

Bolivia Hill Upgrade - Assessment of
Route Options

APPENDIX H
SOCIO-ECONOMIC IMPACTS REPORT

Bolivia Hill

Socio-economic Impact Assessment

July 2013



© MacroPlan Australia Pty Ltd All Rights Reserved. No part of this document may be reproduced, transmitted, stored in a retrieval system, or translated into any language in any form by any means without the written permission of MacroPlan Australia Pty Ltd. All Rights Reserved. All methods, processes, commercial proposals and other contents described in this document are the confidential intellectual property of MacroPlan Australia Pty Ltd and may not be used or disclosed to any party without the written permission of MacroPlan Australia Pty Ltd.

Prepared for:

Cardno

MacroPlan Dimasi staff responsible for this report:

Nick Hunter

Table of contents

Executive Summary	i
Section 1: Background	1
1.1 Site Location and Characteristics	1
1.2 Project Objectives	2
Section 2: Demographics	4
2.1 Glen Innes Severn LGA	4
2.2 Tenterfield LGA	5
Section 3: Potential Impacts	6
3.1 Safety	6
3.2 Industry & Employment Growth	7
3.3 Benefits	8
3.4 Road Efficiency	10
3.4 Tourism	10
3.5 Alternative Routes	11
Section 4: Socio-economic Benefits	13
4.1 Triple Bottom Line Approach	13
4.2 Opportunity Cost	14

Executive Summary

The New England Highway is the major link from the Hunter Region to the New England area and beyond. The highway is also a major route for heavy vehicle transport from Sydney to Brisbane and provides an alternative route to the Pacific Highway.

The Bolivia Hill project refers to the upgrade of a 2km stretch of the New England Highway through the Bolivia Range. It is a narrow corridor of road with steep falls on the western side and sheer rock faces on the east.

The key objectives of the upgrade include:

- a) Improve road safety
- b) Improve road transport productivity, efficiency and reliability of travel
- c) Minimise the impact on the natural, cultural and built environment
- d) Provide value for money

Location-wise, the upgrade is relatively isolated from existing townships and communities. The closest townships to the upgrade are Glen Innes (55km South) and Tenterfield (35km North). The upgrade however is a part of a series of upgrades for the New England Highway with planning works initially focusing on a new Bypass of Tenterfield and improvements to the Bolivia Hill stretch of road.

MacroPlan Dimasi has examined demographic and business trends for the region and has considered the broader potential benefits of the road.

Our analysis indicates that the Glen Innes LGA has registered an outright decline in population. In contrast, the resident population in Tenterfield LGA has expanded – albeit marginally. However, consistent in both regions has been a reduction in younger cohort residents (i.e. between the ages of 0-19 years). This has accentuated ‘ageing’ within the region and signifies a lack of job opportunities for the younger cohorts.

Overall, having regard for the social and economic fabric of the 'region' that the upgrade will serve and the broader set of roadworks that constitute the overall New England Highway upgrade, we have identified several potential economic, social and environmental benefits associated with the project.

Identified major regional outcomes include:

- Improving the safety of the New England Highway and encouraging inland travel via the New England Highway;
- Minimising congestion along this passage of roadway and improving the safety of travel.
- Stimulation of local economy – business and industry will benefit from the works. The improved road will provide a wider employment base for local residents particularly for younger residents.
- Increased visitation and support for tourism and retail based employment.

Possible 'costs' associated with the Bolivia Hill upgrade project are limited provided that the project is delivered within normal RMS budget constraints and therefore represents 'value for money' construction. We note that environmental costs will be separately assessed by others but expect that, given the relatively small scale of the project, these will either be minimal or able to be addressed by construction techniques.

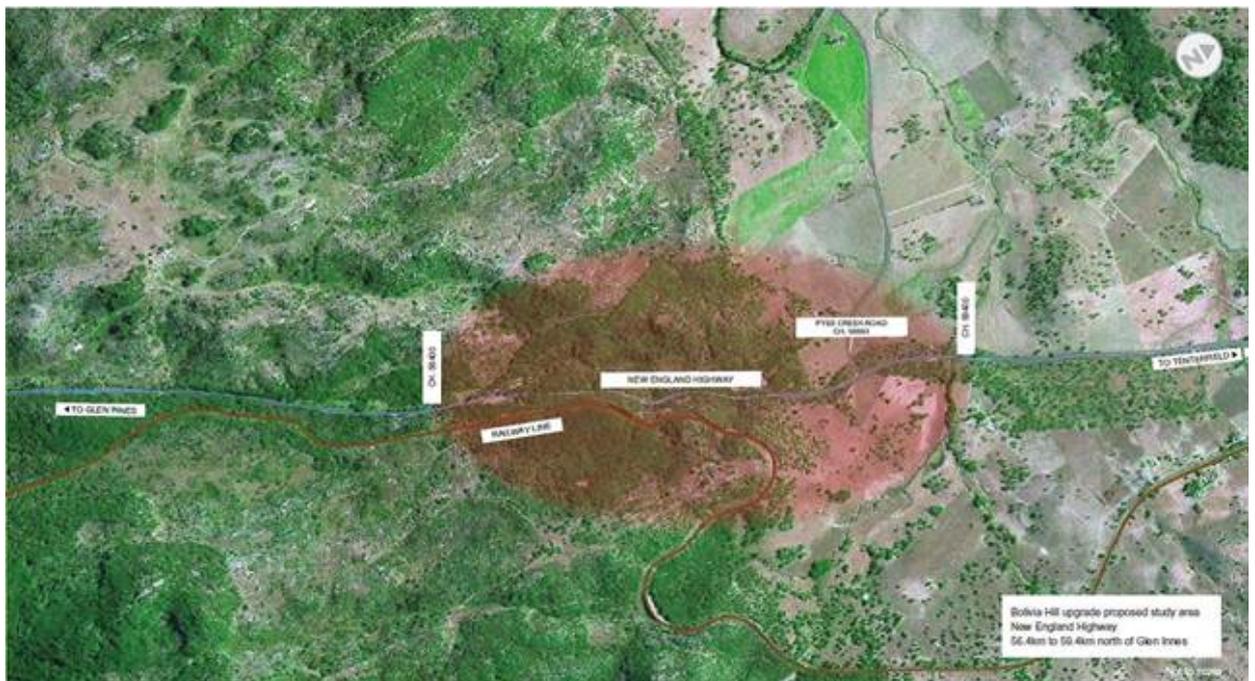
Section 1: Background

This section of the report provides a brief outline of the location, characteristics and objectives of the Bolivia Hill development.

1.1 Site Location and Characteristics

Bolivia Hill is a section of the New England Highway, located approximately 55km North of Glen Innes and 35km South of Tenterfield. The stretch of road that passes through the Bolivia Range is approximately 9km long. Within this length is a 2km stretch of road referred to as Bolivia Hill, which descends 100m over the 2km stretch of road.

Figure 1 Upgrade Subject Site and Regional Context



The road is a narrow corridor cut into the mountain side. The eastern face consists of hard rock and sheer rock fill embankments comprise the western side.

The New England Highway is a major route for the transport of passengers and goods throughout NSW and into Queensland.

1.2 Project Objectives

The primary aim of the upgrade is to improve the safety of this section of road.

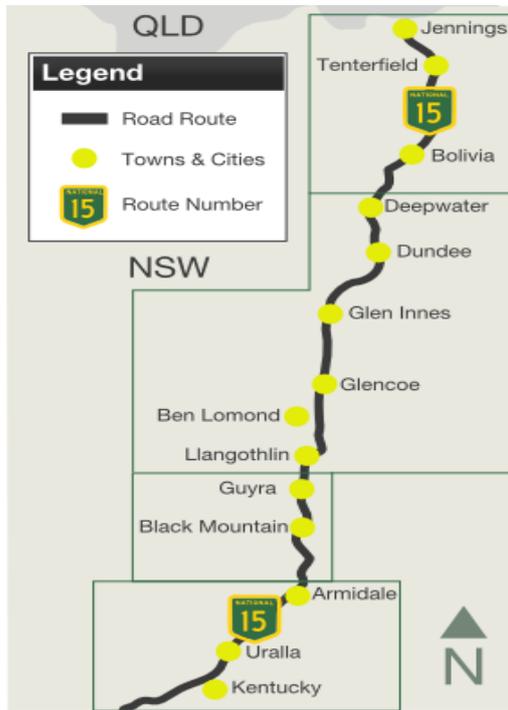
The project has been included in the NSW State Government's component of the National Building Program. The key objectives of the road upgrade are to:

- a) Improve road safety
- b) Improve road transport productivity, efficiency and reliability of travel
- c) Minimise the impact on the natural, cultural and built environment
- d) Value for money

The upgrade of Bolivia Hill section is part of a broader New England Highway reconstruction program. There has been additional funding allocated to the planning phase of the Tenterfield Bypass. This upgrade will significantly relieve congestion throughout the town, removing up to 600 trucks from local streets each day.

It is expected that, upon completion of these and other upgrades, the New England Highway will provide an improved paralleled north – south alternate route to the Pacific Highway. The interim upgrades that have been announced and funded will deliver a safer route and travel efficiencies for these parts of the highway network.

Figure 2 New England Highway context



Section 2: Demographics

This section of the report examines the current demographic profile of the Glen Innes-Severn and Tenterfield LGAs.

2.1 Glen Innes Severn LGA

The table below entails estimated resident population (by age) for the Glen Innes Severn LGA. Data from the last three censuses has been utilised.

Table 1. Population by age cohort – Glen Innes Severn LGA

Age Cohort	2001	2006	2011	Change	
				01-06	06-11
0-4	539	553	503	14	-50
5-14	1,263	1,230	1,071	-33	-159
15-19	530	481	506	-49	25
20-24	354	359	369	5	10
25-34	895	836	795	-59	-41
35-44	1,199	1,122	938	-77	-184
45-54	1,170	1,232	1,263	62	31
55-64	1,059	1,241	1,264	182	23
65-74	844	932	1,025	88	93
75-84	495	564	617	69	53
85+	163	215	222	52	7
Total	8,511	8,765	8,573	254	-192

Glen Innes Stats				
	2001	2006	2011	
Median age of persons	40	43	46	
Median total household income (\$/weekly)	517	616	736	
Growth		19%	19%	

Source: Australian Bureau of Statistics, MacroPlan Dimasi

Analysis of Census data confirms that the population of Glen Innes has decreased. The drop in resident population has been driven by a reduction in persons aged 0-19 and 25-44 years.

The median age has increased, from 41 years in 2001 to 46 years in 2011. In the absence of population growth, this supports the observed decline in younger residents and ageing within the local population.

2.2 Tenterfield LGA

The table below presents resident population by age figures for the Tenterfield LGA. Data from the last three censuses has been used.

Table 2. Population by age cohort – Tenterfield LGA

Age Cohort	2001	2006	2011	Change	
				01-06	06-11
0-4	426	416	421	-10	5
5-14	944	915	882	-29	-33
15-19	342	356	320	14	-36
20-24	285	227	230	-58	3
25-34	660	625	526	-35	-99
35-44	852	768	787	-84	19
45-54	979	1,054	970	75	-84
55-64	805	1,008	1,197	203	189
65-74	616	672	835	56	163
75-84	351	404	420	53	16
85+	134	132	149	-2	17
Total	6,394	6,577	6,737	183	160

Tenterfield Stats			
	2001	2006	2011
Median age of persons	41	44	47
Median total household income (\$/weekly)	493	575	692
Growth		17%	20%

Source: Australian Bureau of Statistics, MacroPlan Dimasi

In contrast to the Glen Innes-Severn LGA, the resident population of Tenterfield LGA has increased. Most of this growth has been registered within mature age cohorts e.g. 55 years and above.

Similar to the Glen Innes-Severn LGA, young adults between the ages of 25 and 34 years are leaving the Tenterfield LGA. When combined with an overall reduction in 5-19 year olds, this suggests that young families are vacating the LGA.

The fact that younger cohorts are moving out of both regions suggests a lack of employment opportunity for the region.

Section 3: Potential Impacts

This section of the report outlines the potential impacts that may arise from the Bolivia Hill upgrade project. Where plausible and relevant, MPD has identified impacts on the broader region, as well as the local community.

3.1 Safety

In its current state, road safety at Bolivia Hill is poor. Narrow road corridors and uneven/unsafe road surfaces present an unsafe passage for vehicles.

According to a Roads and Traffic Authority study, the New England Highway has been identified as the third most dangerous highway in NSW. The Pacific Highway was identified as the most unsafe highway in NSW by the same study.

‘Over the two years to 2010 the New England Highway registered approximately 12 fatalities and 135 total motor accidents’¹.

Over the decade to 2012, the Bolivia Hill section of the road was responsible for 13 crashes, resulting in four fatalities.

Given that it is one of only two main routes available along the NSW east coast, it is imperative that ‘road’ conditions are improved through upgrade and re-development. The proposed Bolivia Hill upgrade will improve usability and safety along this section of the road.

Improving the safety of Bolivia Hill will lead to improved safety conditions and travel efficiencies for vehicles travelling along this section of the New England Highway.

¹ NSW Centre for Road Safety – NSW Transport – Roads & Traffic Authority “Road Traffic crashes in NSW 2010”.

3.2 Industry & Employment Growth

Improved travel efficiency will increase vehicle flow and potentially increase usage along this route. Increased commercial vehicle usage can potentially be a catalyst for new and expanded business activity and thus employment in Glen Innes, Tenterfield and in regions served by the New England Highway.

Tables 3 and 4 presents employed persons by occupation for the Glen Innes Severn and Tenterfield LGAs.

Analysis of this data reveals that white collar employment has increased in the Glen Innes-Severn and Tenterfield LGAs. This has somewhat offset weak growth in blue collar employment.

Table 3. Employed persons by occupation – Glen Innes Severn LGA

Field	2001 Census Persons	2006 Census Persons	Change 01-06
Managers	808	823	15
Professionals	382	422	40
Technicians and trades workers(b)	414	415	1
Community and personal service workers	299	335	36
Clerical and administrative workers	318	333	15
Sales workers	275	294	19
Machinery operators and drivers	226	217	-9
Labourers	395	422	27
Inadequately described/Not stated	62	65	3
Total	3,179	3,326	147

Source: Australian Bureau of Statistics, MacroPlan Dimasi

Of all occupations, employment growth has been most pronounced amongst professionals, clerical and administrative workers and sales workers. Combined, these three occupations accounted for 50% of new job growth in the Glen Innes Severn LGA and all new job growth in Tenterfield LGA.

Table 4. Employed persons by role – Tenterfield LGA

Field	2001 Census	2006 Census	Change 01-06
	Persons	Persons	
Managers	706	666	-40
Professionals	247	270	23
Technicians and trades workers(b)	296	303	7
Community and personal service workers	188	201	13
Clerical and administrative workers	205	243	38
Sales workers	150	183	33
Machinery operators and drivers	197	197	0
Labourers	442	426	-16
Inadequately described/Not stated	52	54	2
Total	2,483	2,543	60

Source: Australian Bureau of Statistics, MacroPlan Dimasi

Improved employment prospects can help to address the flow of younger residents leaving the region.

3.3 Benefits

It is to be expected that improvements to, and increased usage of the New England Highway will benefit business activity and local trade within the region. Those 'sectors' of the economy likely to benefit from the works are retail, accommodation, food services and tourism sectors, which in turn will provide positive flow-on effects to other local industries. Overall, increased expenditure will support employment growth and output in the region.

As well as economic benefits, the upgrade will also generate social benefits in the region. Improved employment prospects and new business growth will decrease the rate at which young residents are leaving the region and up-skill the existing local workforce. This in turn can promote investment in other sectors such as education and health.

Table 5. Employed persons by industry – Glen Innes Severn LGA

Industry	2001 Census	2006 Census	Change
	Persons	Persons	01-06
Retail trade	330	381	51
Public administration & safety	218	268	50
Health care & social assistance	325	366	41
Other services	117	143	26
Education & training	193	218	25
Transport, postal & warehousing	129	151	22
Professional, scientific & technical services	96	116	20
Construction	159	177	18
Financial & insurance services	41	56	15
Rental, hiring & real estate services	32	41	9
Manufacturing	143	150	7
Accommodation & food services	235	242	7
Electricity, gas, water & waste services	18	20	2
Mining	9	4	-5
Inadequately described/Not stated	97	86	-11
Wholesale trade	123	108	-15
Information media & telecommunications	40	24	-16
Arts & recreation services	48	28	-20
Administrative & support services	72	50	-22
Agriculture, forestry & fishing	753	696	-57
Total	3,178	3,325	147

Source: Australian Bureau of Statistics, MacroPlan Dimasi

Table 6. Employed persons by industry – Tenterfield

Tenterfield Employed Persons by Industry			
Industry	2001 Census	2006 Census	Change
	Persons	Persons	01-06
Retail trade	221	287	66
Construction	127	181	54
Health care & social assistance	194	241	47
Administrative & support services	34	66	32
Transport, postal & warehousing	82	103	21
Education & training	155	172	17
Arts & recreation services	12	26	14
Electricity, gas, water & waste services	11	21	10
Manufacturing	151	159	8
Mining	17	22	5
Rental, hiring & real estate services	22	26	4
Information media & telecommunications	24	24	0
Financial & insurance services	19	19	0
Professional, scientific & technical services	80	79	-1
Other services	81	78	-3
Accommodation & food services	168	160	-8
Inadequately described/Not stated	93	78	-15
Wholesale trade	125	84	-41
Public administration & safety	182	139	-43
Agriculture, forestry & fishing	684	577	-107
Total	2,482	2,542	60

Source: Australian Bureau of Statistics, MacroPlan Dimasi

3.4 Road Efficiency

In order to navigate the narrow single lane road and mitigate the unsafe conditions presented at Bolivia Hill, drivers have tended to adopt a slower approach.

Improved road conditions will generate travel efficiencies associated with the movement of goods and passengers.

3.4 Tourism

The tourism sector of the New England North West Regional Area is in decline.

Although the number of visits has receded, the average duration of stay has increased i.e. from 1 night to around 2.5 nights. The majority of visitors are retirees. Overall, the annual net receipts for tourism have remained relatively unchanged over the 5 years to 2007 at approximately \$10m to \$15m per annum.

The table below presents summary tourism statistics for Glen Innes and Tenterfield. This data had been sourced from Tourism Australia.

Table 7. Summary of Tourism Statistics – Glen Innes & Tenterfield

Tourism Australia four year annual average to 2007		
	Glen Innes	Tenterfield
Visitors (000's)	77	77
Visitor nights (000's)	152	203
Average Say (nights)	2.0	2.6
State Average stay (nights)	3.4	3.4

Source: Tourism Australia, MacroPlan Dimasi

In total, approximately 154,000 tourists visit Glen Innes and Tenterfield each year. The average duration is slightly below the state average i.e. 2-2.6 nights compared to 3.4 nights in NSW. In addition, the majority of visitors are domestic in origin.

Over the last six years, the average number of visitors to Glen Innes has contracted by around 6,000 persons per annum.²

Both LGAs exhibit similar profiles with regard to the number of visitors, the average duration of visit and the number of servicing businesses.

The provision of safer and more efficient passage is expected to encourage growth in the whole region. The upgrade program for the New England Highway will benefit regional tourism, which can potentially activate other sectors of the economy. In turn, this will support broader local employment opportunities, particularly for younger residents.

3.5 Alternative Routes

The alternative north – south route for persons and transportation of goods is the Pacific Highway. This road has been determined as the most hazardous road by the NSW Roads & Traffic Authority and is subject of an extensive upgrade program which has been implemented over the last decade and is expected to involve continued sectional upgrades and bypasses (e.g. Grafton [proposed] and Kempsey and Woolgoolga bypasses [under construction]).

The Pacific Highway exhibits similar problems to the New England Highway; narrow single lane roads, steep gradient declines and congestion. Over the two years to 2010, approximately 34 fatalities were caused by or involved heavy vehicles on the Pacific Highway. In total, 531 heavy truck incidents were recorded.

By comparison the Pacific Highway has prioritised a number of road improvement projects. Currently 346 kilometres of the existing 677 kilometre Pacific Highway between Hexham and the Queensland border are now four lanes of divided road. Around 60 kilometres are currently under construction. The final length of the highway will be 664 kilometres including a high standard connection to the F3 Freeway.

² Glen Innes Severn Council "Statistical performance in tourism" September 2011

Priority is currently assigned to completing dual carriageway travel between Hexham and Port Macquarie, between Ballina and the Queensland border and between Raleigh and north of Woolgoolga, along with growing suburbs of Coffs Harbour. This work is scheduled to be completed within the five year program to 2014.

Further interim safety improvements are being implemented on sections of existing single carriageway as part of either the safety and minor works package for the Pacific Highway upgrade or the state wide road toll response package.

Figure 3 Pacific Highway Road Improvement Projects



Source: RTA NSW

It is likely that improvements to the New England Highway will relieve some of the pressure from the highly used Pacific Highway.

Section 4: Socio-economic Benefits

This section of the report identifies potential local and regional impacts from the Bolivia Hill upgrade. Outcomes have been classified as either economic, social (or community) or environmental.

4.1 Triple Bottom Line Approach

MacroPlan Dimasi has considered potential economic, social and environmental outcomes of the road upgrade.

In regional areas, infrastructure investment can be a major catalyst for investment in other sectors. In the context of Bolivia Hill and the Tenterfield Bypass, it is expected that improved safety and travel efficiencies will increase vehicle usage along the New England Highway. This in turn is likely to:

- Stimulate economic growth.
- Increase investment or development in the region – promoting business and industry growth.
- Promote business and industry diversification, mitigating risk from economic downturn.
- Generate a wider employment base.

Social or community benefits attributable to these road upgrades include:

- Improved quality of life – i.e. safety and time savings.
- Up-skilling of local labour force.
- Improved youth retention through diversified employment prospects and education opportunities

Major environmental potential benefits include:

- Local environmental improvements focusing on erosion control and revegetation.
- Enhancing the quality of the road's visual environment.

The table below presents the full range of expected economic, social and environmental benefits associated with the road upgrade.

Table 8. Triple bottom line categories & factors

Economic	Social	Environmental
Sustain or instigate economic growth	Improve quality of life	Enhance design, accessibility and quality of visual environment
Catalyst for investment and development	Enhance training, education and skills base	Climate consideration – erosion, irrigation, drought impacts/benefits
Diversifies business and industry environment	Increased youth retention	Protection and utilisation of natural resources.
Generates employment	Population growth	Air and water quality
Efficiency and productivity gains	Community cohesion	Impacts on biodiversity
Activate tourism sector	Social inclusion and participation	

Source: MacroPlan Dimasi

No economic or social costs are expected to be generated from the work, provided that the road is delivered within normal RMS budget confines and represents a ‘value for money’ construction proposition. We note that any potential environmental costs arising from the roadworks will be assessed under separate cover. These are not expected to be large given the small scale nature of the Bolivia Hill works (over only 2 kilometres in length) and/or are likely to be capable of mitigation through appropriate construction techniques.

4.2 Opportunity Cost

Opportunity cost is the economic cost associated with not proceeding with the upgrade.

The major opportunity cost for the Bolivia Hill upgrade revolves around improved road safety and usage. A decrease in vehicle incidents and fatalities represents a significant benefit to the local community and broader region. The thirteen motor incidents and four fatalities registered along the Bolivia Hill section of the New England Highway over the two years to 2010 represents the minimum opportunity cost associated with not upgrading the Bolivia Hill section of the New England Highway.

As previously mentioned, the impact of not completing the upgrade will have repercussions on business growth and employment in the broader region. Without the upgrade, growth in industries that benefit from increased visitation and by-passing trade (e.g. retail, tourism and food catering) will be constrained, ultimately reducing employment opportunities in the region.

In addition, the time efficiency delivered by the upgrade should be included as an 'opportunity cost' if the project were to not proceed. This outcome is relatively widespread, with both industry and private passengers expected to benefit from potential time savings. Therefore, this component of opportunity cost would be considerably large.

In addition, the benefits from the proposed upgrade must be weighed up against the costs associated with development and any environmental impacts identified in a detailed environment study.



Melbourne

Level 4
356 Collins Street
Melbourne VIC 3000
(03) 9600 0500

Gold Coast

Suite 5
492 Christine Avenue
Robina QLD 4226
(07) 5562 0767

Sydney

Level 4
39 Martin Place
Sydney NSW 2000
(02) 9221 5211

Perth

Ground Floor
12 St Georges Terrace
Perth WA 6000
(08) 9225 7200