4
End Farm Road
Mitigation Option 4 (Noise Guidelines)**

NOISE PREDICTION
SCENARIOS
SHEET 67 OF 75

Document Set:
M2PP-AEE-DWG

Drawing No.:
EN-NV-086

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

SECTOR 4 PEKA PEKA EAST OF EW

NZS 6806 – Assessment matrix

Impact key	Potential effects of noise mitigation option
+++	significant positive effects
++	moderate positive effects
+	minor positive effects
O	insignificant (no effects)
-	minor adverse effects
--	moderate adverse effects
---	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	+++	Tried barrier, but NO effect, therefore not in this Matrix (see spreadsheet)	O		
		In Cat A	In Cat A	In Cat A		
Effect of changes to the existing noise environment	Acoustics	O		O		
		Same noise level as before		Similar noise level, 3 dB increase		
Achievement of the NZS 6806 structural mitigation performance standards	Acoustics	++		N/A		
		4 dB average structural mitigation		Same as Do Minimum, no structural mitigation		
Value for money, including	Acoustics	--		N/A		AC on Peka Peka Road

Assessment Criteria	Responsible	Option 1	Option 2	Option 3	Option 4	Issues/Risks
maintenance costs and consideration of benefit cost analysis		BCR 0.3		No Structural Mitigation required, same as Do Min		
Difference in cost compared to Transit's Guidelines (criteria for NZTA internal monitoring purposes)	Acoustics	---	N/A	N/A		
		Transit Guideline option same as Do Min, no structural mitigation required				
Compliance with relevant safety standards and guidelines	Roading	0	0	0	0	
		Ok safety				
	Structures	0	0	0	0	
Constructability/technical feasibility	Roading	0	0	0	0	
		Buildable				
	Structures	0	0	0	0	
	Construction	0	0	0	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	0	0	0	0	
Potential effects on known heritage or cultural values	Cultural	0	0	0	0	

Assessment Criteria	Responsible	Option 1	Option 2	Option 3	Option 4	Issues/Risks
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	0	0	0	0	
Road users' views to the surrounding landscape and key features/ locations in particular	Visual / landscape	0	0	0	0	
Maintenance or enhancement of visual amenity for surrounding residents	Visual / landscape	0	0	0	0	
Utilisation of materials that reflect the character of the location	Visual / landscape	0	0	0	0	
Maintenance or enhancement of the convenience and attractiveness of pedestrian and cycle networks	Urban design	0	0	0	0	
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 access to the coastal marine area, rivers, or lakes	Urban design	0	0	0	0	

Assessment Criteria	Responsible	Option 1	Option 2	Option 3	Option 4	Issues/Risks
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	0	0	0	0	
Natural character of the coastal environment, wetlands, lakes, rivers, and their margins	Ecology	0	0	0	0	
	Visual / landscape	0	0	0	0	
Potential effects on coastal processes	Hydrology	0	0	0	0	
Potential flooding effects	Hydrology	0	0	0	0	
Resource efficiency (including avoidance of waste)	Sustainability	0	0	0	0	
Potential effects on greenhouse gas emissions	Sustainability	0	0	0	0	
Other:		0	0	0	0	

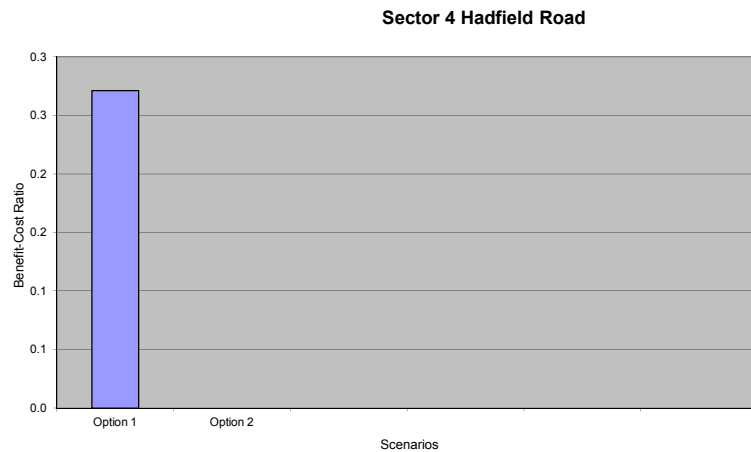
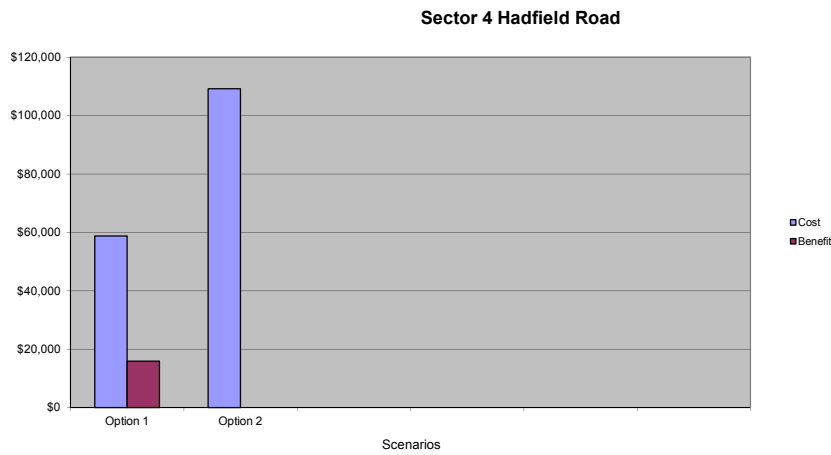
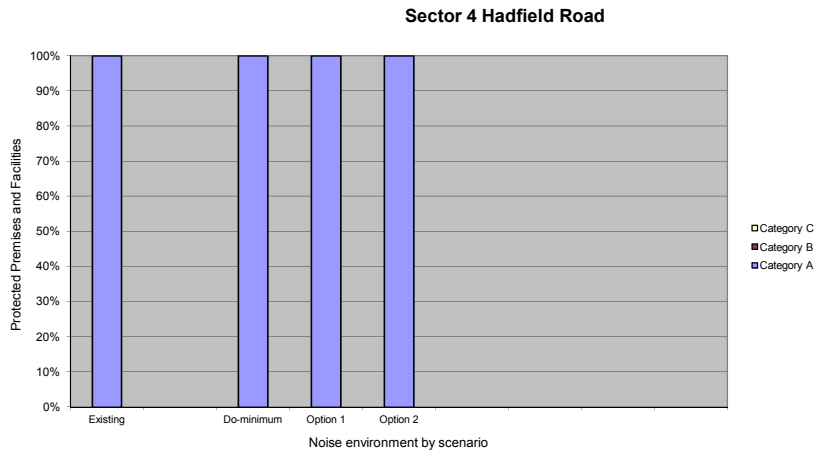
Final Comments: Do–Minimum is sufficient. Change in noise level is small and mitigation options are not practicable (BCR)

Acoustics ratings

Impact Key	NZS 6806 compliance	Structural mitigation	BCR	Transit Guidelines Cost (for NZTA internal monitoring)
+++	All in Cat A	> 5 dB	>1.5	< -30%
++	Cat A & 5% or fewer in Cat B	5 dB	1.25-1.5	-21% to -30%
+	All in Cat A or B	4 dB	1-1.24	-11% to -20%
0	-	3 dB	0.75-0.99	-10% to 10%
-	5% or fewer in Cat C	2 dB	0.5-0.74	11% to 20%
--	10% or fewer in Cat C	1 dB	0.25-0.49	21% to 30%
---	More than 8 in Cat C	0 dB	<0.25	> 30%

Project				
M2PP				
Sector 4 Hadfield Road				
Protected Premises and Facilities				
	Existing	Do-minimum	Option 1	Option 2
Category A	1	1	1	1
Category B	0	0	0	0
Category C	0	0	0	0
Total	1	1	1	1
Benefit-Cost Ratio				
		Option 1	Option 2	
	Cost	\$58,800	\$109,200	
	Benefit	\$15,936	\$0	
	BCR	0.27	0.00	
	Transit	-46%	0%	
	Structural	3.7 dB	0.1 dB	

Graphs



Project:		M2PP				
Area:		Sector 4 Hadfield Road				
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 2 (option to comply with Transit's Guidelines)				
		Reformat	New Altered	Preferred Mitigation Option		
Protected Premises and Facilities		New or Altered	Existing	Do-minimum	Option 1	Option 2
Street address	Floor		$L_{Aeq(24h)}$ dB	$L_{Aeq(24h)}$ dB	$L_{Aeq(24h)}$ dB	$L_{Aeq(24h)}$ dB
Hadfield Rd 3	1. Floor	Altered	58	63	60	63



Noise level
dB LAeq(24h)

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

Legend

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

Initials: SW
Date: 18/8/2011
Calculation No: 481

A3 Scale 1:2500

MARSHALL DAY **Acoustics**

Mackays to Peka Peka

MACKAYS TO PEKA PEKA EXPRESSWAY
Sector 4
Hadfield Road
Do-minimum Scenario

NOISE PREDICTION
SCENARIOS
SHEET 68 OF 75

Document Set:
M2PP-AEE-DWG

Drawing No.:
EN-NV-087



Initials: SW
Date: 18/8/2011
Calculation No: 462

MARSHALL DAY
Acoustics

MACKAYS TO PEKA PEKA EXPRESSWAY
Sector 4
Hadfield Road
Mitigation Option 1

NOISE PREDICTION
SCENARIOS
SHEET 69 OF 75

Document Set:
M2PP-AEE-DWG

Drawing No.:
EN-NV-088

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

NEW ZEALAND TRANSPORT AGENCY
Mackays to Peka Peka



Initials: SW
Date: 18/8/2011
Calculation No: 463

MARSHALL DAY
Acoustics

NEW ZEALAND TRANSPORT AGENCY
Mackays to Peka Peka

MACKAYS TO PEKA PEKA EXPRESSWAY
Sector 4
Hadfield Road
Mitigation Option 2

NOISE PREDICTION
SCENARIOS
SHEET 70 OF 75

Document Set:
M2PP-AEE-DWG

Drawing No.:
EN-NV-089

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

SECTOR 4 PEKA PEKA WEST OF EW

NZS 6806 – Assessment matrix

Impact key	Potential effects of noise mitigation option
+++	significant positive effects
++	moderate positive effects
+	minor positive effects
0	insignificant (no effects)
-	minor adverse effects
--	moderate adverse effects
---	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	+2	-1	3	3	
		6 in Cat A, 1 in Cat B	5 in Cat A, 1 in Cat B and 1 in Cat. C	All in Cat A	All in Cat A	
Effect of changes to the existing noise environment	Acoustics	0	0	0	0	
		Similar to existing, some up to 9 dB increase	2 dB average increase, up to 10 dB	Similar to existing, some up to 5 dB increase	Similar to existing, some up to 5 dB increase	
Achievement of the NZS 6806 structural mitigation performance standards	Acoustics	0	-2	+2	0	
		3 dB average structural mitigation	1 dB average structural mitigation	4 dB average structural mitigation	3 dB average structural mitigation	
Value for money, including maintenance costs and consideration of benefit cost analysis	Acoustics	-3	-3	-3	-3	Small number of PPFs. All BCR negative.
		BCR 0.2	BCR 0.2	BCR 0.2	BCR 0.2	

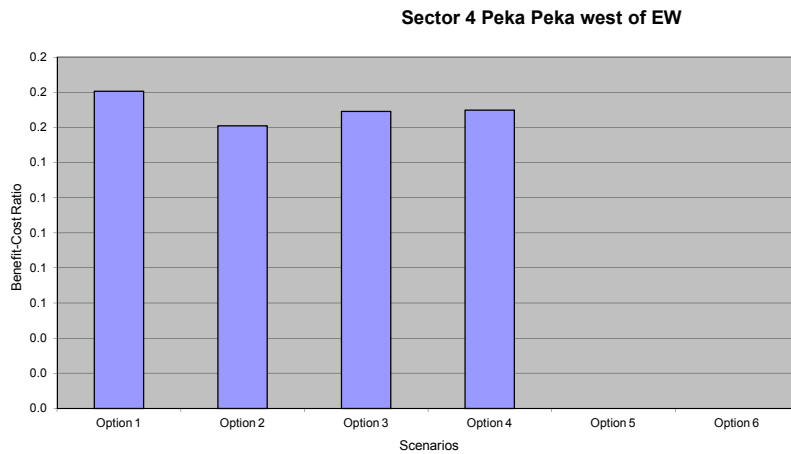
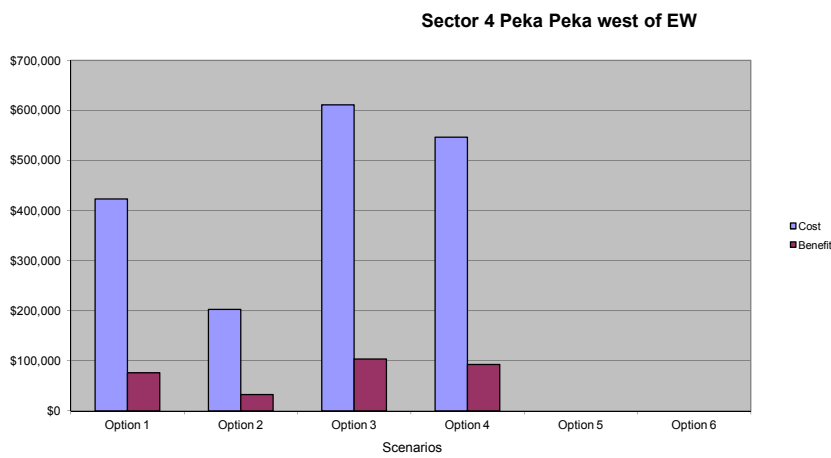
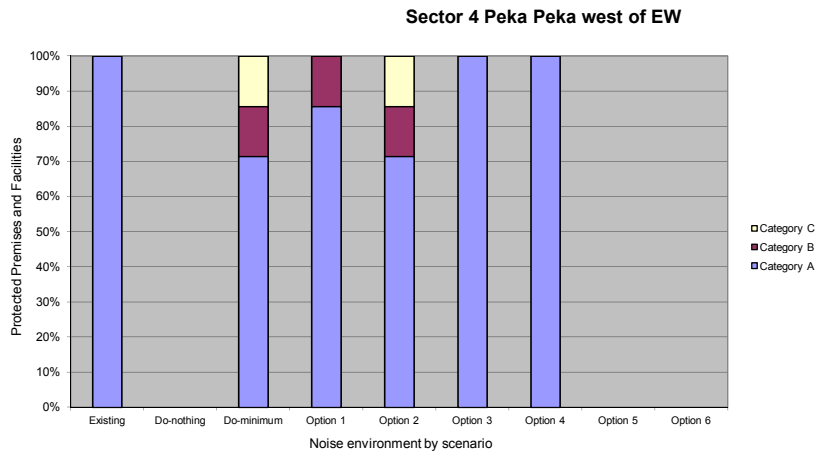
Assessment Criteria	Responsible	Option 1	Option 2	Option 3	Option 4	Issues/Risks
Difference in cost compared to Transit's Guidelines (criteria for NZTA internal monitoring purposes)	Acoustics	+2	+3	N/A	0	
		-31%	-67%		-11%	
Compliance with relevant safety standards and guidelines	Roading	0	-1	-1	-1	
		OK safety	Potential visibility issues	Potential visibility issues	Potential visibility issues	
	Structures	0	0	0	0	
Constructability/technical feasibility	Roading	0	0	0	0	
		Buildable	Buildable	Buildable	Buildable	
	Structures	0	0	-2 (5m noise barrier)	-2 (5m noise barrier)	
	Construction	0	0	0	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	0	0	0	0	
Potential effects on known heritage or cultural values	Cultural	0	0	0	0	
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	0	0	0	0	
Road users' views to the surrounding	Visual /	0	0	0	0	

Assessment Criteria	Responsible	Option 1	Option 2	Option 3	Option 4	Issues/Risks
landscape and key features/ locations in particular	landscape					
Maintenance or enhancement of visual amenity for surrounding residents	Visual / landscape	0	0	0	0	
Utilisation of materials that reflect the character of the location	Visual / landscape	0	0	0	0	
Maintenance or enhancement of the convenience and attractiveness of pedestrian and cycle networks	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 flooding effects	Hydrology	0	0	0	0	
Resource efficiency (including avoidance of waste)	Sustainability	0	0	0	0	

Final Comments: Option 4. 5 m bund can be formed rather than barrier.

Project										
M2PP										
Sector 4 Peka Peka west of EW										
Protected Premises and Facilities				OGPA	Barrier	OGPA+Barrier				
Category A	Existing	Do-nothing	Do-minimum	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	
7	0	5	6	5	7	7	0	0	0	
0	0	1	1	1	0	0	0	0	0	
0	0	1	0	1	0	0	0	0	0	
Total			7							
Benefit-Cost Ratio				Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	
Cost				\$423,500	\$202,800	\$611,300	\$546,500	\$0	\$0	
Benefit				\$76,451	\$32,626	\$103,370	\$92,818	\$0	\$0	
BCR				0.18	0.16	0.17	0.17	-	-	
Transit				-31%	-67%	0%	-11%			
Structural				2.9 dB	0.6 dB	3.8 dB	3.4 dB	61.4 dB	61.4 dB	

Graphs



Project: M2PP

Area: Sector 4 Peka Peka 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)

Reformat

New

Altered

Preferred Mitigation Option

Street address	Floor	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
Peka Peka Rd 20	1. Floor	Altered	58	58	67	64	65	61	64
Peka Peka Rd 30	1. Floor	Altered	58	58	61	57	61	57	57
Peka Peka Rd 31	2. Floor	Altered	58	58	62	59	62	59	59
Peka Peka Rd 34	1. Floor	Altered	58	58	59	56	59	56	56
Peka Peka Rd 37	1. Floor	Altered	58	58	57	55	57	55	55
Peka Peka Rd 42	1. Floor	Altered	58	58	55	52	55	52	52
Te Kowhai Rd 9	2. Floor	Altered	58	58	70	67	68	63	63



Initials: SW
 Date: 18/8/2011
 Calculation No: 481

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

MARSHALL DAY
 Acoustics

NEW ZEALAND TRANSPORT AGENCY
 Mackays to Peka Peka

MACKAYS TO PEKA PEKA EXPRESSWAY
Sector 4
Peka Peka
Do-minimum Scenario

NOISE PREDICTION
 SCENARIOS
 SHEET 71 OF 75

Document Set:
 M2PP-AEE-DWG

Drawing No.:
 EN-NV-090

Noise level
dB LAeq(24h)

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



Legend

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



Initials: SW
Date: 18/8/2011
Calculation No: 482

MARSHALL DAY
Acoustics



MACKAYS TO PEKA PEKA EXPRESSWAY
Sector 4
Peka Peka
Mitigation Option 1

NOISE PREDICTION
SCENARIOS
SHEET 72 OF 75

Document Set:
M2PP-AEE-DWG

Drawing No.:

EN-NV-091

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



Initials: SW
 Date: 18/8/2011
 Calculation No: 483

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

MARSHALL DAY 
 Acoustics

 **Mackays to Peka Peka**

MACKAYS TO PEKA PEKA EXPRESSWAY
Sector 4
Peka Peka
Mitigation Option 2

NOISE PREDICTION
 SCENARIOS
 SHEET 73 OF 75

Document Set:
 M2PP-AEE-DWG

Drawing No.:
 EN-NV-092



Initials: SW
 Date: 18/8/2011
 Calculation No: 484

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

MARSHALL DAY
 Acoustics

NEW ZEALAND TRANSPORT AGENCY
 Mackays to Peka Peka

MACKAYS TO PEKA PEKA EXPRESSWAY
 Sector 4
 Peka Peka
 Mitigation Option 3 (Noise Guidelines)

NOISE PREDICTION
 SCENARIOS
 SHEET 74 OF 75

Document Set:
 M2PP-AEE-DWG

Drawing No.:
 EN-NV-093



Noise level
dB LAeq(24h)

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

Legend

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

Initials: SW
Date: 18/8/2011
Calculation No: 485

A3 Scale 1:2500

MARSHALL DAY
Acoustics

Mackays to Peka Peka

MACKAYS TO PEKA PEKA EXPRESSWAY
Sector 4
Peka Peka
Mitigation Option 4

NOISE PREDICTION
SCENARIOS
SHEET 75 OF 75

Document Set:
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