



NZ TRANSPORT AGENCY  
WAKA KOTAHI

Level 11, HSBC House  
1 Queen Street  
Private Bag 106602  
Auckland 1143  
New Zealand  
T 64 9 969 9800  
F 64 9 969 9813  
[www.nzta.govt.nz](http://www.nzta.govt.nz)

8 April 2015



Dear 

**Request made under the Official Information Act 1982**

Thank you for your email of 9 March 2015 requesting the following information under the Official Information Act 1982:

*'The latest business cases and/or analysis on the 10 bridges in Northland announced by the government today.'*

The cost benefit analysis of the Matakohe bridges (Hardies and Andersons) replacement and road realignment has undergone a preliminary benefit cost ratio assessment. The total project has an indicative benefit cost ratio of 1.4. Please refer to the attached excerpts from the document titled *SH12 Matakohe Improvements, December 2008*. No benefit cost ratios have been prepared for the other eight bridges.

No business cases have been prepared for the 10 bridges named in the announcement of 9 March 2015.

Yours sincerely

**Brett Gliddon**  
Highway Manager Auckland and Northland

OFFICIAL INFORMATION ACT

# SH12 MATAKOHE IMPROVEMENTS

## PFR ADDENDUM



*Prepared for*

**New Zealand Transport Agency**  
Contract Number PA3163



**NZ TRANSPORT AGENCY**  
WAKA KOTAHU

December 2008

42124313/R002

## SP3 General road improvements

### Evaluation Summary

Worksheet 1

1	Evaluator(s)	<u>Maria Goff</u>		
	Reviewer(s)	<u>Dyblakurere 18/12/08</u>		
2	<b>Project/package details</b>			
	Approved organisation name	<u>NZTA</u>		
	Project/package name	<u>SH 12 Matakohi Stage 1 &amp; 2 Combined</u>		
	Your reference	<u>PDM</u>		
	Project description	<u>Gross realignment and replacement of Andersons single lane Bridge and Hardys Bridge</u>		
	Describe the problem to be addressed	<u>Slow difficult section highway with two single lane bridges and accident history</u>		
3	<b>Location</b>			
	Brief description of location	<u>Northland</u>		
4	<b>Alternatives and options</b>			
	Describe the do minimum	<u>Maintain current asset</u>		
	Summarise the options assessed	Option name	<u>New option 3-Stage 1&amp;2</u>	
		Description	<u>Gross realignment and replacement of Andersons single lane Bridge and Hardys Bridge</u>	
5	<b>Timing</b>			
	Time zero (assumed construction start date)	<u>1/07/2008</u>		
	Expected duration of construction (months)	<u>12</u>		
6	<b>Economic efficiency</b>			
	Date economic evaluation completed	<u>17/12/2008</u>		
	Base date for costs and benefits	<u>1/07/2008</u>		
	Discount rate (%)	<u>8.0</u>		
	Analysis period (years)	<u>30</u>		
	AADT at time zero	<u>1,895.0</u>	<u>User defined traffic mix</u>	
	Traffic growth rate at time zero (%)	<u>1.40</u>		
	Existing roughness	<u>4.12</u> IRI	Existing traffic speed	<u>62</u> km/h
	Predicted roughness	<u>2.65</u> IRI	Predicted traffic speed	<u>100</u> km/h
	Length of road before works	<u>3.350</u> km		
	Length of road after works	<u>2.360</u> km		
7	PV cost of do minimum		<u>\$530,793</u>	<b>A</b>
8	PV cost of the preferred option		<u>\$15,627,176</u>	<b>B</b>
9	<b>Benefit values from worksheet 4, 5 and 6</b>			
	PV travel time cost savings	<u>\$6,327,372</u>	$C \times \text{Update factor}^{nc}$	<u>1.19</u> = <u>\$7,529,573</u> <b>W</b>
	PV VOC and CO2 savings	<u>\$5,707,852</u>	$D \times \text{Update factor}^{vc}$	<u>1.00</u> = <u>\$5,707,852</u> <b>Y</b>
	PV accident cost savings	<u>\$7,075,848</u>	$E \times \text{Update factor}^{ac}$	<u>1.09</u> = <u>\$7,712,674</u> <b>Z</b>
10	BCRN =	$\frac{\text{PV net benefits}}{\text{PV net costs}}$	$= \frac{W + Y + Z}{B - A}$	$= \frac{\$20,950,099}{\$15,096,383} =$ <b>1.4</b>
11	FYRR =	$\frac{\text{PV 1st year benefits}}{\text{PV net costs}}$	$= \frac{[(W+Y)/DF(voc) + Z/DF(ac)] \times 0.93}{B - A}$	$=$ <b>10%</b>

## PFR: Project feasibility report

### Preliminary evaluation

PFR

**1 Evaluator(s)** Marla Goff

**Reviewer(s)** \_\_\_\_\_

**Approved organisation name** NZTA

**Project/package name** SH 12 Matakohi Stage 1 & 2 Combined

**Your reference** PDM

**Project description** Gross realignment and replacement of Andersons single lane Bridge and Hardys Bridge

**Describe the problem to be addressed** Slow difficult section highway with two single lane bridges and accident history

**Brief description of location** Northland

**Describe the do minimum** Maintain current asset

**Summarise the options assessed**

Option name	<u>New option 3-Stage 1&amp;2</u>
Description	<u>Gross realignment and replacement of Andersons single lane Bridge and Hardys Bridge</u>

**2 Time zero (assumed construction start date)** 1/07/2008

**Expected duration of construction (months)** 12

**Date economic evaluation completed** 17/12/2008

**Base date for costs and benefits** 1/07/2008

**Discount rate (%)** 8.0

**Analysis period (years)** 30

**Road type** Rural Other

**Travel time cost (TT) - from table 1** \$24.40 **Posted speed limit** 100km/h rem

**AADT at time zero** 1,895.0

Variable	Do minimum (M)		Option (P)		
	A		B		
PV cost		\$530,793		\$15,627,176	
Length	LM	3.350	LP	2.360	km
Mean vehicle speed	MSM	62	MSP	100	km/h
Base cost (CB)	CBM	49.02¢	CBP	46.36¢	¢/km
Average roughness (IRI or NAARSA counts)		4.12 /108		2.65 /69	
Roughness cost (CR)	CRM	3.73¢	CRP	0.14¢	¢/km
Average vehicle speed (VS)	VSM	62	VSP	100	km/h
Annual maintenance costs (MC)	MCM	\$29,700	MCP	\$10,660	\$/yr

**3 Results**

PV travel time cost savings	<u>\$6,327,372</u> C × Update factor <sup>TTC</sup>	<u>1.19</u> =	<u>\$7,529,573</u> W
VOC and CO2 savings	<u>\$5,707,852</u> D × Update factor <sup>VOC</sup>	<u>1.00</u> =	<u>\$5,707,852</u> Y
PV Accident cost savings	<u>\$7,075,848</u> E × Update Factor <sup>AC</sup>	<u>1.09</u> =	<u>\$7,712,674</u> Z

PFR: Project feasibility report

Preliminary evaluation		PFR
4 Benefits	=	<u>\$20,950,099</u>
Costs	=	<u>\$15,096,383</u>
BCR	=	<u>1.4</u>

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