

NSW Roads and Maritime Services

WOOLGOOLGA TO BALLINA | PACIFIC HIGHWAY UPGRADE ENVIRONMENTAL IMPACT STATEMENT

MAIN VOLUME 1A

Chapter 3 – Strategic justification and need

Chapter summary

This chapter presents the objectives of the project, identifies the need and justification for the project and provides the strategic planning framework that supports the project.

The Pacific Highway is the main north–south route on the NSW North Coast. Connecting Sydney to Brisbane along the NSW coastline, and places in between, it is a major interstate and regional route.

Since 1996, the Australian and NSW governments have contributed funds for upgrading the 664-kilometre section of the Pacific Highway between Hexham and the Queensland border, as part of the Pacific Highway Upgrade Program.

Both governments have a shared commitment to upgrade the highway to a four-lane divided road as soon as possible. Currently, 346 kilometres of the highway has been upgraded to a dual-lane divided road - about 52 per cent of the final highway length. A further 181 kilometres are being constructed or prepared for construction.

The Woolgoolga to Ballina upgrade would be the last remaining section of highway not currently under construction, approved for construction, or pending approval for construction.

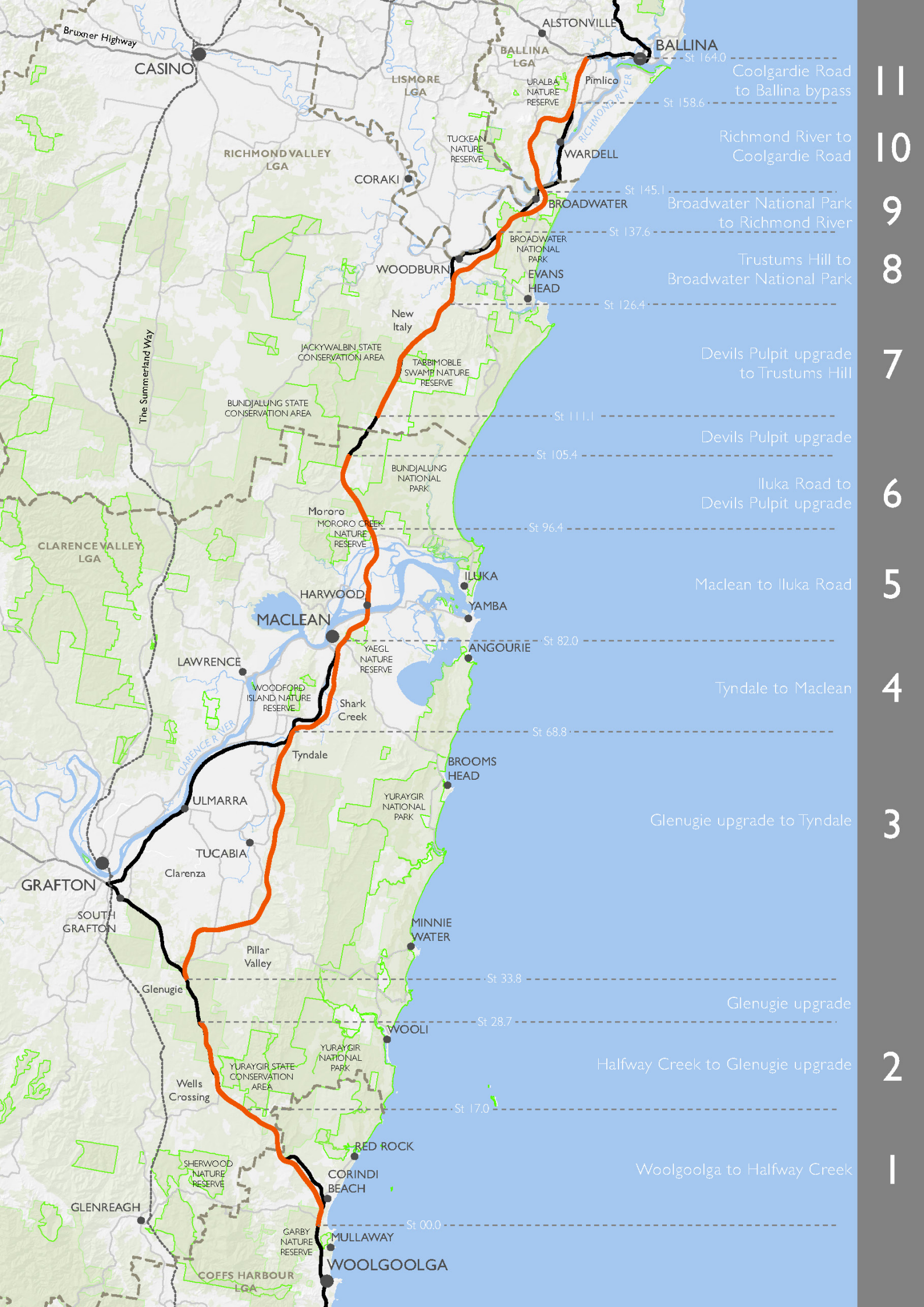
The objectives of the project are consistent with the strategic planning and policy framework of both levels of government. In particular, the project aligns with the strategic priorities of Infrastructure Australia.

The Pacific Highway Upgrade Program, along with other transport investments, address the key transport needs for the Sydney–Brisbane corridor.

The project is needed to:

- Improve road safety and reduce the incidence of vehicle crash rates and fatalities
- Reduce travel times, improve efficiency and productivity of freight transport, and thereby improve the performance of the economy
- Accommodate increasing traffic volumes on the Pacific Highway
- Provide a higher standard of road in order to better serve current and future road users.

The Woolgoolga to Ballina upgrade would complete a significant portion of the Pacific Highway Upgrade Program and contribute to fully realising the substantial economic and community benefits of the program.



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Coolgardie Road to Ballina bypass
Richmond River to Coolgardie Road
Broadwater National Park to Richmond River
Trustums Hill to Broadwater National Park
Devils Pulpit upgrade to Trustums Hill
Devils Pulpit upgrade
Iluka Road to Devils Pulpit upgrade
Maclean to Iluka Road
Tyndale to Maclean
Glenugie upgrade to Tyndale
Glenugie upgrade
Halfway Creek to Glenugie upgrade
Woolgoolga to Halfway Creek

BRUXNER HIGHWAY
CASINO
LISMORE LGA
RICHMOND VALLEY LGA
CORAKI
WOODBURN
NEW ITALY
JACKY WALBIN STATE CONSERVATION AREA
BUNDJALUNG STATE CONSERVATION AREA
CLARENCE VALLEY LGA
MORORO MORORO CREEK NATURE RESERVE
HARWOOD
MACLEAN
LAWRENCE
WOODFORD ISLAND NATURE RESERVE
SHARK CREEK
TYNDALE
ULMARRA
TUCABIA
CLARENZA
SOUTH GRAFTON
GRAFTON
GLENUGIE
WELLS CROSSING
SHERWOOD NATURE RESERVE
GLENREAGH
COFFS HARBOUR LGA
WOOLGOLGA
MULLAWAY
CORINDI BEACH
RED ROCK
MINNIE WATER
BROOMS HEAD
ANGOURIE
YAMBA
ILUKA
YURAYGIR NATIONAL PARK
YURAYGIR STATE CONSERVATION AREA
YURAYGIR NATIONAL PARK
TUCKEAN NATURE RESERVE
TABBIMBLE SWAMP NATURE RESERVE
BUNDJALUNG NATIONAL PARK
BROADWATER NATIONAL PARK
EVANS HEAD
WARDELL
PIMLICO
BALLINA LGA
ALSTONVILLE
BALLINA
RICHMOND RIVER

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3. Strategic justification and need

This chapter presents the objectives of the project and the objectives and outcomes for the Pacific Highway Upgrade Program. It also identifies the need and justification for the project and provides the strategic planning framework that supports the project. The discussion addresses the Director General's environmental assessment requirements, which are provided below.

Director General's requirements	Where addressed
The Environmental Impact Statement must include the following:	
• A statement of the objectives of the project	Section 3.2
• Including a description of the strategic need	Section 3.3, Section 3.5
• Including a description of the justification	Section 3.5 <i>Chapter 21 (Justification and conclusion)</i>
• The objectives and outcomes for the Pacific Highway Upgrade Program	Section 3.1 and Section 3.2
• The aims and objectives of relevant strategic planning and transport policies, including NSW 2021, the Far North Coast Regional Strategy and the Mid North Coast Regional Strategy	Section 3.4
• The cumulative and synergistic impacts associated with the Pacific Highway Upgrade Program as a whole.	<i>Chapter 21 (Justification and conclusion)</i>
Supplementary Director General's requirements	Where addressed
The following matters must be addressed in the environmental assessment of the action:	
• A clear outline of the objective of the action	Section 3.2
• How the action relates to any other actions (of which the proponent should reasonably be aware) that have been, or are being, taken or that have been approved in the region affected by the action.	Section 3.1 and Section 3.2

3.1 The Pacific Highway Upgrade Program

3.1.1 Overview

The Woolgoolga to Ballina upgrade is one of a number of upgrade projects that together form the Pacific Highway Upgrade Program (see Figure 3-1).

The project is an important component of the Pacific Highway Upgrade Program and is needed to help meet the Australian and NSW governments' commitments to upgrade the Pacific Highway between Hexham in NSW and the Queensland border – a distance of 664 kilometres.

Both the Commonwealth and NSW governments have contributed funds to the upgrade of the Pacific Highway since 1996, and have committed \$4.84 billion (to 2014) to continue upgrading the highway.

Both governments have expressed a desire to finish upgrading the highway to a four-lane divided road as soon as possible, with 2016 identified as the planning horizon for opening to traffic.

The major reason for the Pacific Highway Upgrade Program is to substantially improve road safety and freight efficiency, and provide better access for towns and villages on the Mid North Coast and Far North Coast of NSW.



Photo 1: View of Pacific Highway entering Woolgoolga

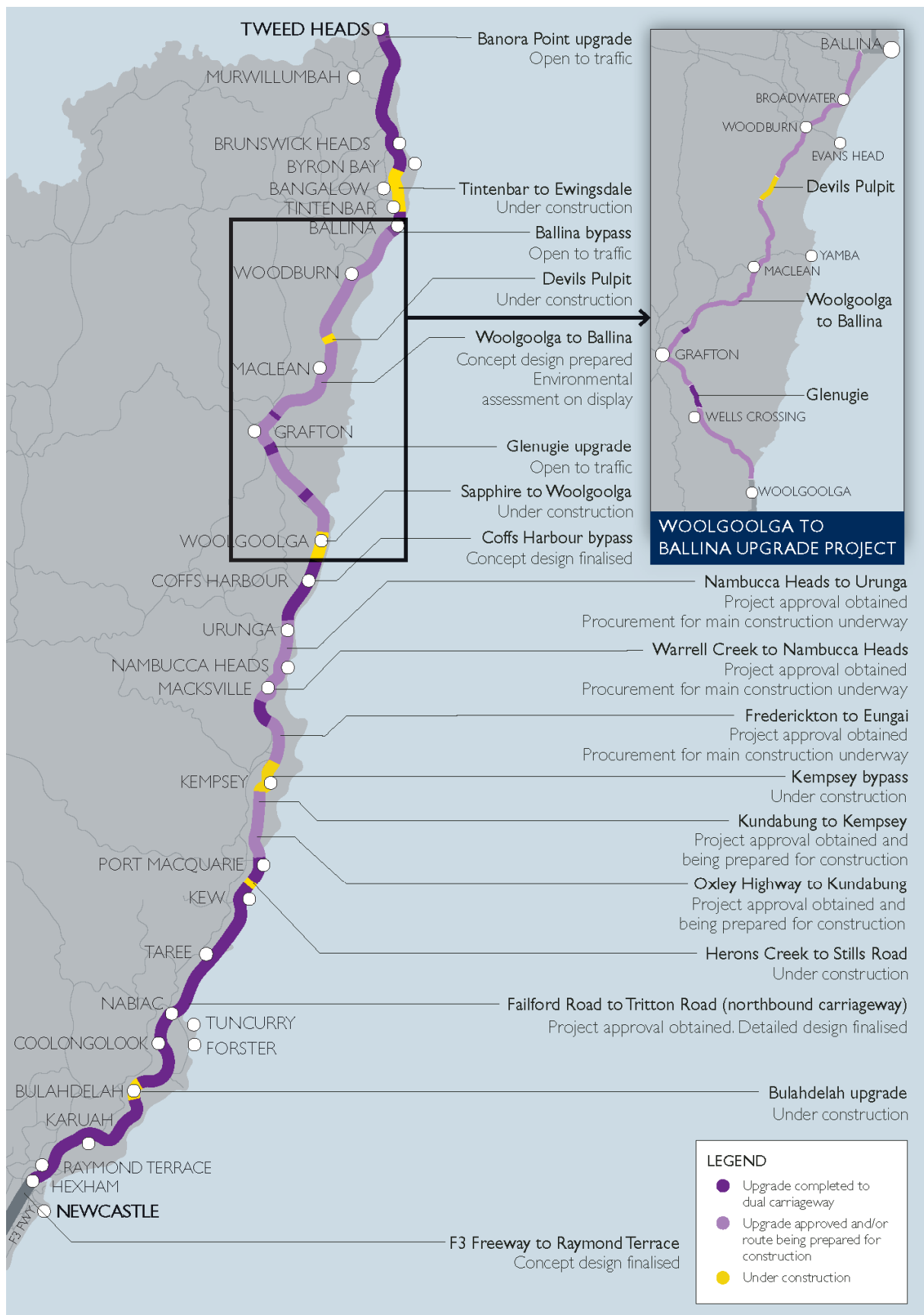


Figure 3-1: Pacific Highway Upgrade Program status as of June 2012

The Pacific Highway Upgrade Program has brought major improvements to road conditions, road safety, travel times and transport efficiency along the highway. It is also improving connections between areas forecast to experience significant population growth and are major tourist destinations.

For example, the upgrades completed to June 2006 were estimated to have saved about 80 minutes of travel time for heavy vehicles and 70 minutes for light vehicles, between Newcastle and the Queensland border. Upgrading the remaining sections of the Pacific Highway is expected to produce a further 90 minutes in travel time savings (as quoted in PwC, 2011).

At the end of April 2012, 346 kilometres of the Pacific Highway had been upgraded to a dual carriageway. This is about 52 per cent of the final highway length of 664 kilometres. In addition, upgrades to a further 60 kilometres were under construction, about 121 kilometres were being prepared for construction, and environmental impact assessments were being prepared for the remaining sections of single-lane highway.

The Woolgoolga to Ballina upgrade involves upgrading one of the only remaining sections of highway not currently under construction, approved for construction, or pending approval for construction.

The project would tie in to the following adjacent sections that have been upgraded or are in the process of being constructed:

- Sapphire to Woolgoolga upgrade (located to the south)
- Glenugie upgrade (located between Woolgoolga and Ballina)
- Devils Pulpit upgrade (located between Woolgoolga and Ballina)
- Ballina bypass upgrade (located to the north).

Together, the completion of these projects would upgrade around 211 kilometres of the existing highway between Coffs Harbour and Ballina.

3.1.2 Economic benefits

In 2008, the then Roads and Traffic Authority (RTA) commissioned an economic analysis of the whole of the Pacific Highway Upgrade Program including those projects opened to traffic since 1996 and those yet to be completed after June 2009 (PwC, 2008).

The analysis found that completing the Pacific Highway Upgrade Program has a benefit-cost ratio of 2.7, which demonstrates a strong case for its completion. The analysis also found the net economic benefits of completing the upgrade, assuming a base case of no further upgrade works beyond 2009, returned a benefit-cost ratio of 1.5.

The analysis indicated that staged delivery of infrastructure projects is not uncommon. However, the incremental analysis of links may show individual projects would have different levels of economic performance on a stand-alone basis, although when assessed as part of a program would contribute to an economically viable outcome.

In October 2011, the then RTA received an updated economic analysis that examined the costs and benefits of projects to complete the Pacific Highway Upgrade Program (PwC, 2011). This report confirmed that as the projects with the higher benefits are completed, the benefit-cost ratio for remaining projects diminishes.

KEY TERM – Benefit-cost ratio

The ratio of the monetary benefits to the costs of a project as a measure of worth to the community. It takes into account the amount of monetary gain realised by building the project against the amount it would cost. The higher the ratio, the better the investment.

This is demonstrated by the calculation of benefit-cost ratios for the following different scenarios:

- Completion of the Port Macquarie to Raleigh section by 2016 results in a benefit-cost ratio of 0.9
- Completion of the Port Macquarie to Raleigh and Woolgoolga to Ballina sections by 2016 produces a benefit-cost ratio of 0.8
- Completion of the Woolgoolga to Ballina section of works by 2019 over a base case where the Port Macquarie to Raleigh link is already upgraded results in a benefit-cost ratio of 0.6.

The timing of an economic assessment will therefore determine the base case against which incremental projects are compared. This can therefore greatly affect the economic viability of individual projects, as clearly outlined in the above bullet points.

Because the Woolgoolga to Ballina project is one of the last sections of the Pacific Highway Upgrade Program to receive planning approval for construction, its completion may not provide significant economic benefits in its own right. However, completion of the upgrade would achieve substantial benefits for areas between Woolgoolga and Ballina and enable the benefits of the Pacific Highway Upgrade Program to be fully realised. (Refer to Section 3.3 for further detail on the project need.)

3.2 Project objectives

The Pacific Highway Upgrade Program is needed, in part, because of population growth and the associated pressures placed on transport infrastructure. The objectives of the wider program are to:

- Significantly reduce road crashes and injuries
- Reduce travel times
- Reduce freight transport costs
- Develop a route involving the community and considering its interests
- Provide a route supporting economic development
- Manage the upgrading of the route in accordance with the principles of ecologically sustainable development
- Provide the best value for money.

The Woolgoolga to Ballina upgrade is designed to meet a set of key project objectives consistent with the above objectives. Table 3-1 lists these project objectives and how they relate to the wider program objectives.

KEY TERM – Ecologically Sustainable Development (ESD)

Using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased.

Table 3-1: How the project objectives align with those of the Pacific Highway Upgrade Program

Pacific Highway Upgrade Program objectives	Project objectives
Significantly reduce road crashes and injuries	<ul style="list-style-type: none"> • Reduce crash rates to 15 crashes or less per 100 million vehicles per kilometres travelled (MVKT) • Provide a dual carriageway highway with limited or controlled access points and improved overtaking opportunities • Provide appropriate emergency access facilities • Retain existing or provide appropriate driver rest areas • Provide a continuous alternative route to class M road sections to maximise the separation of local traffic from through traffic.
Reduce travel times	<ul style="list-style-type: none"> • Increase the capacity of the highway by replacing two lane undivided road with a four lane divided road • Provide a route and design that improves traffic flow and allows for consistent travelling speeds • Provide a level of flood immunity that minimises the risk of delays due to flooding • Provide facilities for managing and maintaining traffic flow in the event of incidents.
Reduce freight transport costs	<ul style="list-style-type: none"> • Provide a route and design that increases travel efficiency through reductions in length and improvements in alignment • Provide a route that improves inter-regional connections and access • Provide a design standard that meets or exceeds B-double truck requirements.
Develop a route that involves the community and considers their interests	<ul style="list-style-type: none"> • Continue to consult with community stakeholders during each stage of project planning • Provide an upgrade that continues to cater for the access and transport needs of existing communities and property • Minimise adverse impacts on existing industries, businesses, towns, properties, residents and lifestyles.
Provide a route that supports economic development	<ul style="list-style-type: none"> • Provide a route that maintains or improves access to regional and interstate markets • Provide a route that maintains or improves access to existing towns, tourist centres, business and industries.
Manage the upgrading of the route in accordance with ecologically sustainable development principles	<ul style="list-style-type: none"> • Integrate environmental, social and economic considerations into project planning and assessment • Provide the best outcomes, taking into account the balance of environmental, social and economic factors • Avoid adverse impacts as far as practical and provide measures to minimise, mitigate and offset impacts.
Provide the best value for money	<ul style="list-style-type: none"> • Provide a route and design that uses existing highway infrastructure where feasible and consistent with other project objectives • Provide a design that allows for future upgrades or modifications, if required • Provide a design that considers constructability and worker safety • Provide a strategy for staging the delivery of the project in accordance with upgrade need and availability of funding.

3.3 Why the project is needed

Many sections of the Pacific Highway Upgrade Program, between Hexham and the Queensland border, have now been completed, or are in the process of being completed. The Woolgoolga to Ballina upgrade would be the last section to be built in the highway upgrade program. Once the project is built, it would complete the upgrade program.

The project is needed to:

- Accommodate interstate freight and passenger growth: The Pacific Highway is a key transport corridor serving Australia's east coast, and is used for transporting an increasing quantity of freight and passenger traffic
- Accommodate regional and inter-regional freight and passenger growth: This section of highway serves a number of growing cities and townships and a growing tourism sector
- Improve driving conditions: This section of highway has inconsistent road conditions
- Improve road safety: This section of highway has, in places, relatively high crash rates.

These issues are discussed below.

3.3.1 Interstate freight and passenger growth

A key reason for the project is to accommodate interstate freight and passenger growth.

The Pacific Highway is a major freight route and interstate link between Sydney and Brisbane and supports major growing population, industrial and export centres and gateways.

As such, the highway corridor is a major contributor to Australia's economic activity. As Australia's most heavily used interstate highway (NRMA, 1995), the Pacific Highway is a vital piece of national infrastructure and forms an integral part of the National Land Transport Network (comprising important road and rail links and their intermodal connections).

The Pacific Highway's importance as a freight and passenger route is increasing. From 1996 to 2002 there was a 28 per cent increase in traffic on the highway. In 2004, some 11.5 million tonnes of freight (excluding coal) was moved between Sydney and Brisbane (Ernst and Young, 2006), accounting for about one-third of total east coast inter-capital freight. The Bureau of Infrastructure, Transport and Regional Economics (BITRE) also estimated that freight travelling the full length of the corridor comprises 21 per cent of the non-bulk inter-capital freight and 16 per cent of all non-bulk freight carried on the National Land Transport Network corridors in mainland Australia (BTRE, 2006). It is estimated that about 76 per cent of these freight movements are undertaken by road, most using the Pacific Highway.

Work undertaken by the Australian Government on the predicted traffic volumes on the National Land Transport Network shows anticipated traffic and population growth on the Pacific Highway compared to that on other major routes. These predicted traffic volumes are shown in Figure 3-2.

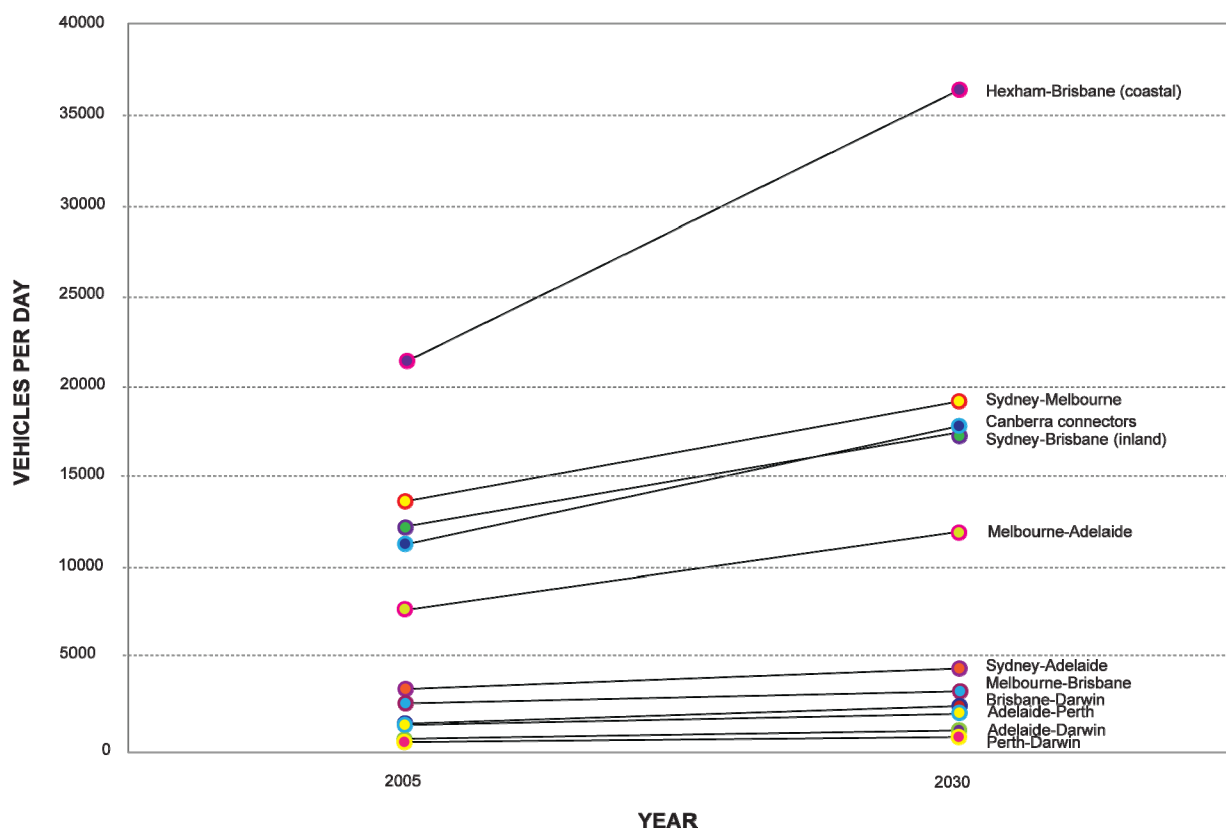


Figure 3-2: Average traffic volumes and predicted growth on major routes between Australian cities

Freight comprises a significant component of the predicted traffic growth on the Pacific Highway. Of all the interstate routes, heavy vehicle traffic is projected to be strongest on the Sydney–Brisbane corridor (via the Pacific Highway). Freight movements on this corridor are forecast to triple over the next 20 years compared to an expected doubling of freight on most other national freight corridors (DOTARS, 2007). In terms of annual growth from 2005 to 2030, the Pacific Highway is forecast to have:

- An annual 1.4 per cent increase in heavy vehicles along the Sydney–Brisbane corridor
- An annual 2.1 per cent increase in total traffic along the Sydney–Brisbane corridor. Traffic growth is projected to be strong across the entire corridor. This growth reflects strong population and economic growth along the Mid and Far North Coast (BITRE, 2009a).

By providing a high standard highway, the project would improve travel time, safety and freight carrying capacity, which would result in cost savings and efficiency improvements for suppliers and manufacturers transporting raw materials and end products to markets (NSW Government, 2011). The freight travel time benefits over 30 years for the upgrade as a whole have been calculated as over \$1.7 billion in 2011 dollars (NSW Government, 2011).

Increasing traffic volumes on the highway are further discussed in Section 3.3.2.

The roles of road and rail freight

Rail will play an important role in meeting freight demand. The North Coast Railway Line corridor, which is the major trunk rail line connecting Sydney and Brisbane, consists of standard gauge mainline railway. Historically, rail has been competitive for long-haul high volume freight. Rail carried an estimated 11 per cent of the Sydney–Brisbane corridor's end-to-end freight traffic in 2004 (compared to the 76 per cent moved by road).

However, it is important to recognise the different roles played by rail and road freight, as this highlights why rail would not be a suitable substitute for road freight. Freight is generally separated into two categories:

- Bulk freight: Large quantities of uniform products (such as grain or milk or other non-perishable and non-fragile products) that are transported en masse and without packaging
- Non-bulk freight: Products that are divided into units/containers. It often involves non-uniform goods being transported between dispersed locations.

Most bulk freight in Australia is moved by rail and sea (84 per cent) (BITRE, 2009a), while most non-bulk freight is transported by road. The delivery of non-bulk goods by rail generally involves both rail and road to get freight to the end user, adding freight costs and transit times (BITRE, 2009a). For inter-capital non-bulk freight, road is preferred as it is well suited to transporting smaller freight amounts to dispersed locations and provides a single-mode, door-to-door service.

Only a small proportion of heavy vehicle traffic on the Pacific Highway is exclusively Sydney–Brisbane traffic, as the NSW North Coast generates a large volume of freight movement. Origin/destination surveys undertaken for the project show that about 78 per cent of heavy vehicle traffic movements on the highway between Woolgoolga and Ballina either originated or had a destination at Grafton.

In summary, upgrading the rail line to accommodate increasing freight movement along the eastern seaboard would not be a viable alternative to upgrading the Pacific Highway because:

- It is anticipated that rail would not take a large volume of freight traffic off the Pacific Highway. Around 90 per cent of non-bulk goods freight movement in the Sydney–Brisbane corridor is via road, and an anticipated threefold increase in freight movement is anticipated in the corridor by 2029 (DOTARS, 2007). The Pacific Highway would continue to play an important role in freight movement in the corridor, particularly for transporting freight to service the dispersed local centres and communities along the coast
- The rail network is heavily constrained for freight services, particularly between Sydney and Newcastle. Although infrastructure investments to improve this situation form part of the NSW and Australian government priorities (with a growth from 11 to 14 per cent by 2009), the Pacific Highway would still require upgrading and require ongoing investment as a high volume of freight traffic will remain on the highway, resulting in increasing conflicts between local and through traffic, a decreasing level of service and increasing travel times and traffic delays, particularly during times of high traffic periods such as school holidays
- The highway supports the regional centres, cities and towns along its length, a role unable to be adequately achieved by rail.

KEY TERM – Level of Service (LoS)

A qualitative measure describing the capacity and performance of a section of roadway or intersection.

3.3.2 Intrastate freight and passenger growth

The project is also needed to accommodate regional and inter-regional freight and passenger growth. These aspects are outlined below.

Population and tourism growth

It is estimated that the highway links about 40 per cent of Australia's population (DOTARS, 2007). It caters for through traffic between Coffs Harbour, Grafton and Ballina, which are some of the largest settlements on the Mid North Coast and Far North Coast. The highway is also important for inter-regional traffic: it links with other major roads and provides access to many small towns, villages and properties.

The Pacific Highway coastal corridor has been one of the fastest growing regions in Australia. It includes major regional centres such as Grafton and Lismore, emerging major centres such as Ballina, and towns such as Maclean, Yamba, Woolgoolga, Casino and Kyogle, which are all experiencing rapid population growth. These centres also offer most of the region's employment opportunities and services. This population growth has contributed to congestion (and consequent delays) on the highway, and increased demand for improved access for commercial and social activity.

The region's growth is forecast to continue. It is estimated that by 2024 the Pacific Highway coastal corridor alone will serve a coastal population of almost one million (DOTARS, 2007), and over 150,000 additional people are expected on the Mid and Far North Coast by 2031 (DoP, 2006 and 2009). This represents a forecast growth of 15–20 per cent from 2006 to 2031. This expanding population, as well as growing regional tourism and economic activity, will generate high levels of growth in local and regional passenger and freight movements.

Population forecasts for the region's local government areas are presented in Table 3-2. These are based on updated data published by the Australian Bureau of Statistics (ABS, 2011) and growth rates provided by the NSW Department of Planning and Infrastructure growth rates (DP&I, 2006).

Table 3-2: Population growth projections 2011–2036

LGA	2011	2016*	2026*		2036*	
	Population	Population	Population	% change	Population	% change
Coffs Harbour	74,058	80,057	91,635	14.5%	101,724	11.0%
Clarence Valley	52,923	54,449	56,949	4.6%	58,593	2.9%
Richmond Valley	23,242	23,841	24,923	4.5%	25,707	3.1%
Ballina	43,272	45,999	51,470	11.9%	56,406	9.6%
Lismore	46,091	46,974	48,814	3.9%	50,399	3.3%

*Change relative to preceding period, eg 2016 relative to 2011.

Source: DP&I 2006

As well as traffic generated by population growth, the project is also needed to accommodate growing tourism traffic. The highway corridor links three of the most popular destinations for international tourists in Sydney, Brisbane and the Gold Coast, and has tourist destinations dotted along the coastal route, with additional car tourism destinations in the hinterland (Ernst and Young, 2006). In 2011, the Tourism Forecasting Committee released two sets of forecasts to provide an indication of regional tourism growth in NSW from 2010 to 2020. Tourism data for the five local government areas within the project area are shown in Table 3-3.

Table 3-3: Projected visitor nights for local government areas

LGA	2016		2026		2036	
	Total	% Change	Total	% Change	Total	% Change
Coffs Harbour	3,049,489	-	3,224,628	5.74%	3,431,774	6.42%
Clarence Valley	1,659,626	-	1,700,416	2.46%	1,744,765	2.61%
Richmond Valley	598,040	-	663,720	10.98%	743,641	12.04%
Ballina	952,876	-	1,000,092	4.96%	1,055,400	5.53%
Lismore	597,833	-	643,240	7.60%	697,737	8.47%

Source: Tourism NSW

**Photo 2: The NSW North Coast is a popular destination with tourists**

In 2007, about 3.8 million people visited the five local government areas noted in Table 3-3, spending a total of about \$857 million (Tourism NSW, 2012). The area is popular for touring motorists and includes a number of important tourist drives. The study area also boasts regional-level natural attractions, towns and villages that are important tourist destinations, and regional cultural attractions, generally focussed on Coffs Harbour, Grafton and Yamba. The Pacific Highway – together with the region’s airports at Ballina, Coffs Harbour, Lismore and Grafton – plays an important role in providing access to and from these tourist destinations.

The weekly traffic volumes from RMS permanent count stations located at the Pacific Highway south of Grafton, south of Woodburn and south of Ballina show a traffic profile with significant peaks in traffic volume coinciding with the Christmas – New Year period, Easter and the October school holidays. Figure 3-3 shows the seasonal profiles of traffic at the selected locations. The three traffic count sites reveal similar seasonal traffic fluctuations.

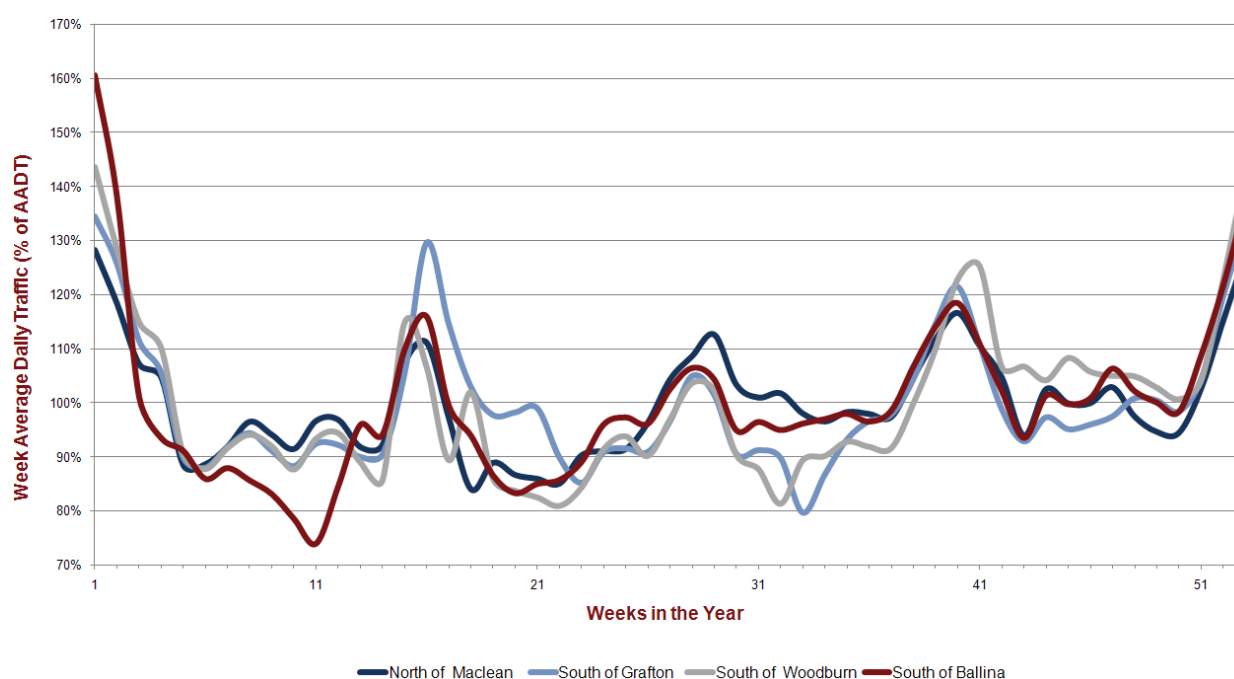


Figure 3-3: Seasonal variation of weekly traffic on the Pacific Highway in the study area

The highway upgrade would accommodate the seasonal traffic growth associated with the tourism industry, and support population and economic growth on the North Coast.

The project would also improve access for regional and local centres and tourist destinations and this would also help drive economic growth and employment opportunities in the region (NSW Government, 2011). For example, the project would improve links between Grafton and Coffs Harbour which have complementary concentrations of economic activity – Grafton is a centre for retailing while Coffs Harbour is a centre for public administration services (NSW Government, 2011).

The separation of local and through traffic and the strategic location of interchanges would also help to provide integrated land use transport solutions for existing and future urban and commercial areas.

Heavy vehicle growth

The progressive upgrading of the Pacific Highway has resulted in shorter travel times, fuel cost savings and operating cost savings, and provided a safer and more efficient inter-regional travel route. This has resulted in the highway becoming the favoured route for long-distance heavy vehicle trips between Sydney and Brisbane, ahead of the New England Highway (which had been the preferred route). Heavy vehicle growth on the Pacific Highway has grown at between three and five per cent per annum over the last 10 years.

Improvements to the Pacific Highway and changes in road network accessibility have allowed B-double trucks to use the full length of the highway between Hexham and the Queensland border since August 2002. This has led to a significant increase in B-double traffic on the highway.

Heavy vehicle volumes alone are predicted to increase at an average rate of 1.4 per cent per annum along the Sydney to Brisbane Pacific Highway corridor between 2005 and 2030 with growth rates of 1.28 per cent per annum forecast for the highway between Coffs Harbour and Grafton and 1.42 per cent per annum between Grafton and Ballina (BITRE, 2009b). These rates take into account the fact that complete upgrading of the Pacific highway would mean that fewer high-productivity vehicles would be needed to perform the same freight task, as B-doubles would replace many six-axle semi-trailers. This compares with a predicted growth rate on the New England Highway of 0.52 per cent per annum for heavy vehicles and 1.40 per cent per annum for all vehicles, over the same period.

The proposed route alignment would also bypass four locations with structural impediments that currently prevent access to full high-productivity vehicles due to the weight of the vehicles.

Heavy vehicle travel between Woolgoolga and Ballina is anticipated to grow by 15.7 per cent to 2016. However, building the project would offset some of this growth (due to the replacement of many six-axle semi-trailers with B-doubles), resulting in a net increase of only 6.8 per cent.

The project is needed to meet the demands of traffic growth and enable the travel efficiency benefits already provided by other upgrade projects to be experienced along the full length of the highway.

3.3.3 Local traffic growth

As well as interstate and regional traffic growth, the project is needed to accommodate local traffic growth.

Traffic volumes

Traffic surveys undertaken as part of this study in 2011 (refer Chapter 14 (Traffic and transport)) show that the highway between Woolgoolga and Ballina has an average daily traffic volume of about 9800 vehicles. The traffic data show that:

- There is considerable variability in daily traffic volumes between Woolgoolga and Ballina, with weekday traffic volumes higher than weekend traffic. This reflects local traffic movements near intersections to towns and villages, as well as interactions with other regional roads such as the Bruxner Highway, indicating the highway mainly serves work and business-related travel. Peaks of over 11,700 vehicles per day (2004 data) were recorded at Harwood and peaks of over 21,700 vehicles per day were recorded at West Ballina south of the interchange with the Bruxner Highway. These are relatively high levels compared to other rural highways
- Heavy vehicles (trucks, articulated vehicles and B-doubles) make up as much as 28 per cent of total daily traffic on the highway between Woolgoolga and Ballina (refer Chapter 14 (Traffic and transport)). About 50 per cent of these heavy vehicles are long-distance vehicles travelling through the area. In comparison with car traffic, which peaks during the middle of the day, heavy vehicle traffic remains fairly constant throughout the day. Heavy vehicle traffic is discussed in more detail in the following subsection
- The highway carries significantly greater traffic volumes during holiday periods. There are traffic peaks coinciding with the Christmas period, Easter and the October school holidays, and a lesser peak in the June–July school holidays (from RTA 2004 traffic volume data, 2004). The

average daily traffic volume on the busiest week during the Christmas period is over 40 per cent higher than the annual average daily traffic volume (refer Figure 3-3)

- Traffic volumes on the highway between Woolgoolga and Ballina have increased steadily over the past 25 years (refer Figure 3-4). The average linear growth rate in traffic volumes is estimated to be between 2.3 and 2.9 per cent per annum from 1982 to 2007, which equates to an increase of about 300 to 350 vehicles per year (RMS data). This growth can be attributed to population growth on the NSW Mid North Coast and NSW Far North Coast, an increase in economic activity and an increase in demand for travel. In addition, improvements to the Pacific Highway have led to a shift in freight transport away from the New England Highway to the Pacific Highway.

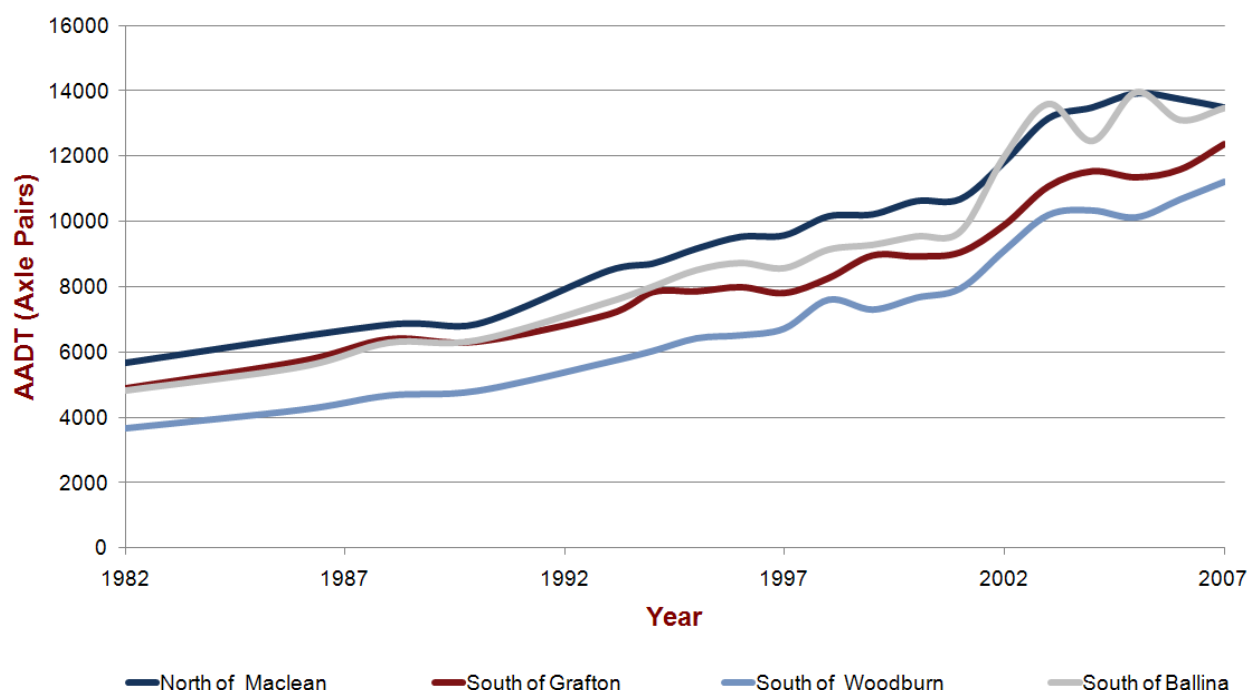


Figure 3-4: Traffic volume growth on Pacific Highway within the study area (1982–2007)

Over the next 20 years, population and tourism growth on the Mid North Coast and Far North Coast will generate substantial travel demand. It is predicted that traffic on the highway between Woolgoolga and Ballina will grow:

- At the rate of two per cent per annum between 2012 and 2016 (when the project is proposed to open), and in subsequent years
- By some 42 per cent from 2012 to 2036. By 2036, an annual average daily traffic volume of around 14,000 vehicles is expected between Woolgoolga and Ballina.

Increasing the capacity of the highway is essential to deal with this increasing traffic volume.

Declining level of service

The level of service of a road is a measure of its capacity and performance on a scale ranging from 'A' (free-flowing traffic conditions) through to 'F' (poor traffic flow or stop-start congestion). Detailed level of service definitions are provided in Table 3-4.

Table 3-4: Level of service (lane capacity) definitions

Level of Service	Definition
A	Traffic is free-flowing and drivers are virtually unaffected by the presence of others in the traffic stream. Freedom to select desired speeds and to manoeuvre within the traffic stream is extremely high, and the general level of comfort and convenience provided is excellent.
B	Traffic flow is stable and drivers have reasonable freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience is a little less than with level of service A.
C	Traffic flow is stable, but most drivers are restricted to some extent in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience declines noticeably at this level.
D	Traffic is close to the limit of stable flow and approaching unstable flow. All drivers are severely restricted in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience is poor, and small increases in traffic flow will generally cause operational problems.
E	Traffic volumes are at or close to the capacity of the road, and there is virtually no freedom to select desired speeds or to manoeuvre within the traffic stream. Flow is unstable and minor disturbances within the traffic stream will cause breakdown.
F	Traffic volumes are unable to be accommodated by the capacity of the road. This level of service is characterised by queuing and delays.

Source: *Guide to Traffic Management Part 3: Traffic Studies and Analysis*, page 28 (Austroads, 2009)

Under existing conditions, the level of service on the Pacific Highway between Woolgoolga and Ballina typically varies from 'B' to 'C', with lower levels experienced during holiday periods and busy weekends, resulting in congestion and traffic delays. Traffic delays can also occur because of flooding, road crashes, and the frequent opening of the Harwood Bridge to allow tall vessels to pass. At these times, peak holiday traffic volumes are close to the theoretical capacity. Unless this section of highway is upgraded, the level of service would decrease over time as population and traffic volumes increase.

While there have been substantial improvements to the Pacific Highway over the last 12 years, travel times between Woolgoolga and Ballina are adversely affected by the existing road alignment and limited overtaking opportunities.

The project would improve the alignment of the highway, and increase overtaking opportunities and traffic capacity. This would ensure the level of service was maintained or improved, which would reduce travel times and freight costs.

3.3.4 Inconsistent road conditions

The project is also needed to improve driving conditions along the highway.

The condition of the Woolgoolga to Ballina section of the Pacific Highway is affected by a number of deficiencies, including:

- Inconsistent posted speed limits
- Inconsistent road infrastructure and driving conditions.

These aspects are discussed below.

Inconsistent posted speed limits

Between Woolgoolga and Ballina, the posted speed limits along the highway vary widely, from a maximum limit of 100 kilometres per hour to sections with fixed limits of 80, 60 and 50 kilometres per hour. There are also school zones, which have a speed limit of 40 kilometres per hour during pick-up and drop-off times. These varying speed limits reduce the efficiency of travel and transport, and contribute to frustrating driving conditions along the highway.

Inconsistent road infrastructure and driving conditions

Between Woolgoolga and Ballina, the Pacific Highway has:

- Poor horizontal and vertical geometry
- Narrow shoulders
- Numerous traffic hazards near the carriageway
- Variations in pavement conditions, with the highway varying from a divided road to long sections of narrow two-lane road
- Numerous intersections.

In addition, many properties (including farms) have access directly onto the highway, and the existing highway alignment runs through many urban areas.



Photo 3: Pacific Highway at Ulmarra where traffic speed is restricted to 50 kph and 40kph in school zones

These inconsistent driving conditions affect both driver safety and transport efficiency, and are being addressed as part of the Pacific Highway Upgrade Program. For example, the sections of highway to the south and north of the project, as well as two other sections of highway between Woolgoolga and Ballina (at Glenugie and at Devils Pulpit) are currently the subject of separate upgrade projects under the Pacific Highway Upgrade Program (refer to Figure 3-1).

There are also short sections of dual carriageway, such as Swan Creek, Cowper and Mororo, and several sections have benefited from a range of safety improvements. These include:

- Tyndale realignment (completed in 2000): 900 metres of single-carriageway highway was realigned and the intersection at Sheeys Lane was redesigned
- Halfway Creek (completed in 2004): 2.5 kilometres of the highway was upgraded to dual carriageway, with the redundant highway carriageway becoming a service road
- Gap Road (completed in 1998): Four kilometres of the highway was improved, including some realignment, to eliminate a number of sharp bends to the south of Woodburn.

The project would increase the benefits of these adjoining and linking projects and provide for a safer, more consistent driving experience between Woolgoolga and Ballina.

3.3.5 Crash rates and road safety

A key objective for building the project is to improve crash rates and road safety. These aspects are outlined below.

Crash rates

An analysis of casualty crashes that occurred between 2005 and 2009 on rural sections of Australia's National Land Transport Network was undertaken as part of the Australian Road Assessment Program (AusRAP 2011). This study mapped the rates of fatal and serious injury crashes on Australia's main highways and tracked how the risk rates for the highways have changed across Australia, comparing crash and traffic data for the period 2000–04 to 2005–09.

The study analysed ten highways in NSW, totalling 3706 kilometres. It found that:

- Some sections of the Pacific Highway (such as Nambucca to Taree) now rate as a low risk and as some of the most improved sections of the national network
- Sections of the highway between Maclean and Ballina could be classified in the worst crash rate category, and rated a medium–high or high risk between 2005–09
- The length of the Pacific Highway between Hexham and Chinderah (611 kilometres) is less safe than other sections of the National Land Transport Network. It had casualty and fatality crashes that were, respectively, 29 and 33 per cent of the total crashes recorded but is only 16 per cent of the total roadway considered in the study.

The length of each highway and the number of casualty crashes and deaths that occurred from 2005–09 are shown in Table 3-5.

Table 3-5 Crash rates for NSW highways 2005–09

Highway	From – to	Length		Casualty crashes		Fatality crashes	
		Km	%	2005–09	%	2005–09	%
Barton Hwy	Hume Highway to ACT border	38	1%	48	1%	6	2%
F3	Hawkesbury River to New England Highway	105	3%	563	10%	21	5%
F6	Waterfall to Wollongong (via Mt Ousley Rd)	39	1%	236	4%	5	1%
Federal Hwy	Hume Highway to ACT border	66	2%	108	2%	6	2%
Great Western /Mitchell Hwy	Lapstone to Dubbo	305	8%	1,040	19%	39	10%
Hume Hwy	Narrellan Road to Albury	485	13%	769	14%	56	14%
New England Hwy	Branxton to QLD border	499	13%	535	10%	40	10%
Newell Hwy	VIC border to QLD border	986	27%	456	8%	59	15%
Pacific Hwy	Hexham to Chinderah	611	16%	1596	29%	128	33%
Sturt Hwy	Hume Highway to Mildura	572	15%	249	4%	30	8%
Total		3,706	100%	5600	100%	390	100%

Source: Australian Automobile Association & Australian Road Assessment Program 2011

For this EIS, an analysis of vehicle crash rates was carried out based on crash records for the five-year period from 2006 to 2010 (RTA, 2010). Of the 644 crashes recorded along the Pacific Highway between Woolgoolga to Ballina during this period, 38 per cent involved heavy vehicles and 29 were fatal crashes. The number of crashes per year fluctuated, with the lowest number recorded in 2010 (115) and the highest in 2009 (141).

The highest number of crashes was recorded in the 44.6-kilometre highway section between Glenugie and Tyndale (182 crashes). Other sections where crash frequency rates were very high were:

- Range Road to Barcoongere Way, Dirty Creek (maximum of 16 crashes per kilometre)
- Lookout Road to Eight Mile Lane, Glenugie (this particular section has been improved as part of the Glenugie upgrade)
- Viaduct Road to Centenary Drive, Grafton (maximum of 21 crashes per kilometre).

Further information on traffic crash frequency and types of crashes is provided in Chapter 14 (Traffic and transport).

Based on the 2006–2010 crash records, the crash rate for the length of the existing Pacific Highway between Woolgoolga and Ballina ranges between 9.2 crashes per 100 million vehicle kilometres travelled (MVKT)¹ for the section of the highway between Coolgardie Road and Ballina (Section 11) to 26.7 crashes per 100 million vehicle kilometres travelled between Richmond River and Coolgardie Road (Section 10).

When the total traffic activity and individual crash rates are aggregated, the highway between Woolgoolga and Ballina has an average crash rate of 20.7 crashes per 100 million vehicle kilometres travelled. This is well above the targeted crash rate of 15 crashes or less per 100 MVKT for the Pacific Highway Upgrade Program, and is a key reason why the project is needed.

Figure 3-5 provides a graphic representation of these crash rates for the project alignment. It shows that nine of the 11 highway upgrade sections exceed the targeted crash rate (15 crashes or less per 100 MVKT).

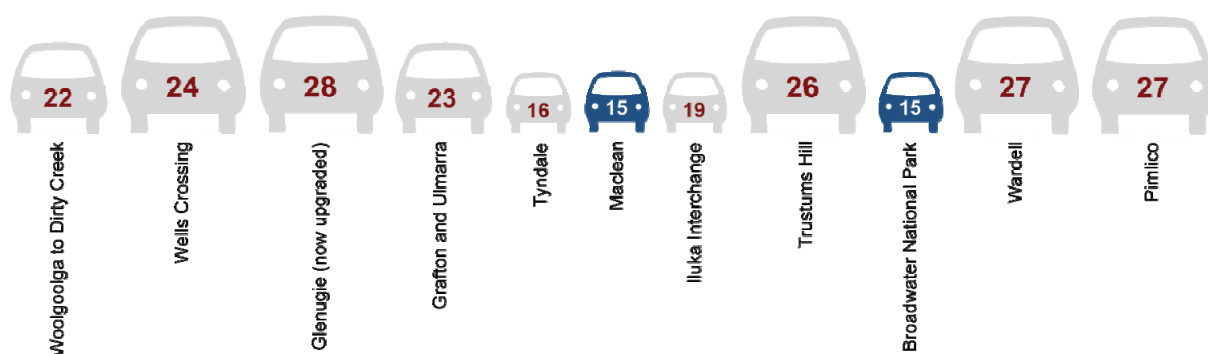


Figure 3-5: Estimated average crash rates on Pacific Highway between Woolgoolga and Ballina

In addition, Figure 3-6 shows that the proportion of crashes involving heavy vehicles fluctuated during the five-year period, with a maximum of 41 per cent in 2006 (and 2007) and a minimum of 33 per cent in 2009. As heavy vehicles comprise about 25 per cent of total traffic using the Pacific Highway, the number of crashes involving heavy vehicles is over-represented within the overall crash rate.

¹To calculate an annual vehicle kilometres travelled figure, the volume of traffic using a length of road in a year (the AADT multiplied by 365) is multiplied by the length of the road.

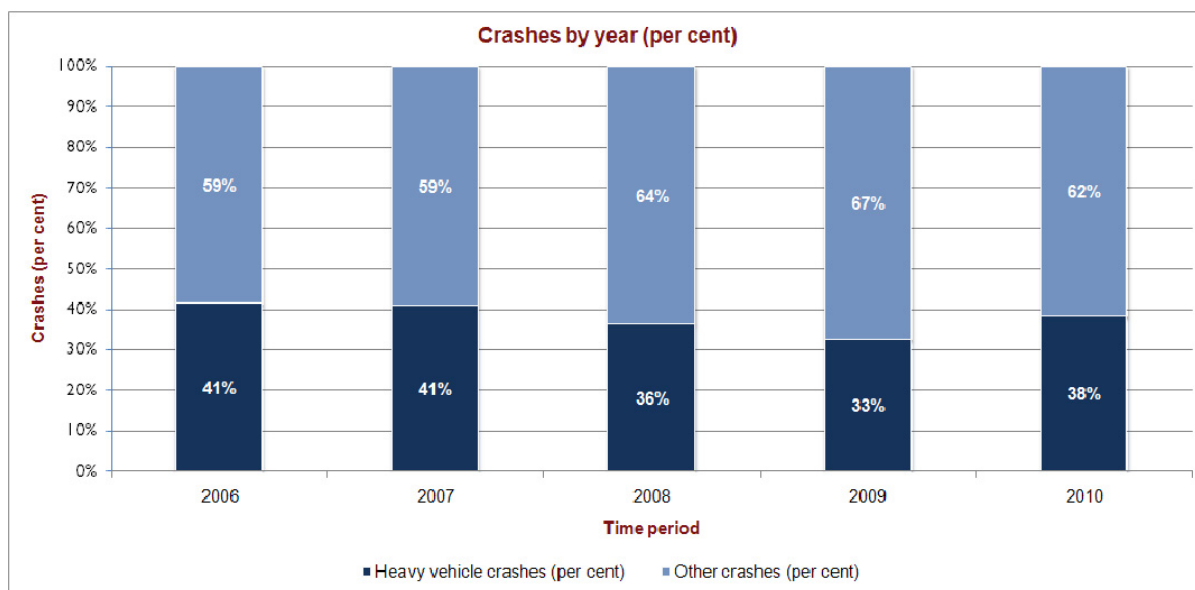


Figure 3-6: Proportion of crashes involving heavy vehicles

KEY TERM – Annual Average Daily Traffic

The total volume of traffic passing a roadside observation point over a period of a year, divided by the number of days per year, calculated from vehicle axle counts.

How the project would improve road safety

The Australian Government's Black Spot Program, which is funded under the Nation Building Program (refer to Section 3.4.5), aims to identify sites with a proven history of crashes. Under this program, a length of road with more than an average of one casualty crash per kilometre over five years warrants intervention to reduce crash rates. Based on this objective, the crash records described in this section (which include casualty crashes) present a strong case for intervention.

The project would improve road safety by replacing existing sections of two-lane undivided road with a four-lane dual carriageway, with improved alignment, more overtaking opportunities and controlled access via interchanges.

Substantial reductions in fatal and injury crashes have already been achieved and will continue to be achieved as the Pacific Highway Upgrade Program is progressively completed. In 2009, the NSW Government estimated that, with the full completion of the upgrade as a four-lane divided highway, there will be 25 less fatalities each year (compared to 1996 levels) and a halving of the rate of serious injuries (NSW Government, 2009). RMS updated these estimates in 2011 and calculated that, if the entire highway were upgraded by 2016, during the next 30 years, over 8039 crashes would be avoided, 565 lives saved, 4218 injuries avoided and 3255 non-injury crashes avoided (NSW Government, 2011).

Other safety initiatives

Between 2006 and 2012, RMS has implemented the Pacific Highway safety works program. This program includes a range of major safety projects undertaken on unduplicated sections, and targets some of the accident black spots and areas of substandard alignment of the highway. The objectives of the program are to:

- Reduce the severity and incidence of road accidents
- Implement cost-effective safety improvements
- Minimise the impact on the natural and social environment
- Implement improvements for the longer term use of the highway.

Further safety works are planned for the existing Pacific Highway, RMS expects that these safety projects will substantially increase driver safety. However, these safety projects are not intended as an alternative to the Pacific Highway Upgrade Program, as they do not address the many other issues along the highway between Woolgoolga and Ballina (as described in the above sections).

3.4 NSW and Australian strategic planning and policy framework

The project and the broader Pacific Highway Upgrade Program are compatible with, and driven by, the wider strategic and planning framework for NSW and the NSW North Coast. This is discussed in the following sections.

3.4.1 NSW draft Long Term Transport Master Plan

The NSW draft Long Term Transport Master Plan (Transport for NSW, 2012), developed by Transport for NSW will guide the next 20 years of transport planning and delivery. The Master Plan will reflect the consolidation of urban and regional strategies, as well as freight strategies. It will aim to ensure the State's infrastructure priorities, including the Pacific Highway Upgrade Program, are taken forward in an integrated and coordinated manner.

The draft Long Term Transport Master Plan states that the Pacific Highway is a high priority for the NSW Government as it will improve safety and travel times for all road users, provide better freight efficiency and improve amenity for local communities. It indicates that the Pacific Highway upgrade including the project is considered a short term priority for the Master Plan.

3.4.2 NSW 2021 – A Plan to Make NSW Number One

NSW 2021 is the NSW Government's 10-year plan to guide how it will address issues relating to the economy, public services and needed infrastructure. The goals in the document that are relevant to the project include:

- Improve the performance of the NSW economy
- Drive economic growth in regional NSW
- Increase the competitiveness of doing business in NSW
- Place downward pressure on the cost of living.

The Pacific Highway Upgrade Program promotes these State goals by providing an accessible, fast and efficient transport corridor.

The plan's transport goals are to improve the quality of services to:

- Reduce travel times
- Improve road safety
- Improve customer experience with transport services
- Grow patronage on public transport by making it a more attractive choice.

The project would help deliver the goals to reduce travel times, improve road safety, and improve customer experience.

3.4.3 State Infrastructure Strategy 2012–2032

The State Infrastructure Strategy 2012 - 2032 (Infrastructure NSW, 2012) provides a strategic direction on the priority infrastructure investments and reforms required to drive productivity and economic growth in NSW over the next 20 years.

The strategy has been presented to the NSW Government for consideration.

The strategy, comprises a rolling five, 10 and 20-year plan for infrastructure projects. The State Infrastructure Strategy makes a number of recommendations designed to improve the efficiency of regional and interstate transport connections including the potential for new approaches to lower the cost of duplicating the Pacific Highway.

The strategy identifies duplication of the Pacific Highway as being critical for economic growth along the NSW North Coast. However, the strategy recommends a review of delivery mechanisms for the Pacific Highway duplication, to ascertain opportunities for additional efficiencies for the remaining sections to ensure NSW is getting the best value for this major investment.

The report specifically identifies the following aspects of the upgrade program for further investigation:

- The scope of work for the packages with a focus on value engineering
- How work practices and planning approval conditions may be affecting the budgets of these projects
- Options to improve contracting efficiency such as bundling of packages to create economies of scale.

The strategy recommends that following this review, completion of the highway duplication occurs within between five and ten years.

The proposal identified in this EIS provides for a delivery strategy that includes different staging packages, providing flexible options for the remaining final sections of the Pacific Highway Upgrade Program to be built. The EIS also provides opportunities for different work practices (eg extended working hours) and reduced planning conditions.

3.4.4 The Auslink White Paper

The White Paper, AusLink: Building Our National Transport Future, published by the then Australian Department of Transport and Regional Services (DOTARS, 2004), sets out a strategic framework for decision-making and investment in Australia's land transport network. AusLink aims to link transport funding to priority needs and provide certainty for future investment. It also promotes the development of an integrated land transport network.

Core components of AusLink include:

- A defined National Land Transport Network of important road and rail links and their intermodal connections
- The National Land Transport Plan, which outlines the Australian Government's approach to improving and integrating the National Land Transport Network, and the investments it will make.

The Pacific Highway is identified within the AusLink White Paper as a key component of the National Land Transport Network and one of the priority areas for transport funding.



Photo 4: Construction of the Ballina bypass upgrade during a holiday period (2011)

3.4.5 Nation Building Program

Through the Nation Building Program, the Australian Government is investing \$36.4 billion in road and rail infrastructure over the six-year period to 2014. The Australian Department of Infrastructure and Transport is delivering this investment through a range of road and rail projects across the National Land Transport Network. The network is based on land transport corridors of critical importance to national and regional growth. The Pacific Highway is part of the network and is a key north–south freight route along the east coast of Australia.

The Australian Government has committed \$3.6 billion to continue upgrading the Pacific Highway under the Nation Building Program. On 31 March 2010, the NSW Minister assisting the then Minister for Transport and Roads announced planning would continue for the section of the Pacific Highway between Woolgoolga and Ballina. The NSW Government subsequently allocated \$10 million to continue the next phase of planning, which includes the process of project approval.

3.4.6 National Land Freight Strategy discussion paper

The National Land Freight Strategy discussion paper provides the case and priorities for a national land freight network strategy including a strategic list of projects and programs (Infrastructure Australia, 2011). The strategy includes consideration of road, rail and port facilities. The land freight network strategy requires good interoperability of different forms of land transport between principal freight nodes (including ports and airports).

To enable interoperability between different forms of land transport, the goal is for roads in this land freight network to:

- Have a sufficiently high level of service
- Provide access for higher productivity vehicles (these are large trucks with greater weight and size)
- Enable freight transfer with rail and international shipping
- Have consistent truck communications, routings, and pricing procedures.

The Pacific Highway is identified as a key strategic corridor in the proposed national land freight network. Infrastructure Australia has also identified the Pacific Highway as a national land freight network project that is ‘ready to proceed’.

KEY TERM – Ready to proceed

Project meets all of Infrastructure Australia project funding assessment criteria.

3.4.7 National Road Safety Strategy 2011–2020

The National Road Safety Strategy 2011–2020 aims to identify initiatives to improve the safety of Australia’s roads (ATC, 2011). The strategy is based on the Safe System approach to improving road safety, which requires a holistic view of the road transport system and the interactions among roads and roadsides, travel speeds, vehicles and road users. The strategy’s cornerstones are safe roads, safe speeds, safe vehicles and safe people.

The strategy recognises the critical need to improve road infrastructure, with a focus on road features that are designed to reduce run-off-road, intersection and head-on crashes – these design improvements are central to the Pacific Highway design standards adopted on this project.

The strategy aims to reduce the annual number of road crash fatalities and serious road crash injuries by at least 30 per cent by the end of 2020. The Pacific Highway Upgrade Program, including the Woolgoolga to Ballina upgrade, would help to achieve this target. Further analysis of how the project would contribute to road safety is presented in Chapter 14 (Traffic and transport).

3.4.8 Pacific Highway Upgrade Submission to Infrastructure Australia

The NSW Government made a submission to Infrastructure Australia in response to a call for projects for assessment and evaluation for the national infrastructure pipeline and possible budget considerations. The Pacific Highway was one of three key priority projects put forward in 2011 by the NSW Government; these being the North West Rail Link, the Port Botany Expansion and the Pacific Highway Upgrade. These three proposals are the NSW Government's highest priorities for immediate investment in terms of regional strategy, urban connectivity and inter and intrastate freight movement. They address the objectives of the State plan – NSW 2021 – and are in line with the national goals of the Australian Government.

The submission on the Pacific Highway Upgrade (NSW Government, 2011) (and the associated 2008 submission on the Pacific Highway Upgrade), provides the NSW Government case for funding to complete the upgrade of the Pacific Highway to achieve full duplication to a four lane highway.

The submission restates the strategic and economic rationale for the Pacific Highway Upgrade Program and identifies the status and the program outcomes up to the current funding agreement to 2014. It details the reasons that the highway is of fundamental importance and a vital part of the national transport system.

A case for funding the remaining portions of the upgrade beyond 2014 is presented. The submission seeks a commitment from the Australian Government to finish the Pacific Highway Upgrade Program by 2016, at a cost of \$7.7 billion, with a continuation of the prevailing 80:20 Commonwealth to State funding ratio.

The submission recognises that the upgrade is one of many strategic responses proposed by the NSW Government to address movement of freight along the key transport network between Brisbane and Sydney.

The upgrade of the highway forms a complementary investment to transport infrastructure in this corridor that includes:

- The New England Highway
- The North Coast rail line
- Sea freight movements
- Air travel.

In particular, it is recognised that investment in the North Coast rail line is not a substitute for investments in road, in particular the Pacific Highway. While recognising the importance and comparative advantages of rail for certain types of freight transport, road will retain a considerable proportion of the future freight task.

In addition, opportunities to co-locate future rail and road upgrades in the Sydney to Brisbane corridor for greenfield sites would be considered by RMS in consultation with the Australian Rail Track Corporation and the Australian Government. However, for the components of the Pacific Highway not already upgraded, only a small fraction coincides with the current rail alignment.

3.4.9 Infrastructure Australia priority projects

In June 2011, Infrastructure Australia released the report *Communicating the Imperative for Action* which includes the updated National Priority List of infrastructure projects for 2011 (Infrastructure Australia 2011). The report identifies the Pacific Highway corridor upgrades, of which the project is a part, in the category of 'ready to proceed'. This category contains projects that meet all of Infrastructure Australia's criteria; that is, they make a strong contribution to strategic policy goals, are supported by a methodologically robust benefit-cost analysis that suggests the benefits will considerably outweigh the costs, and have a robust delivery plan in place.

3.4.10 Sydney–Brisbane Corridor Strategy

The Sydney–Brisbane corridor has three components:

- The Sydney–Newcastle and North Coast rail lines: These rail lines together cover 940 kilometres
- New England Highway: This inland route covers 940 kilometres
- Pacific Highway: This coastal route covers 890 kilometres.

The Sydney–Brisbane Corridor Strategy was jointly developed by the Australian, NSW and Queensland governments (DOTARS, 2007). It identifies the Sydney–Brisbane corridor as one of the busiest links on the Australian transport network, catering for both passenger and commercial freight traffic moving between Sydney and Brisbane. It also identifies the following future challenges for the corridor:

- Strong population growth along the coastal regions
- Increased freight movements: Interstate end-to-end freight is expected to almost triple by 2027 (compared to an expected doubling of freight on most other national freight corridors), in addition to inter- and intra-corridor freight and passenger movements
- Significant and rapid growth in passenger and local traffic along the length of the corridor, particularly along its coastal side (traffic on the inland route is growing more slowly)
- Deficiencies along the corridor, including safety, amenity, congestion and efficiency for freight operations
- Neither highway is currently suitable for higher mass limit vehicles (such as B-doubles)
- Significant sections of the corridor have difficulty meeting current and predicted growth in passenger and freight transport
- An inability for rail to alleviate growth pressures on the Pacific Highway. Although rail will play an important role in meeting travel demands, the majority of freight will continue to be carried by road. Also, rail cannot address all capacity and/or alignment problems on the highway.

The project would address each of these challenges by providing a high standard road to meet future growth and support the regional and national economy. The project would also significantly improve safety, increase amenity, reduce congestion and improve accessibility and connectivity within and between regions.

3.4.11 Mid North Coast Regional Strategy 2009

The Mid North Coast Regional Strategy applies to the eight local government areas of Clarence Valley, Coffs Harbour, Bellingen, Nambucca, Kempsey, Port Macquarie-Hastings, Greater Taree and Great Lakes (DoP, 2009). The primary purpose of the strategy is to ensure that adequate land is available and appropriately located to accommodate the projected housing and employment needs of the region's population over the next 25 years. The strategy applies to the period between 2006 and 2031 and incorporates specific regional infrastructure requirements to ensure that population growth is supported by services and associated infrastructure.

The strategy identifies proposed future urban release areas, which are to be developed to function as new communities with service provision to match the future population of the area. By 2031, the Mid North Coast population is expected to grow by more than 28 percent to around 424,400 people (an increase of 94,000 people over today's population).

The strategy recognises the Pacific Highway as the primary north–south corridor for inter- and intra-regional movements and indicates that greater accessibility from improvements to the Pacific Highway is likely to result in the region continuing to experience strong population increases.

The Woolgoolga to Ballina project would help to deliver the strategy as it would improve traffic efficiency and road safety for the Mid North Coast region.

3.4.12 Far North Coast Regional Strategy 2006

The Far North Coast Regional Strategy applies to the six local government areas of Ballina, Byron, Kyogle, Lismore, Richmond Valley and Tweed and establishes the guiding principles for the planning and management of sustainable growth (DoP, 2006). This strategy applies to the period between 2006 and 2031 and incorporates specific regional infrastructure requirements.

The strategy plans for an overall population of 289,000 by 2031, which represents an additional 60,400 people or a 26 per cent increase over the current population. The strategy emphasises the importance of safe and efficient transport connections within and between regions along the Sydney–Brisbane corridor and recognises the Pacific Highway as the primary north–south corridor for inter- and intra-regional movements. The strategy also indicates that greater accessibility provided by upgrades to the highway is one of the key drivers of population growth and increased employment opportunities in the region as a large number of far north coast residents rely on south-east Queensland for employment and services.

The Woolgoolga to Ballina upgrade would help to deliver the strategy as it would improve traffic safety and efficiency along the Sydney to Brisbane corridor and improve cross-border accessibility, thereby providing further benefits to the regional economy.

3.5 Statement of strategic need

3.5.1 Summary of the need for the project

The Pacific Highway Upgrade Program, which includes the Woolgoolga to Ballina upgrade, is a joint commitment by the Australian and NSW governments. The objectives of the project are consistent with the strategic planning and policy framework of both levels of government. Table 3-6 details the strategic priorities of Infrastructure Australia and how the Pacific Highway Upgrade Program – including the Woolgoolga to Ballina upgrade – aligns with those objectives.

The section of highway between Woolgoolga and Ballina is the last one in the Pacific Highway Upgrade Program to be approved, and the benefits of the program would not be fully realised until the entire program is completed.

Although the project would have environmental, social and economic costs, particularly where the highway is upgraded on a new alignment, it is the preferred alternative because none of the other alternatives address the key transport needs for the Sydney–Brisbane corridor.

As outlined in this chapter, the Woolgoolga to Ballina upgrade is needed because it would:

- Improve road safety, reduce travel times, improve the performance of the economy and drive economic growth in regional NSW, which are all NSW Government goals
- Accommodate increasing traffic volumes on the Pacific Highway. The highway serves a large number of growing regional centres on the mid north coast and far north coast; supports local, regional and through freight movements and passenger transport; and accommodates significant traffic peaks during the holiday periods
- Provide a higher standard of road in order to better serve current and future road users. The project would help meet this need by improving road safety and travel efficiency (including reducing freight transport costs). RMS has calculated that over 8039 crashes would be avoided over the next 30 years if the entire Pacific Highway were upgraded by 2016 (NSW Government, 2011)
- Complete a significant portion of the Pacific Highway Upgrade Program and contribute to fully realising the substantial economic and community benefits of the program by adding to the safety and travel efficiency benefits provided by already completed projects. The Woolgoolga to Ballina section is one of the few remaining components of this program that is not currently under construction, approved for construction, or pending approval for construction.

Table 3-6: How the Pacific Highway Upgrade Program aligns with Infrastructure Australia's strategic priorities

Infrastructure Australia strategic priority	Alignment of the Pacific Highway Upgrade Program
Expanding Australia's productive capacity	<ul style="list-style-type: none"> The upgrade program is increasing productive capacity by reducing travel times and improving certainty of service for freight and passenger transport The upgrade program is reducing costs of travel and unplanned delays The upgrade program is increasing road capacity, which provides an opportunity for improved utilisation of infrastructure by the private sector (for example through the use of higher productivity vehicles).
Increasing Australia's productivity	<ul style="list-style-type: none"> The upgrade program is increasing productivity by: <ul style="list-style-type: none"> Reducing travel times Increasing certainty of service for freight and passenger transport between capital cities and major regional centres by ensuring reliability of vehicle journey times Improving pavements to reduce potential for product damage Introducing new pavements and bridges to cater for higher mass limit road transport Reducing road congestion Reducing the number of crashes Continuing access to the Pacific Highway for B-double vehicles.
Diversifying Australia's economic capabilities	<ul style="list-style-type: none"> The upgrade program is diversifying Australia's economic capabilities by: <ul style="list-style-type: none"> Improving freight efficiency, which promotes business development in regional areas Improving passenger access to the North Coast and Mid North Coast, which is improving tourism business opportunities.
Building on Australia's global competitive advantages	<ul style="list-style-type: none"> The upgrade program is significantly reducing travel time between Sydney and Brisbane, which is likely to increase the efficiency of global businesses and improve supply chain reliability.
Developing Australia's cities and regions	<ul style="list-style-type: none"> The upgrade program is helping to develop the North Coast and Mid North Coast regions as: <ul style="list-style-type: none"> It is providing a high quality road link between major centres, which is reducing the cost of freight to markets, thereby reducing the cost of production in coastal regions Future regional employment relies on development of industries that export outside of the region The upgrade program is bypassing towns, which is making them more attractive for tourism and associated industries in the longer term (after the initial reduction in highway-based trade in those towns) The upgrade program is leading to the development of Coffs Harbour as a major regional city midway between Sydney and Brisbane.
Reducing greenhouse emissions	<ul style="list-style-type: none"> The upgrade program is helping to reduce greenhouse gas emissions by: <ul style="list-style-type: none"> Bypassing urban areas (avoiding congestion and stop-start traffic) Allowing trucks, in particular, to operate at more efficient speeds.

Infrastructure Australia strategic priority	Alignment of the Pacific Highway Upgrade Program
Improving social equity and quality of life in our cities and regions	<ul style="list-style-type: none"> • The upgrade program is improving social equity and quality of life for residents and visitors to the North Coast and Mid North Coast regions. This is being achieved by: <ul style="list-style-type: none"> • Providing a safer road, which is reducing driver stress and the stress caused by vehicle accidents, injuries and fatalities • Bypassing towns, which will significantly improve amenity (in terms of noise, local air pollution, visual amenity, vehicle emissions and connectivity in those centres), offset somewhat by impacts of the highway on individuals in its new location • Improving road transport conditions, which is supporting regional industries (which are required to provide one-quarter of new jobs for predicted population growth) • Providing infrastructure that improves access to services available in higher order centres and capital cities.

3.5.2 Consequences of not carrying out the project

If the project does not proceed, there would be a continuation of the existing poor performance of a significant portion of the Pacific Highway between Woolgoolga and Ballina. The specific consequences of not proceeding with the project are considered unacceptable and would include:

- An inability to adequately accommodate increasing traffic volumes on the highway, leading to a decrease in the level of service of the highway over time
- A further decline in road safety and a likely increase in vehicle crash rates and fatalities or, at best, a continuation of the existing unacceptable crash and fatality rates
- An inconsistency in road standard between the section of highway within the study area and the remainder of the upgraded Pacific Highway
- Deterioration in travel efficiency for freight and other vehicles, resulting in increased transport costs over time
- Ongoing maintenance and operational risks to the existing highway, including flooding and erosion
- Continual decline in town amenities (where the highway currently passes through) including South Grafton, Ulmarra, Woodburn, Broadwater and Wardell
- Failure to achieve the objectives of planning and transport strategies, in particular the NSW Government's Pacific Highway Upgrade Program and NSW 2021.

Further justification for the project is provided in Chapter 21 (Justification and conclusion).

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