

2. Strategic transport and planning context

2.1 Transport planning context

The Pacific Highway is a State highway within NSW and therefore falls under NSW government financial responsibility. Joint funding between the State and Federal governments occurs on some projects. The NSW and Commonwealth governments have various transport initiatives in relation to the staged upgrade of the Pacific Highway within NSW.

2.1.1 Commonwealth government policy initiatives

Prior to 1996 the Pacific Highway formed part of the Commonwealth government's National Highway network. In 1996, the Commonwealth declared the Pacific Highway a Road of National Importance because of its poor safety record, and in acknowledgment that neither the Federal or State governments by themselves had the capacity to meet the costs of the upgrading program within a reasonable timeframe.

In June 2004 the Commonwealth government released its new national transport plan called AusLink. The AusLink National Network is based on national, regional and urban transport corridors, links to ports and airports, and intermodal connections between road and rail. It incorporates the former National Highway system and many Roads of National Importance. The objectives of the plan are to provide transport benefits for businesses, local communities, exporters and farmers. In addition, environmental benefits will accrue from reduced congestion, pollution and more efficient transport.

The Pacific Highway between Newcastle and Brisbane forms part of the Australian Government's AusLink National Network.

The Federal Government committed funding under the AusLink program for the period from 2004 to 2008. On 23 December 2005, the State and Federal governments signed a memorandum of understanding (MoU), which recognises the Pacific Highway Upgrading Program as a critical economic transport infrastructure project. The overall aim of the MoU is to accelerate the upgrade of the Pacific Highway. It commits both governments to the creation of a working party to jointly explore options for funding arrangements, works priorities and other aspects of the PHUP, including the possible development of a North Coast Motorway.

2.1.2 The Pacific Highway Upgrade Program

The PHUP commenced in 1996-97 following the signing of a memorandum of understanding between the Commonwealth government and the NSW and Queensland governments.

The PHUP is now in its last year of the original 10 year joint State - Federal funding agreement. In the 10 years to June 2006 the NSW government will have contributed \$1.66 billion, and the Federal government will have contributed \$660 million. For the next three years, the Federal government will match the State government contribution of \$160 million per year. The State government is negotiating with the Federal government to reach agreement on an overall funding package to accelerate completion of the upgrade of the Pacific Highway.

Since 1996, a total 233 km of new double-lane divided road have been built. A further 302 km of new highway are under construction, have been approved for construction, or have had a preferred route identified.

2.1.3 NSW government policy initiatives

The Pacific Highway is a major interstate and regional route connecting Sydney to Brisbane along the NSW coastline. The Main Northern Railway and New England Highway are the main alternative land transport links to the northern parts of NSW and between NSW and Queensland.

The Pacific Highway Office of the RTA is coordinating implementation of the joint Federal and NSW Government Pacific Highway Upgrade Program. The ten year program has dedicated funding of \$2.2 billion making it the largest civil construction project undertaken in the past 40 years. \$1.6 billion of this total funding for the original program has been committed by the NSW Government.

The objectives of the Pacific Highway Upgrade Program are discussed in **Chapter 4**. They relate to road safety, transport efficiency, economic development, community interests, ecologically sustainable development and value for money.

The progressive upgrading of the Pacific Highway to meet increased travel demand and provide a safer, more efficient travel route, has contributed to the continued development of the communities and towns along the highway. The highway has also become the preferred route for long-distance heavy vehicles compared with the New England Highway.

2.2 General traffic characteristics

2.2.1 Regional road network

The Pacific Highway is a primary arterial road and the main transport corridor servicing the east coast of NSW. The highway forms part of the AusLink National Network, connecting Sydney with Brisbane over more than 900 km of roadway. It caters for interstate travel between NSW and Queensland, as well as intra-state, regional and local users. Through NSW, the Pacific Highway is approximately 700 km in length.

On a regional level, this section of the Pacific Highway provides limited access to the coast between Iluka and Evans Head, via a small number of minor roads leading into Bundjalung National Park. East of the highway, there are scattered rural settlements between Iluka and Evans Head. West of the highway, secondary roads serve a local rather than regional purpose, which is reflected by low traffic volumes. Jacky Bulbin Road provides an alternative (mostly unsealed) route to Tullymorgan and the Summerland Way between Grafton and Casino. Swan Bay New Italy Road provides an alternative route, also on unsealed roads, between New Italy and Woodburn.

2.2.2 Existing traffic conditions

Traffic classification counts were undertaken from 29 February 2005 to 6 March 2005 for seven continuous days in two locations representing both the northern (north of The Gap Road) and southern (north of Iluka Road) ends of the study area. **Table 2.1** shows the weekday and 7-day Average Daily Traffic volumes (ADT) and Average Daily Heavy Traffic volumes derived from the results of the surveys. **Table 2.1** also shows the Annual Average Daily Traffic volumes (AADT) which have been estimated by adjusting the 7-day ADT figures to take account of seasonal variations in traffic volumes.

Table 2.1 Existing traffic volumes – 2005

Location along Pacific Highway	Annual Average Daily Traffic Volume – (AADT) (veh/day)	Average Daily Traffic Volume – (ADT) (veh/day)		Average Daily Heavy Traffic Volume (veh/day)*	
		7-day Average	Weekday Average	7-day Average	Weekday Average
North of Iluka Road	7840	6939	7052	1560 (22%)	1833 (26%)
North of The Gap Road	8080	7151	7210	1580 (22%)	1847 (26%)

* Note: heavy vehicle volume as proportion of ADT is shown in brackets
Source: Connell Wagner, 2005.

In addition to the counts and classification of through traffic on the highway, surveys of three intersections were undertaken for a 12 hour period (7.00am to 7.00pm) on a typical weekday to

identify peak hour traffic volumes. The surveys were carried out at the following key intersections:

- Pacific Highway/Jacky Bulbin Road.
- Pacific Highway/Swan Bay New Italy Road.
- Pacific Highway/The Gap Road.

Table 2.2 shows the traffic volumes along each of the side roads for the AM and PM peaks and for the 12 hour survey period. The low volumes illustrate how these roads generally serve local traffic, and are not used as through routes.

Table 2.2 Traffic volumes along side roads for 12hr period

Side Road	Traffic Volumes (Two Way)		
	AM Peak (veh/hr)	PM Peak (veh/hr)	Traffic Volumes for 12 hour period from 7.00am to 7.00pm
Jacky Bulbin Road	19	16	236
Swan Bay New Italy Road*	24	32	245
The Gap Road	18	16	117

* includes traffic volumes recorded at car park access road to the rest area
Source: Connell Wagner, 2005.

From **Table 2.2**, it is evident that the traffic volumes generated from the side roads are low and would not be expected to result in any significant delays at intersections based on the current volumes of traffic travelling along the Pacific Highway.

The results of the traffic counts and analysis indicate that more than 90% (see **Table 2.3**) of the traffic travelling within the study area is through traffic (ie. it does not have an origin or destination within the study area).

Table 2.3 Through and local traffic comparisons

Location	ADT	Local	%	Through	%
North of Iluka Road	6939	387*	6	6552*	94
North of The Gap Road	7151	599*	8	6552*	92

Source: Connell Wagner, 2005.

* Note: as origin-destination surveys were not carried out, these figures are estimates based on ADT (average daily traffic) volumes derived from traffic survey results.

2.2.3 Level of Service

Existing highway performance is measured in terms of the Level of Service (LOS) provided to motorists. LOS is defined in the *Highway Capacity Manual (Transportation Research Board 2000)* as 'a qualitative measure describing the operational conditions within the traffic stream, based on service measures such as speed and travel time, freedom to manoeuvre, traffic interruptions, comfort and convenience'. The LOS criteria were adopted for a 'Class I' two-lane highway, which represents those two lane highways on which motorists expect to travel at relatively high speeds. The percent time-spent-following and the average travel speed for a Class I highway are used to determine the LOS, which is expressed as a range from A (best) to F (worst), as follows:

LOS A describes the highest quality of traffic service for a highway, where motorists are able to travel at their desired speeds. The highest quality usually results in average speeds of 90 km/h or more on two-lane highways. A maximum flow rate of 490 passenger cars per hour (pc/h) total in both directions may be achieved with base conditions.

LOS B characterises traffic flow with speeds of 80 km/h or slightly higher on level terrain. Service flow rates of 780 pc/h total in both directions can be achieved under base conditions.

LOS C describes further increases in flow, resulting in noticeable increases in platoon formation, platoon size, and frequency of passing impediments. The average speed still exceeds 70 km/h on level terrain, and a service flow rate of up to 1,190 pc/h total in both directions can be accommodated.

LOS D describes unstable flow conditions. The two opposing traffic streams operate separately at higher traffic volumes and passing becomes extremely difficult. Speeds of 60 km/h can still be maintained under base conditions, with a maximum service flow rate of 1,830 pc/h total in both directions.

LOS E characterises unstable traffic flow. Even under base conditions, speeds may drop below 60 km/h. Passing is virtually impossible at LOS E and platooning becomes intense. The highest volume attainable is generally 3,200 pc/h total in both directions.

LOS F represents heavily congested flow with traffic demand exceeding capacity. Volumes are lower than capacity and speeds are highly variable.

The performance of the existing Pacific Highway was assessed for the 'design hour volume' (DHV) which is the 100th highest hourly traffic volume recorded on the highway, based on the RTA's traffic data over a full year. The DHV is the volume of traffic that the highway is designed to accommodate, and represents a cost effective balance between the standard of the highway and the volume of traffic it is designed to carry.

Based on an analysis of the hourly traffic volumes at the RTA permanent count station at Tick Gate (for the year 2004), the following information was obtained:

- DHV – 13% of AADT.
- Percentage of heavy vehicles in the DHV – 5%.
- Percentage of recreational vehicles in the DHV – 50% (the DHV corresponds with the summer holiday period, therefore it is assumed that 50% of this traffic is holiday/recreational traffic).
- Directional split for the DHV – 40: 60 (northbound:southbound).
- Terrain – level.
- Free flow speed – 100 km/h.

The DHV for the midblock sections of the existing highway within the study area was estimated as 1050 vehicles per hour.

Assessment of the existing Pacific Highway performance between Iluka Road and Woodburn incorporated the current program of wire rope safety improvements being implemented by the RTA. The results showed that the existing highway and the three intersections referred to in **Table 2.2**, provide an overall good LOS (LOS B).

It is anticipated that LOS A could be achieved with the provision of dual carriageway at this section the Pacific Highway. LOS A describes the highest quality of traffic service, when motorists are able to travel at their desired speed. The passing frequency required to maintain the desired speed has not reached a demanding level, so that passing demand is well below passing capacity, and platoons of three or more vehicles are rare. Drivers are delayed no more than 35% of their travel time by slow-moving vehicles.

2.2.4 Accident statistics

An historical crash analysis has been undertaken for the five year period from July 1999 to June 2004 between Iluka Road and Tuckombil Canal. The results of the crash analysis can be summarised as follows:

- A total of 117 crashes occurred, including 12 fatal crashes and 48 injury crashes.

- A total of 18 fatalities and 97 injuries were reported during the analysis period.
- The majority of the fatal crashes (75% of the fatal crashes) were head-on crashes.
- A total of 18 crashes were reported as speed-related crashes and 26 crashes were reported as fatigue-related crashes.
- A total of 43 crashes involved heavy vehicles.

The wire rope fences currently being installed in the median of the highway would be expected to reduce the number of head-on crashes within the study area and this measure would also reduce the number of fatal crashes and fatalities.

The following crash rates per 100 million vehicle kilometres travelled (Mvkt) have been calculated for the crashes that were reported between July 1999 and June 2004 within the study area:

- Fatal crashes – 3 per 100 Mvkt;
- Injury crashes – 12 per 100 Mvkt; and
- Total crashes – 30 per 100 Mvkt.

The RTA's Economic Analysis Manual (EAM) contains typical crash reductions based on before-and-after studies undertaken by the RTA to test the effectiveness of implementing various alternative road upgrade treatments. The following crash reductions are predicted:

- Since most of the existing fatal crashes are head-on crashes, the majority of fatal crashes would be expected to be eliminated with the completion of the duplicated highway.
- The reduction in run-off road crashes would be small since the EAM indicates that only 10% of the run-off road crashes would be eliminated by duplicating the highway.
- The EAM indicates that a 30% reduction in rear-end crashes can be expected with the duplication of the highway.
- Based on the current proposal for rest-area provision it is assumed that fatigue-related crashes would continue to occur at the same rate as existing.

One of the project objectives for the proposal is to reduce the crash rate to 15 crashes per 100 Mvkt over the project length. Using the EAM methodology, for a base case with the recently installed wire rope medians, the current crash rate is reduced from 30 to 28 crashes per 100 Mvkt. Using the same methodology, a further reduction to 23 crashes per 100Mvkt is predicted to occur for the Class A upgrade proposal as a result of duplicating the highway.

2.2.5 Future traffic / travel demand

The AADT volume along the highway is predicted to be 10,600 vehicle movements in 2016, and 15,190 vehicle movements in 2036 (20 years after opening). Of these total volumes, heavy vehicle movements make up approximately 2,060 per day (19.4%) in 2016 and 2,960 (19.5%) in 2036. Both the total and heavy vehicle traffic movements are therefore predicted to increase by approximately 88% in 2036 compared to existing traffic levels.

2.2.6 Local road network

Within the study area, the Pacific Highway serves a small, dispersed population that is mainly concentrated in the following locations:

- Jacky Bulbin Road, 30 km south of Woodburn, west side of Pacific Highway;
- Serendipity Road, 18 km south of Woodburn, east side of Pacific Highway;
- Swan Bay New Italy Road, 11 km south of Woodburn, west side of the Pacific Highway;
- Whites Road (west side) and Turners Road (east side), 8.5 km south of Woodburn;
- Tuckombil Road and The Gap Road, 3-5 km south of Woodburn, east side of the Pacific Highway; and

- Trustums Road and Williams Road, 2 km south of Woodburn, west side of the Pacific Highway.

Other local roads within the study area serve the extensive areas of State Forest, National Park and nature reserve situated on both sides of the highway.

2.2.7 Pedestrians and cyclists

The existing movements of cyclists and pedestrians within the study area are minimal and pedestrian facilities are limited. This reflects the rural character of the study area and the fact that there are no major settlements.

2.2.8 Public transport

The study area is not well served by public transport. The main North Coast Railway lies more than 20 km to the west. There is one private bus company, Kirklands, operating a local service along the Pacific Highway. The service operates once in the morning and once in the afternoon and although not confined solely to schoolchildren, is primarily a school service.

Bus and coach services operate frequently along the Pacific Highway between Sydney and Brisbane, through established operators such as Murrays, Greyhound, Kirklands, CountryLink, McCafferty's and Premier. Maclean and Woodburn are the nearest towns providing regular intra- and interstate bus services through the larger coach operators. CountryLink offers a connecting service between Woodburn and Grafton railway station, where passengers can join the Sydney XPT rail service. Coach services also link the study area with Ballina Airport.

The closest airports offering scheduled services to major centres are at Grafton (56 km south of the study area) and Ballina (40 km north of the study area). Grafton airport offers only limited services, because of its close proximity to the larger hub of Coffs Harbour. Ballina airport has become a sub-regional hub, serving Lismore and Byron Bay, and now caters for over 120,000 passenger movements per year.

2.3 Planning context

2.3.1 Regional planning context

North Coast Regional Environmental Plan

The North Coast Regional Environmental Plan (REP) established a regional framework for the development of the NSW North Coast Region. The REP is currently under review, and the DoP has recently released the draft Far North Coast Regional Strategy. The strategy, which is on public display until May 10 2006, will guide local planning in the six local government areas of Ballina, Byron, Kyogle, Lismore, Richmond Valley and Tweed. It represents the NSW government's 25-year plan for land use, population growth, economic development, infrastructure and service delivery, and protection of the natural environment. The draft Strategy identifies the PHUP as a planning priority for the region.

2.3.2 Local planning context

The study area for the Iluka Road to Woodburn section of the Pacific Highway is located within two local government areas (LGAs), Richmond Valley and Clarence Valley. Local planning and land use are governed in these LGAs by the *Richmond River Local Environmental Plan 1992* (RRLEP) and the *Maclean Local Environmental Plan 2001* (MLEP).

The two Local Environmental Plans (LEPs) are statutory planning instruments, which require any development proposal to demonstrate consistency with overall strategic objectives, and with zoning objectives and development controls, in order to be regarded as 'permissible'. Permissibility relates to whether or not council consent is required in order for a development to proceed.

Zoning and permissibility

Land use zones in the study corridor under MLEP 2001 are illustrated in **Figure 2.1**, while the zones under RRLEP 1992 are illustrated in **Figures 2.2a** and **2.2b**. It must be noted that Clarence Valley and Richmond Valley Councils were formed through the amalgamation of smaller Councils and adjustment of LGA boundaries. The location of the boundary between the two LGAs has resulted in a small portion of Clarence Valley (between Jacky Bulbin Road and Tabbimoble Floodway No. 3) falling within the area administered under the RRLEP. This situation came about because MLEP 2001 was gazetted prior to the formation of Clarence Valley Council. Clarence Valley Council has recently exhibited a draft amending LEP which, when gazetted, will make the zone boundaries consistent with the LGA boundaries.

The Pacific Highway generally assumes the zoning of the land through which it passes, with the exception of the Arterial Road zone under the Maclean LEP 2001 (Clarence Valley) as shown in **Figure 2.1**. Within the study corridor in the Richmond and Clarence Valleys, the land use zones mean that a road such as the Pacific Highway is determined to be either:

- permissible with the consent of the council,
- permissible without development consent, or
- prohibited.

Where roads are permissible with development consent, the provisions of clause 11C of State Environmental Planning Policy No. 4 – Development Without Consent and Miscellaneous Exempt and Complying Development (SEPP 4) apply, in respect of the development being for a 'classified road'. Therefore, where the zoning controls would otherwise require council's consent, the proposed Pacific Highway upgrade between Iluka Road and Woodburn is permissible without development consent in both the Richmond Valley and Clarence Valley LGAs.

Where roads are permissible without development consent, the proponent (in this case, the RTA) is required under NSW legislation to 'self-assess' the project in terms of environmental and other impacts (see **section 2.3.3** below).

Where roads are prohibited in a particular zone, a planning instrument may adopt 'savings' provisions by which certain types of essential development become permissible without consent. However, there is no such statutory mechanism in either the Richmond River Local Environmental Plan or the Maclean Local Environmental Plan, applying to road construction that involves the "widening, realignment or relocation" of a road.

Of the land use zones through which the proposed concept design is likely to pass, the project is prohibited in the 1(d) Rural (Investigation) zone and the 1(f) Forests zone under the Richmond River LEP 1992. In the circumstances therefore, the RTA may be required to rely on other statutory mechanisms whereby the prohibition might be removed. In any event, the project will not be able to proceed unless the RTA has undertaken a detailed and comprehensive environmental assessment. The precise statutory mechanism, and the statutory planning approvals process by which the project is to be assessed, are currently under investigation by the RTA and the project team, in consultation with the NSW Department of Planning.

Forest management zones

Forests NSW (Department of Primary Industries) manages its forest estates under a system of Forest Management Zones (FMZ) based on whether an area of State Forest is designated for timber production, conservation, recreation, visual or ecological buffer zones, or drainage corridors. While the FMZ has implications for ownership, acquisition and the use of the land, these zonings do not affect the planning permissibility discussed above. FMZs and the implications of the proposed concept design for State Forest lands is discussed below in **section 7.4.1**.

2.3.3 Approvals under the Environmental Planning and Assessment Act 1979

If the project is determined to be development that is permissible without development consent, the proposed Pacific Highway upgrade would be assessed under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The RTA is the proponent and also the determining authority, in accordance with Section 110A of the Act.

2.3.4 Changes to the Environmental Planning and Assessment Act 1979

The NSW Parliament passed the *Environmental Planning and Assessment Amendment (Infrastructure and Other Planning Reform) Act 2005 No 43* on 16 June 2005. This amendment came into force on 1 August 2005.

The amendment introduces a new Part 3A to the EP&A Act to cover the assessment of 'major projects'. This type of development was previously assessed under Part 4 and/or Part 5 of the EP&A Act.

2.3.5 Application of Part 3A of the EP&A Act to the Iluka Road to Woodburn project

By an order gazetted on 29 July 2005, the Minister for Planning declared that Part 3A applies to all projects for which the proponent is also the determining authority and which otherwise would have required an Environmental Impact Statement (EIS) to be obtained under Part 5.

Within the meaning of Part 5 of the EP&A Act, the RTA is both the proponent and the determining authority for the Iluka Road to Woodburn Project. However, the RTA has not yet determined whether an EIS under Part 5 of the Act would be required for this Project, and will not make that decision until a preferred route is selected. It is therefore too early to say whether Part 3A would apply to this project. If Part 3A does not apply, the project would be subject to environmental assessment by way of a Review of Environmental Factors prepared in accordance with Part 5 of the EP&A Act.

2.3.6 Ecologically sustainable development

This project is being undertaken in consideration of sustainability principles, which are included in both NSW and Commonwealth legislation.

The *NSW Environmental Planning and Assessment Regulation 2000* incorporates the following ecologically sustainable development (ESD) principles:

- **Precautionary principle:** comparison of feasible options, corridors with the least amount of ecological impacts including SEPP 14 wetlands.
- **Intergenerational equity:** comparison of feasible options to maintain environmental attributes both now and in the future.
- **Conservation of biological diversity:** identification of sensitive ecological areas including for example the Tabbimoble Swamp Nature Reserve.
- **Improved valuation and pricing of environmental resources:** opportunities to achieve specific design responses to reduce adverse impacts on areas of high conservation value and improvements to environmental amenity through the management of traffic noise.

Note: Zoning has been based on the LGA boundary established from Maclean LEP2001 and RRLEP 1992. Adjustment of the Zoning to the new LGA boundary will be reflected in the Clarence Valley Draft LEP No.3 Jacky Bulbin Area (recently exhibited)

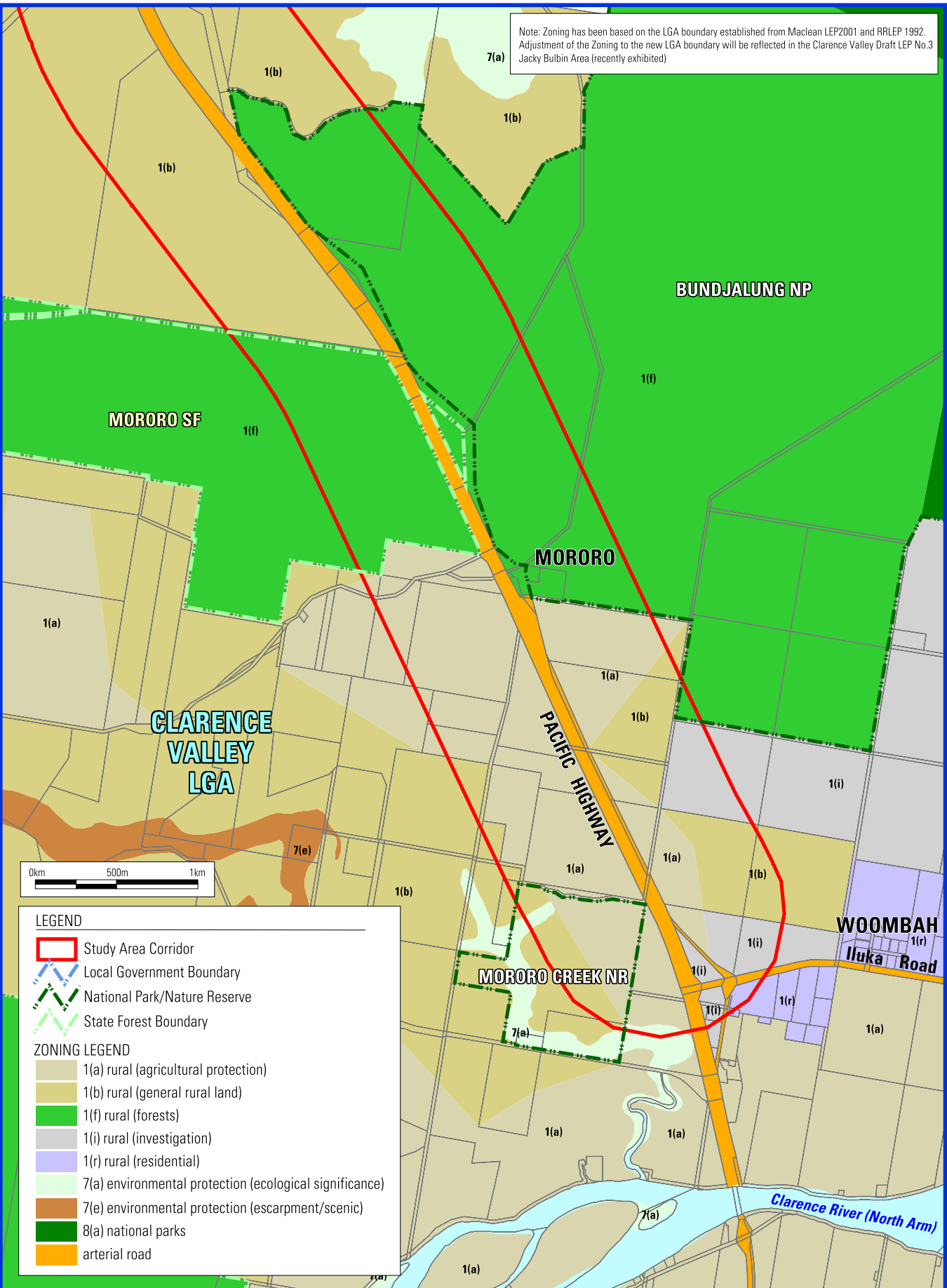


FIGURE 2.1
MACLEAN LEP 2001
ZONING MAP

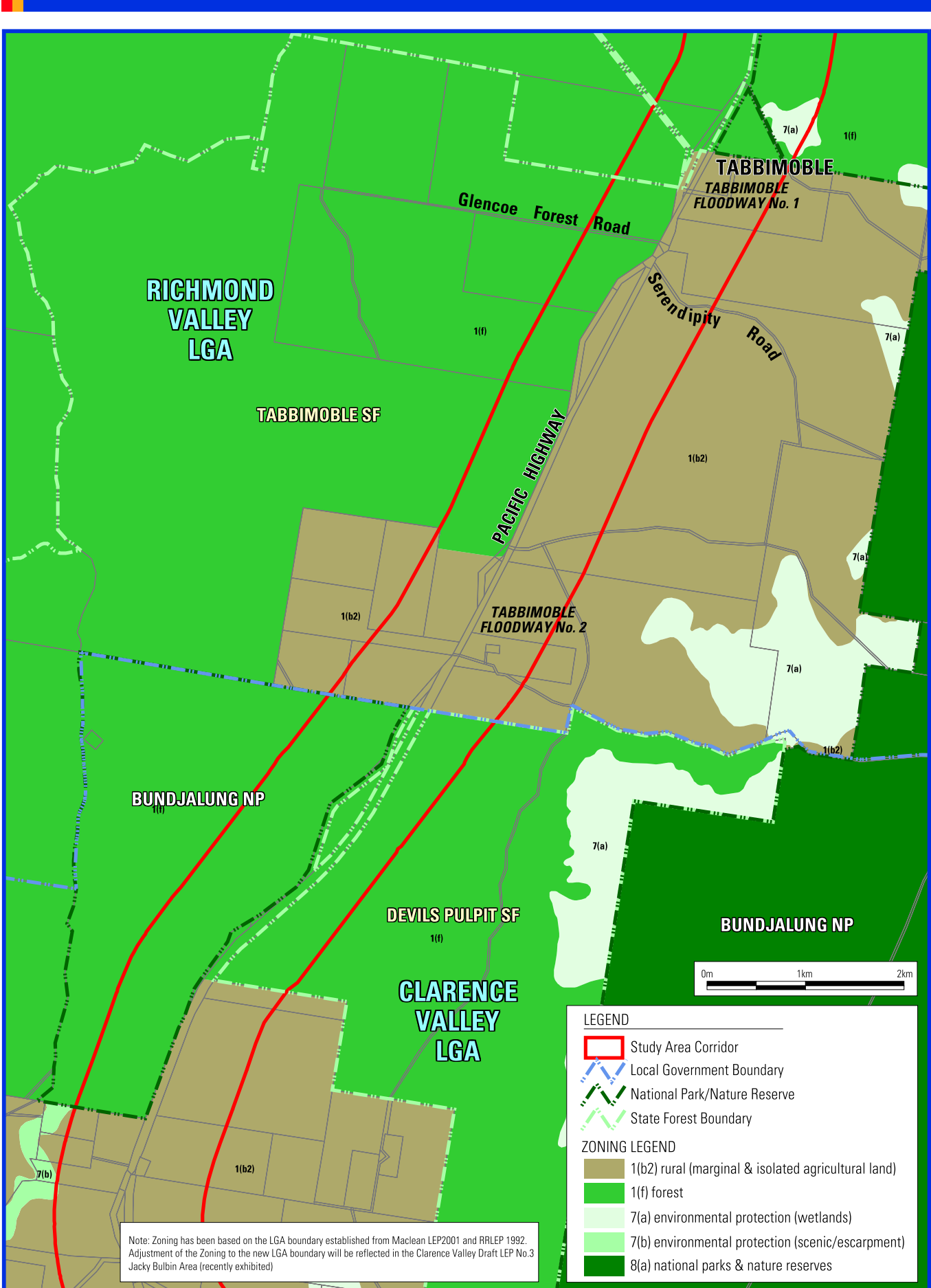


FIGURE 2.2a
RICHMOND RIVER LEP 1992
ZONING MAP

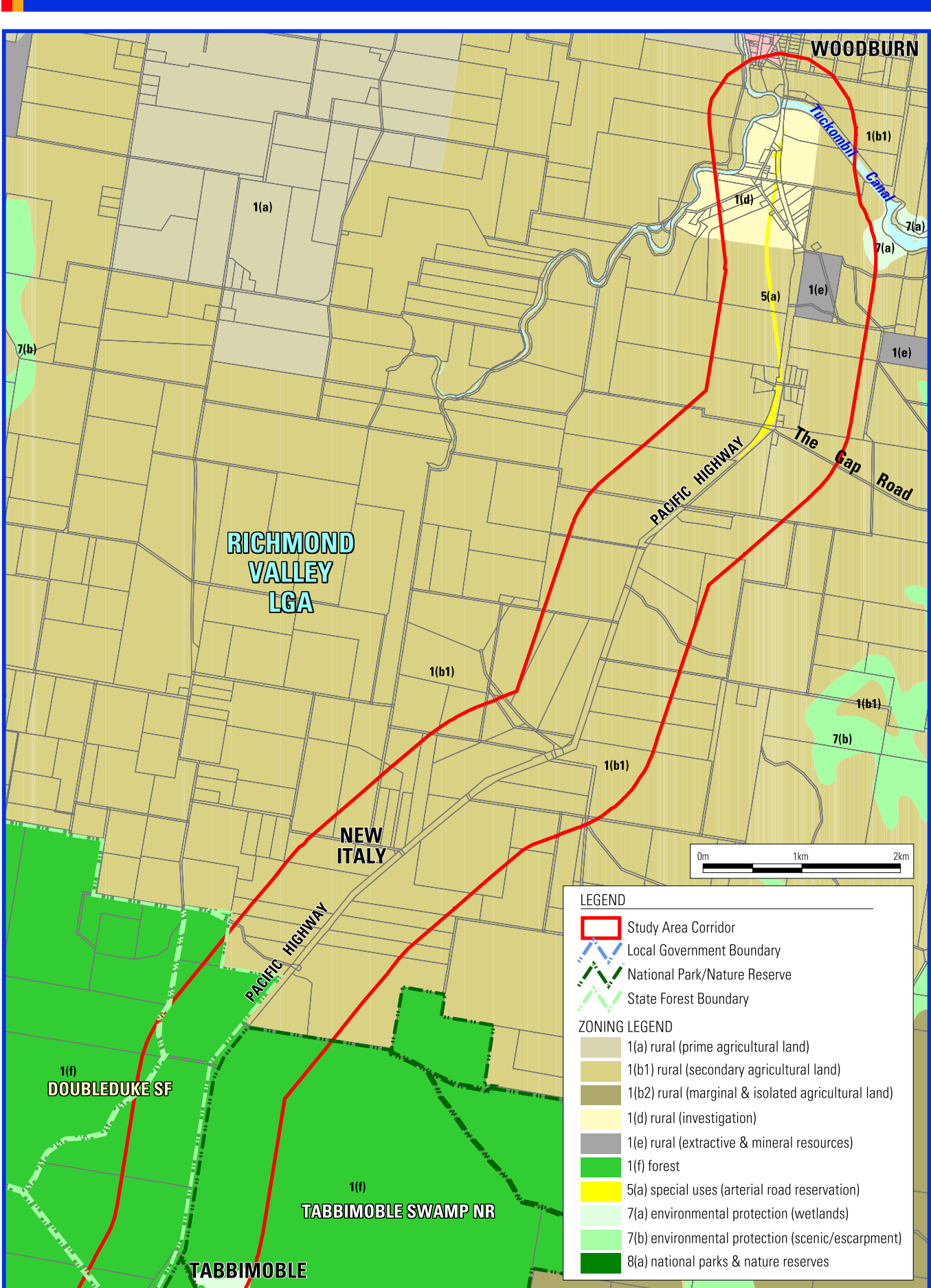


FIGURE 2.2b
RICHMOND RIVER LEP 1992
ZONING MAP

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Section 3A incorporates ESD principles which are similar to NSW ESD principles but with an additional principle:

‘Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations’.

The outcomes of incorporating ESD in project development will be:

- effective transport networks and economic and social linkages for future generations;
- maintenance of biological diversity; and
- avoidance, minimisation and mitigation of environmental, social and economic impacts.

2.3.7 Project need

The ‘do minimum’ option infers no substantial change. Minor improvements could be undertaken along the Pacific Highway under the ‘do minimum’ option to eliminate black spots, improve line marking, construct safety features such as median safety barriers, and provide better overtaking opportunities.

The consequences of the ‘do minimum’ option for Iluka Road to Woodburn would not mean substantial improvements in terms of traffic congestion, travel times or general LOS. However, as discussed in **section 2.2.4**, this section of the Pacific Highway has a poor accident record, including fatalities. Any increase in traffic volumes, regardless of the effect on overall highway capacity, is likely to result in an increased frequency of accidents, particularly as driving conditions are improved elsewhere. Many of the accidents including head on collisions are attributed to fatigue, and only a change in the type and function of the highway can address this issue.

Therefore, the ‘do minimum’ option is not considered to be a viable alternative to upgrading the highway to a dual carriageway.

Highway safety is a major concern of residents in the study area and of the wider community. Local residents must rely on the Pacific Highway for local trips, which can conflict with through traffic. In particular, residents perceive the high volumes of truck traffic, especially at night, as being a considerable risk to safety. Access on and off the Pacific Highway into minor roads or to private properties often requires turn movements in unsafe situations such as on curves or crests, where sight distances can be inadequate.

In addition, the overall traffic noise level and the frequency of night-time noise ‘events’ such as use of engine compression brakes, which are already major sources of concern to many residents along the route, would increase.

