



Australian Government

BUILDING OUR FUTURE

NSW
MAKING IT HAPPEN



Aerial view of the Nambucca Heads to Urunga upgrade, looking south

Pacific Highway upgrade

Six month report card **July to December 2016**

Contents

Overview	1
Current status	2
Upgrade outcomes	3
Finishing the job	6
Community	8
Workplace health and safety	10
Safety initiatives on the Pacific Highway	11
Environment	12
Port Macquarie to Coffs Harbour overview	14
Oxley Highway to Kundabung	16
Kundabung to Kempsey	18
Warrell Creek to Nambucca Heads	20
Nambucca Heads to Urunga	22
Woolgoolga to Ballina overview	24
Woolgoolga to Halfway Creek	26
Halfway Creek to Glenugie	28
Soft soil work - waves 1 and 2	30
Soft soil work - wave 3	32
Soft soil work - wave 4	34
Earlywork - wave 5A	35
Bridge over Clarence River at Harwood	36

Overview



As part of the Oxley Highway to Kundabung project, all girders are now in place on the new Hastings River bridge (October 2016)

This report provides a progress update on the Pacific Highway upgrade program for the six months to 31 December 2016.

The Pacific Highway connects Sydney and Brisbane and is a major contributor to Australia's economic activity. The road is a vital piece of the nation's infrastructure and is a key link in the National Land Transport Network.

The Australian and New South Wales governments have a shared commitment to completing the Pacific Highway upgrade by 2020.

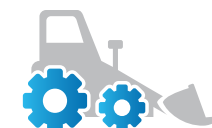
An upgraded Pacific Highway must continue to service the needs of the travelling public and achieve transport efficiencies, while also ensuring ecological sustainability and meeting the needs of the coastal communities that live along the highway.



on average **2430** workers
on site per month



about **70%** of highway length
now four lane divided road

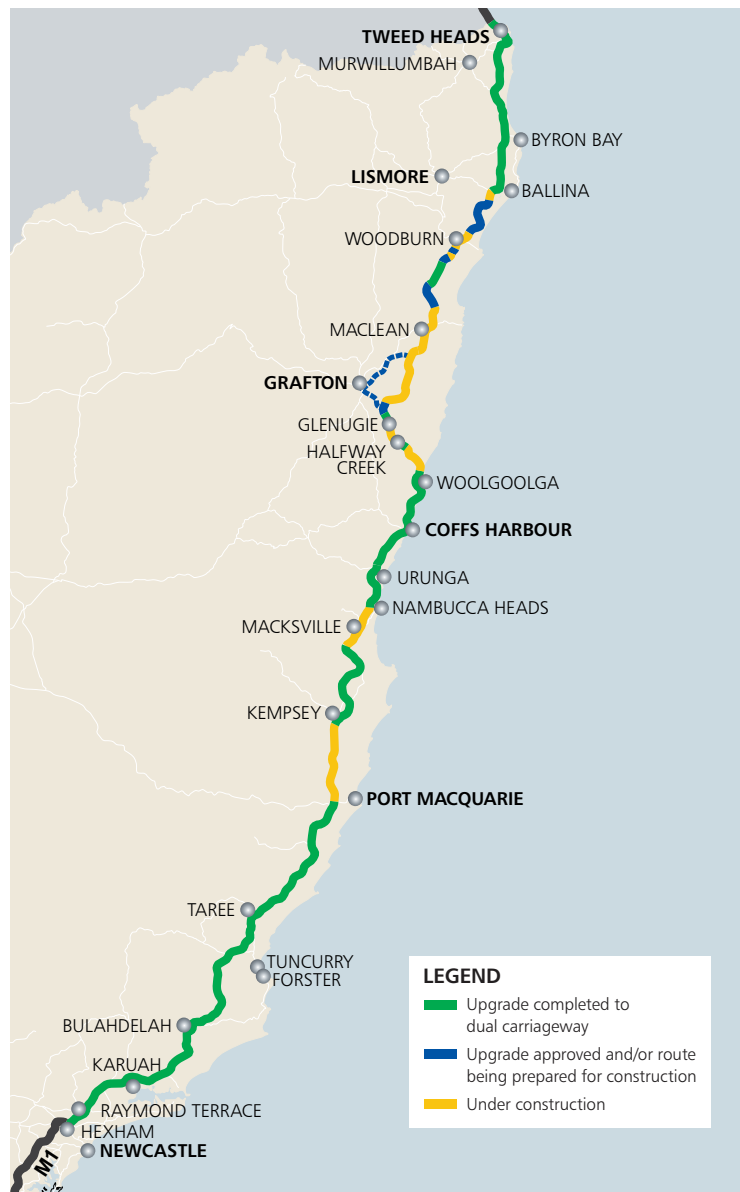


161 km of highway
being built



View of the new southbound carriageway on the Kundabung and Kempsey project (December 2016)

Status at December 2016



As of 31 December 2016, 459 kilometres of the Pacific Highway upgrade are four lane divided road. About 161 kilometres of the highway are currently being upgraded to four lane divided road with the remaining sections being prepared for work. All projects will be open to traffic by 2020.

Key project milestones achieved during the past six months

From Port Macquarie to Coffs Harbour:

- ✓ opening of the Nambucca Heads to Urunga project to 110 km/h.

Construction well progressed on remaining 57 kilometres, including:

- ✓ motorists are travelling under contraflow on about 20 kilometres of new carriageways of the 37 kilometre upgrade between Port Macquarie and Kempsey
- ✓ completed the new Wilson River bridge and final girders were placed on the new bridges over the Hastings and Nambucca rivers as part of the Oxley Highway to Kundabung and Warrell Creek to Nambucca Heads projects.

From Woolgoolga to Ballina:

- ✓ major work started on the new bridge over Clarence River at Harwood
- ✓ Australian Government approval was received for the Ballina Koala Plan and Koala Management Plan for section 10 of Woolgoolga to Ballina project, between Broadwater and Coolgardie
- ✓ earthwork started on about 30 kilometres between Glenugie and Maclean, and at Tuckombil
- ✓ progressed procurement on key packages including \$1.3 billion worth of contracts tendered.

Upgrade outcomes

Where are we now?

At 31 December 2016:

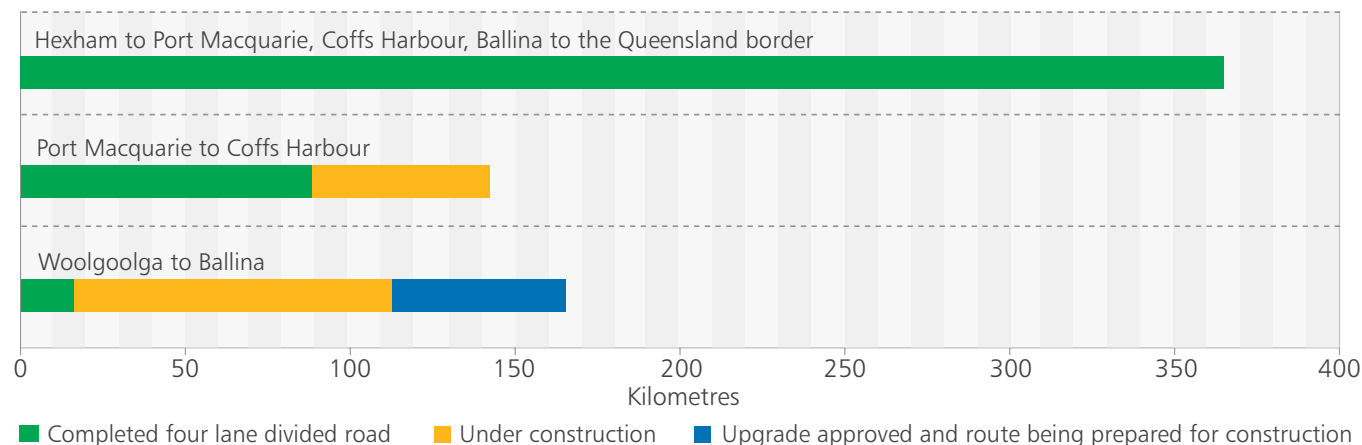
459 kilometres are four lane divided highway – about 70 per cent

161 kilometres are being built

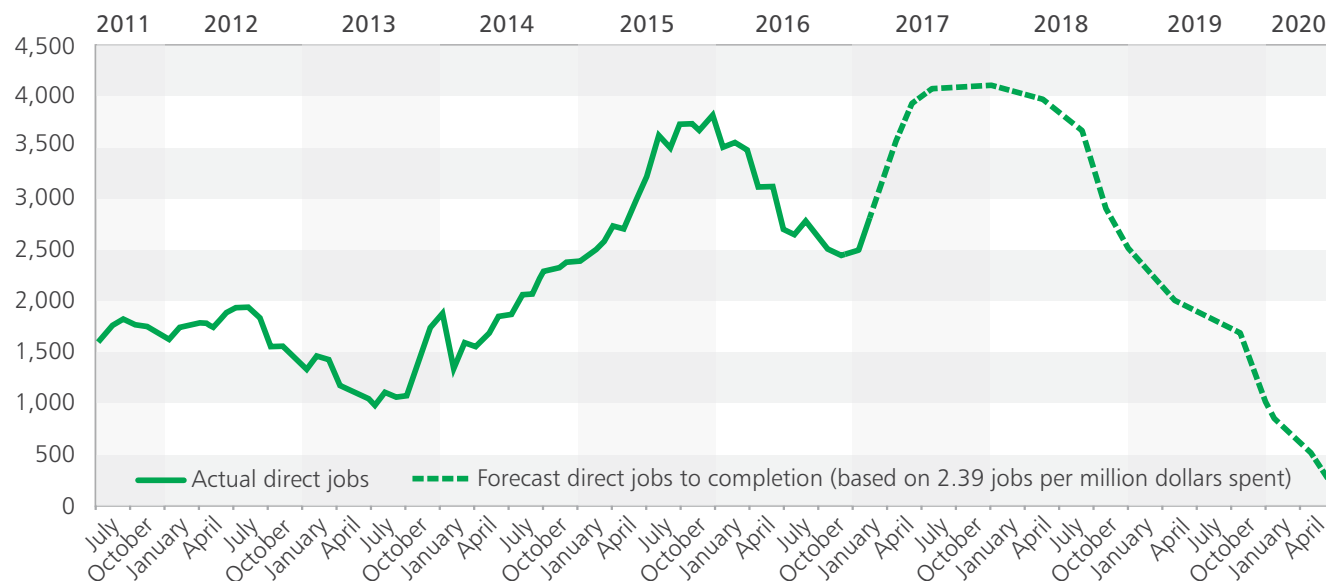
The remaining sections of two lane highway are being prepared for major work.

An average of 2430 people have been employed on site from July to December 2016, with about a further 200 people working across the Pacific Highway program. The peak early employment period is expected to be late 2017 and 2018 when about 4000 workers are estimated to be employed as a result of the Pacific Highway upgrade. Roads and Maritime Services and its contractors, wherever possible, use local products and services for infrastructure construction projects. The graph to the right shows actual and predicted direct jobs. Future predictions have been estimated on the basis of 2.39 direct jobs per million dollars forecast to be spent. It is anticipated that the number of indirect jobs would be three times the number of direct jobs. This graph is likely to change over time to reflect packaging and procurement and revision in the schedule of work. Employment has plateaued due to the completion of the Tintenbar to Ewingsdale, Frederickton to Eungai and Nambucca Heads to Urunga projects. Employment will rise again during 2018 as major work starts across all sections of the Woolgoolga to Ballina project. The Pacific Highway upgrade has plans in place for all of its construction projects to encourage Aboriginal employment opportunities, including apprenticeship and traineeship programs. For the last six months in 2016 about 10.5 per cent of people employed on the Pacific Highway upgrade were Aboriginal.

Four lane divided road status



Direct jobs created by the Pacific Highway upgrade

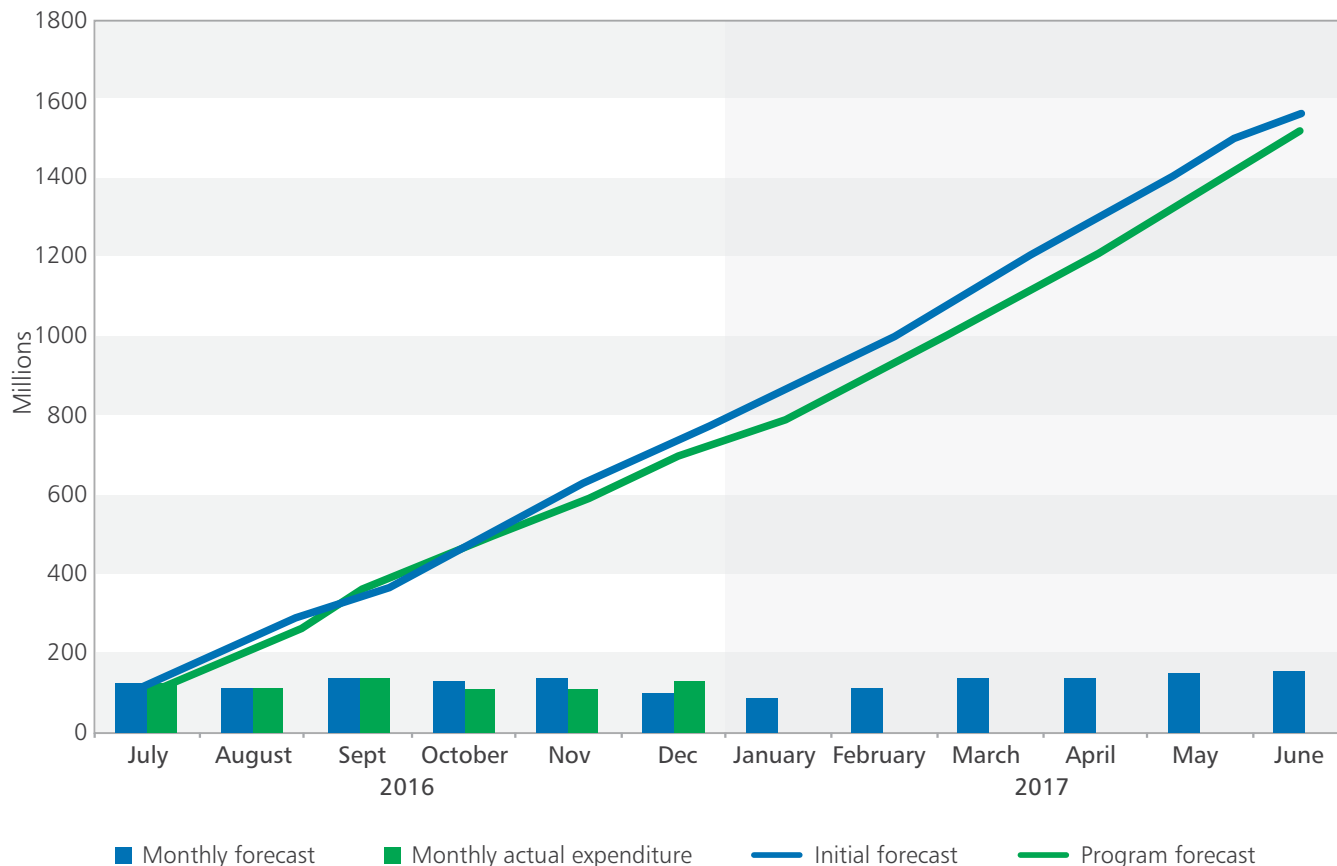


Upgrade outcomes

Expenditure update

The total expenditure for the upgrade program for the period July to December 2016 was \$735.3 million (see graph below). The graph below also shows expenditure against forecasts and generally there has been a close match between the two.

Pacific Highway program expenditure by month – July 2016 to June 2017



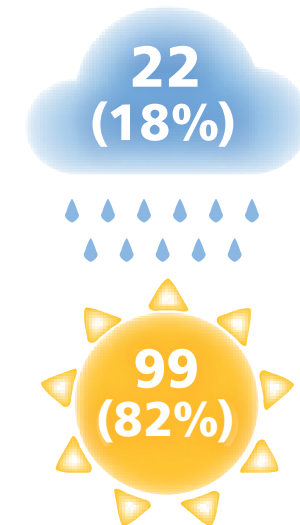
Wet weather

Weather patterns in the period July to December 2016 were relatively consistent with the preceding six months. On average 22 days were lost across the upgrade projects to weather events, including rain and bushfires, from July to December 2016.

The relatively dry weather has allowed us to make good progress on many of the ground treatments on Woolgoolga to Ballina. The Halfway Creek to Glenugie and the Warrell Creek to Nambucca Heads projects were most adversely affected by rain with about 21 per cent of available working days lost to wet weather in the past six months.

Average work days – July to December 2016

From 121 available working days



*based on average number of work days across all projects under construction

Upgrade outcomes

Crashes

Fatal crashes have halved, down from around 50 each year to less than 25 in recent years.

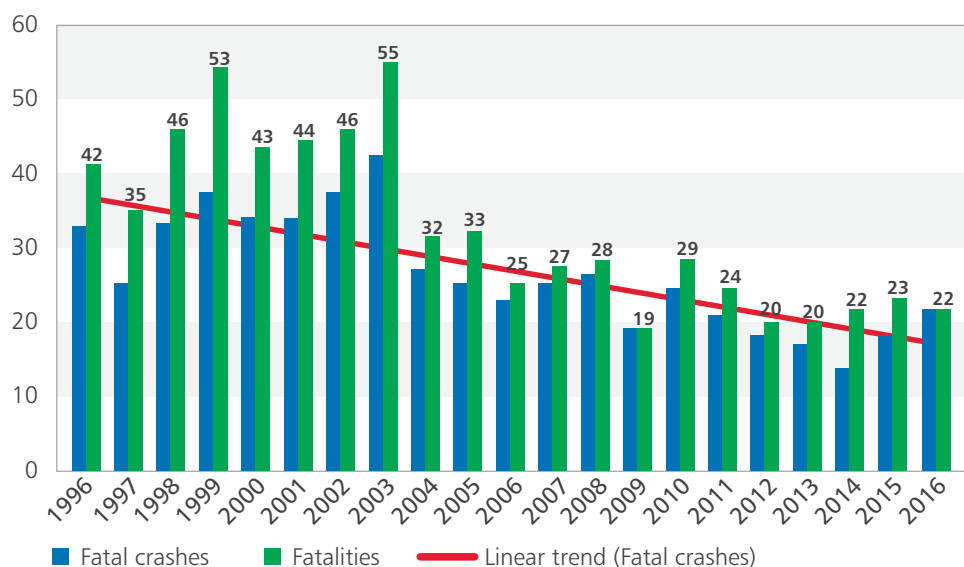
In 2016, 22 people died in 22 fatal crashes. This is comparable with the previous five year average of 19 crashes and 23 fatalities.

Travel time

Since the start of the Pacific Highway upgrade program in the mid-1990s, travel time between Hexham and the Queensland border has been tracked.

In 2015 and 2016, Google travel time data was used instead of the manual method used in the past, almost eliminating work health and safety risks previously associated with collecting the data. Google travel time data is relatively easy to collect, analyse, and is reliable. It is based on speed readings collected from large numbers of individual speed readings along a particular route.

Fatal crashes and fatalities each year



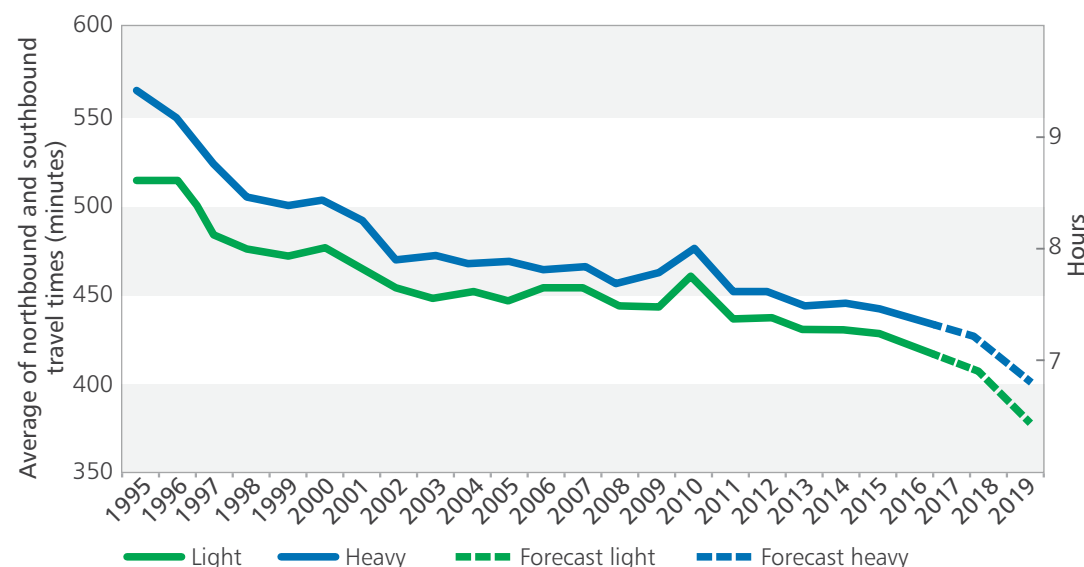
Annual travel time surveys are conducted at the end of each year using the same start and end points to ensure the results can be accurately compared.

Since the last six month report card, an estimated additional five minutes of travel time was saved with the opening of the Nambucca Heads to Urunga project to 110 km/h.

Motorists travelling the length of the Pacific Highway between Hexham and the Queensland border are already saving about an hour and three-quarters in travel time. When complete, the upgrade will cut travel times between Hexham and the Queensland border by between 135 and 150 minutes.

It should be noted that travel time on the Pacific Highway is not only based on the amount of traffic on the highway, but can be affected by new speed limits in place on particular sections of the highway, completed since travel time surveys began in 1995.

Travel time trends on the Pacific Highway, Hexham to Queensland border (adjusted for work site delays)



Finishing the job

Completing a four lane divided highway between Hexham and the Queensland border remains an important issue for local communities and is a priority for the Australian and NSW governments, both of which are committed to having the upgrade completed by 2020.

There is now four lane divided highway between:

- Hexham and Port Macquarie
- Kempsey and Eungai
- Nambucca Heads and Woolgoolga
- Ballina and Tweed Heads.

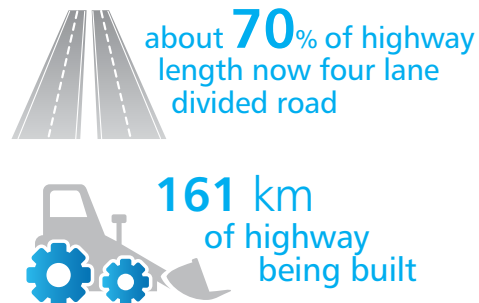
The 22 kilometre Nambucca Heads to Urunga project opened to traffic in July 2016 and work is nearing completion on the remaining 57 kilometres under construction between Port Macquarie and Coffs Harbour.

Work is now under way on 104 kilometres of the 155 kilometre Woolgoolga to Ballina project and by mid-2017 major work is expected to have started on the remaining 51 kilometres.

Major work is progressing well on the first two sections, the 14 kilometre Woolgoolga to Halfway Creek section and the 12 kilometre Halfway Creek to Glenugie section. Both are due to open to traffic by the end of 2017, weather permitting.

Major work started on the new bridge over the Clarence River at Harwood in August and tender assessments were carried out for the new design and construct contract for the new bridge over the Richmond River at Broadwater.

Wave 1 soft soil work is due for completion in February 2017 and Wave 2 was completed in July 2016. In the last six months substantial work started on Waves 3 (Tyndale to Maclean) and 4 (Tuckombil) soft soil. Work also started on Wave 5A (Glenugie to Tyndale) earlywork. Work is continuing on a number of other key activities between Woolgoolga and Ballina, including planning, tender assessments, preliminary investigations, and preconstruction on critical sections. The Australian Government approval of the Ballina Koala Plan has meant construction work can proceed between Broadwater and Coolgardie, south of Ballina, subject to meeting conditions of approval.



Key project milestones – how are we travelling?

Did we do what we said we would between July and December 2016?

Achieve major work progress:

- ✓ Nambucca Heads to Urunga project is open to traffic
- ✓ completed the bridge over the Wilson River and the final girder placement on the Hastings River bridge on the Oxley Highway to Kundabung project
- ✓ traffic was switched from the existing highway onto the new southbound carriageway, between Barrys Creek and Smiths Creek on the Kundabung to Kempsey project
- ✓ completed the remaining nine bridges on the Woolgoolga to Halfway Creek project
- ✓ started substantial soft soil work on Waves 3 and 4 and Wave 5A earlywork and completed Wave 2, with Wave 1 soft soil work due for completion in early 2017 on the Woolgoolga to Ballina project
- ✗ complete bridges at Halfway Creek and Wells Crossing on the Halfway Creek to Glenugie project (bridges at Halfway Creek were completed during this period, and bridges at Wells Crossing were completed in January 2017)
- ✗ complete six local overbridges and open to traffic on the Warrell Creek to Nambucca Heads project (the construction program changed and one local overbridge was completed with remaining to be completed by mid 2017).

Planning for major work on the Woolgoolga to Ballina project:

- ✓ continue tender process for the Woolgoolga to Ballina project
- ✓ complete consultation on draft urban design and landscape plans and proposed design refinements for the new bridge over the Clarence River at Harwood.

In the next six months (January to June 2017) we will:

From Port Macquarie to Coffs Harbour:

- complete the Hastings River bridge on the Oxley Highway to Kundabung project
- complete all bridges and mainline paving on the 14 kilometre Kundabung to Kempsey upgrade
- complete all bulk earthwork on the Warrell Creek to Nambucca Heads project.

From Woolgoolga to Ballina:

- complete the traffic switch onto the new northbound carriageway, north of Range Road on the Woolgoolga to Halfway Creek project
- complete all bridges and mainline paving on the Halfway Creek to Glenugie project
- award contract and start work on the new bridge over the Richmond River at Broadwater
- finalise detailed design for the Woolgoolga to Ballina project.



Aerial view of the Warrell Creek to Nambucca Heads upgrade – piling in the lower Warrell Creek (November 2016)

Community

A snapshot of community consultation carried out for the Pacific Highway upgrade in the past six months:



More than 5630 face to face meetings



Distributed 249 notifications and project updates to about 210,000 householders/people interested in the project



Managed more than 140 media releases and inquiries and held more than 20 community events, including site tours and opening events.



Representatives from the Malaysian Pan Borneo Highway upgrade team visited the new Wilson River bridge near Port Macquarie in December

Pacific Highway upgrade attracts international visitors

Seven Malaysian officials from the Pan Borneo Highway project inspected the Pacific Highway upgrade in December 2016, travelling between Port Macquarie and Byron Bay. During the visit, the Pacific Highway upgrade team shared their learnings, views, and technological expertise on best practices on the following subjects:

- roads and bridge design
- services, equipment and technological applications
- workplace health and safety
- soft soil treatment.

General Manager, Pacific Highway upgrade, Bob Higgins said, "The site visit over three days provided the opportunity for the highway upgrade project team to showcase their projects and their learning from projects spanning the last 20 years."

Community feedback for design aspects of Pacific Highway upgrade

The project team recently sought public feedback about the proposed design refinements and the draft Urban Design and Landscape Plan for the Pacific Highway upgrade from Woolgoolga to Ballina. Feedback is being considered and the final plan will be published in early 2017.

Woolgoolga to Ballina upgrade team supports Westpac Rescue Service

In September 2016 the Woolgoolga to Ballina Pacific Highway development team donated their prize money from the Roads and Maritime Celebrating our Values award, and the 2015 Transport Award, to the Westpac Lifesaver Rescue Helicopter Service as part of their commitment to road safety.

Community consultation for the new bridge over the Clarence River at Harwood

The project team invited the community to have their say on the draft Urban Design and Landscape Plan for the new bridge over the Clarence River at Harwood (see last page for an artist's impression) from 28 November to 16 December 2016. The draft plan



Work is in progress for a new bridge over the Clarence River at Harwood with geotechnical investigations under way (November 2016)

illustrated how the bridge will look in the existing landscape and feedback was sought on vegetation and proposed planting and other features such as lighting. The plan was placed on display at Clarence Valley Council, Harwood Island General Store and at the Pacific Highway Office, Grafton. In December the project team also attended market days in Maclean, Iluka and Yamba and held information displays at Harwood, Grafton and Maclean.

Opening of Nambucca Heads to Urunga

The Nambucca Heads to Urunga project was officially open to traffic on 22 July 2016 and provides about 22 kilometres of four lane divided road from Nambucca Heads to the existing Waterfall Way interchange at Raleigh. The project features new interchanges at Nambucca Heads and Ballards Road at Valla, and an upgraded interchange at Waterfall Way.

The Nambucca Heads to Urunga upgrade allows road users to bypass the community of Urunga, providing an ongoing safety benefit by removing heavy vehicles from local roads. The upgrade also delivers significant safety and travel time improvements for the more than 14,000 motorists who travel along this stretch of the Pacific Highway daily. The upgrade includes a wide median to reduce the risk of head-on collisions.

Thirty seven bridges have been built along the alignment to cross local roads, creeks and drains, improving the flood immunity of the new highway.



An official ribbon cutting was held to celebrate the opening of the Nambucca Heads to Urunga section of the highway in July 2016



Aerial view of the new Nambucca Heads interchange and future highway service centre site (November 2016)

Workplace health and safety

Safety is a core value for Roads and Maritime. We are focused on the safety of all road users and our workers.

As the agency responsible for enabling safe and efficient journeys throughout NSW, Roads and Maritime has a moral, legal and shared duty to ensure the health and safety of all our workers and others who may be affected by our activities. We consult and collaborate with our industry partners to eliminate risks and put safety first across the Pacific Highway upgrade.

Managing risk and sharing knowledge

Incidents involving large machinery and equipment continue to pose the biggest safety risk for all Pacific Highway project sites. Although 32 per cent (figure 1) of incidents reported between July and December involved large machinery and equipment, slips, trips and falls were the most prevalent source of reported

injuries on project sites, accounting for 34 per cent (figure 2) of all reported injuries.

Project: Warrell Creek to Nambucca Heads and Kundabung to Kempsey Lost Time Injury Milestones

During the past six month two projects reached significant safety milestones:

1. Warrell Creek to Nambucca Heads – Pacifico: reached two million man hours and 500 days lost time injury free.
2. Kundabung to Kempsey – McConnell Dowell OHL Joint Venture: reached one million man hours lost time injury free.

These significant safety milestones demonstrate a strong reflection of both Roads and Maritime and the industry partners positive commitment to delivering the Pacific Highway projects safely.

Work health and safety traffic light status January 2016 to December 2016 (comparing lead and lag indicators)

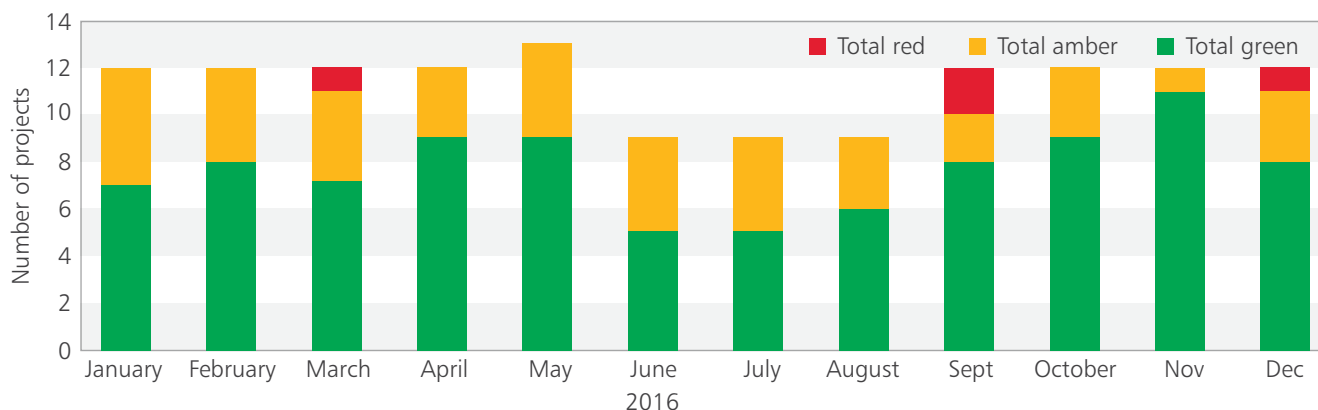


Figure 1: Reported incidents by category July to December 2016

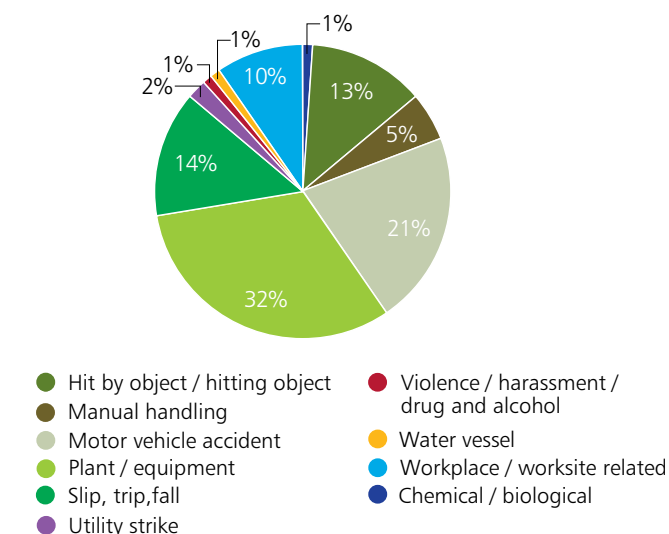
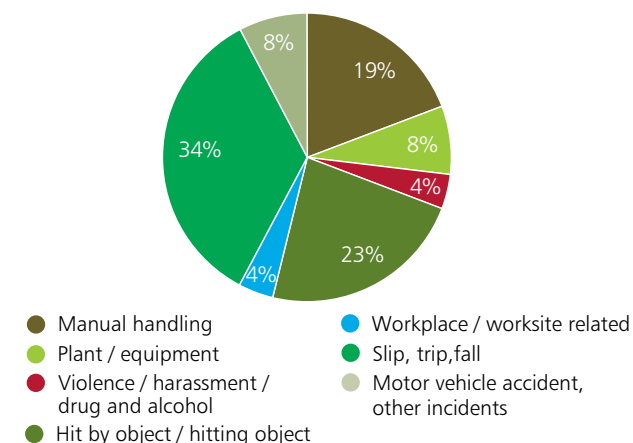


Figure 2: Reported injuries July to December 2016



Safety initiatives on the Pacific Highway upgrade

Pacific Highway project safety

Roads and Maritime has identified the need for the standardisation of separation, delineation and signage requirements throughout the Pacific Highway projects.

Through consultation and collaboration with industry partners in addition to activities held within the workplace health and safety workshop in May 2016, Roads and Maritime developed a Pacific Highway upgrade guide for the standardisation of separation, delineation and signage requirements.

The intent is to standardise controls associated with the guide to provide a similar look and feel to all construction projects. This has the potential to add significant value for transient workers and contractors alike.

Project SafeR

A focus of the CEO safety roundtable in March 2016 was collaboration across the roads industry to improve safety for workers. It was agreed to share and analyse work health and safety data from across major projects, creating Project SafeR.

Over the nine months that followed the roundtable, Roads and Maritime collected data on 3700 events from 29 Roads and Maritime active major projects (including the Pacific Highway upgrade). Over a year this data equated to more than 10 million worker hours on our projects.

In December 2016, more than 60 industry safety and construction leads and senior safety representatives attended met to discuss trends and opportunities for improvement.

The forum promoted collaboration not competition, improved industry partnerships and increased knowledge sharing. Action groups were formed on the day to take forward four pilot projects that were identified as priorities and the development of these initiatives is well under way. Agreement was also reached to continue to collect data and share analysis and trends.

Project: Woolgoolga to Halfway Creek and Halfway Creek to Glenugie Contractor: OHL York and CMC

Both OHL York and CMC projects recognised the benefits of raising suicide awareness. It is estimated that every year 190 Australians working in the

construction industry take their own lives, this means Australia loses a construction worker every second day to suicide.

Both OHL York and CMC facilitated the 'MATES in Construction' training on their respective project sites. The training involved both workers and leadership personnel undergoing general awareness and suicide prevention training.

On completion of the training, participants that volunteered to perform a more active role underwent additional training. This prepared the volunteers to assist in keeping someone in crisis safe, while at the same time connecting them to professional help.



Celebrating a safety milestone, the Warrell Creek to Nambucca Heads team achieved two million man hours and 500 days lost time injury free

Environment

Environment work completed, July to December 2016:

Koala plans approved

- Roads and Maritime achieved Australian Government approval of the Ballina Koala Plan on 19 July 2016 and the Koala Management Plan on 11 August 2016.
- Approval was critical for the start of major work between Broadwater and Coolgardie, section 10 of the Woolgoolga to Ballina upgrade project.
- Key measures to secure the future of koalas in July to December included:
 - awarded contracts for at least 130 hectares of koala food habitat to be planted to ensure the vegetation is developed in time for the highway's planned completion by 2020
 - started using koala detection dogs for ecologists to take action to avoid injury to koalas during the clearing process
 - a koala interest group was formed consisting of representatives of Roads and Maritime, Friends of the Koala, Ballina Shire Council, Environment Protection Authority and Pacific Complete to provide regular updates on koala management and monitoring measures
 - established a predator control program that targets wild dogs, foxes and feral cats to minimise impacts on koala population ahead of clearing. More than 20 private landholders have agreed to take part in the program, with control measures due to start in early 2017.

Other key measures underway include the installation of about 26 wildlife crossings, additional fencing on the existing highway and nearby local roads, and completely closing fencing of the new highway between Richmond River and Coolgardie Road with improved fauna connectivity structures.



Australian Government approval of the koala plans was critical in enabling the highway upgrade to proceed

Saving young quolls

- In December, the Pacific Highway project team successfully relocated spotted-tail quoll pups captured on the Woolgoolga to Halfway Creek section.
- The three quoll pups had been found in November by project ecologists, after their mother had been struck on the highway.

- They were transported to a specialist carer at Currumbin Wildlife Sanctuary and after thriving in care were released on 20 December, into Yuraygir National Park, more than 15 kilometres away from the highway.
- The release of the quolls was a joint initiative of Roads and Maritime, National Parks and Wildlife Service, Environment Protection Authority, Pacific Complete, Sandpiper Ecological and OHL York JV.



Quolls were rescued and transported to the Currumbin Wildlife Sanctuary in November 2016 before being released back into the wild

Conserving endangered fish

- Roads and Maritime worked with the NSW Department of Primary Industries (DPI Fisheries) and contractors to conserve endangered fish *Oxleyan Pygmy Perch (OPP)* in waterways along the Woolgoolga to Ballina section.
- The site team completed earthwork within 50 metres of the *OPP* habitat that included innovative soft scour treatments, water quality measures and landscaping with more than 8000 creek grass plants to stabilise the sites before the *OPP* spawning season.
- DPI Fisheries commended the site team for excellence in environmental performance and best practice for their work.

Nest boxes installed

- Nearly 700 nest boxes are being built and installed in trees along the Woolgoolga to Ballina section of the upgrade, in a project involving the Grafton Men's Shed, OCI Caringa and Beamer Tree Services.
- By December, the Pacific Highway upgrade team had found that of the 249 nest boxes already installed along the Halfway Creek to Glenugie section, monitoring had confirmed 25 per cent were occupied or showed signs of occupation by possums, gliders, including the threatened squirrel glider, and birds.
- In the Frederickton to Eungai section, recent monitoring of nest boxes showed that 69 per cent were either occupied or showed evidence of occupation, including occupation by the threatened squirrel glider.

Frog friendly underpasses

- As part of the highway upgrade, from Warrell Creek to Nambucca Heads, key measures were introduced to reduce the impact to threatened species including the giant barred frog and barred frog tadpoles, of the *Mixophyes* genus.
- Giant barred frog monitoring on the Oxley Highway to Kempsey section of the project also continued to yield good results.

Native bee preschool project

- In September, the Australian Native Bee Company along with Richmond Landcare and Roads and Maritime launched a project involving 20 northern NSW preschools that aims to promote the importance of native bees and raise awareness of activities to minimise impacts associated with road construction. As part of the project the preschools were invited to host a hive of stingless bees at their schools.

Emu fencing trial

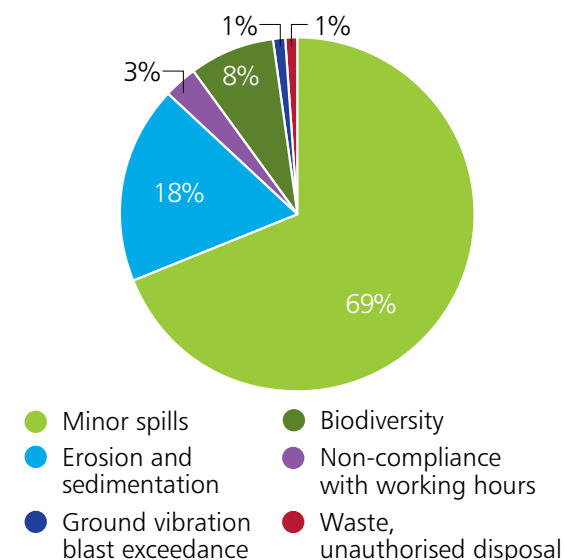
- As part of the Emu Management Plan for the Woolgoolga to Ballina upgrade, monitoring was held to assess the effectiveness of fencing in protecting emus.
- The results found that fencing supported the direction of emus to proposed connectivity structure locations and allowed emus to pass through specifically designed fencing sections that align with underpass structures.

- These findings were important given that connectivity is, at times, needed to provide a passage for emus under the highway, but not cattle. Further monitoring is scheduled.

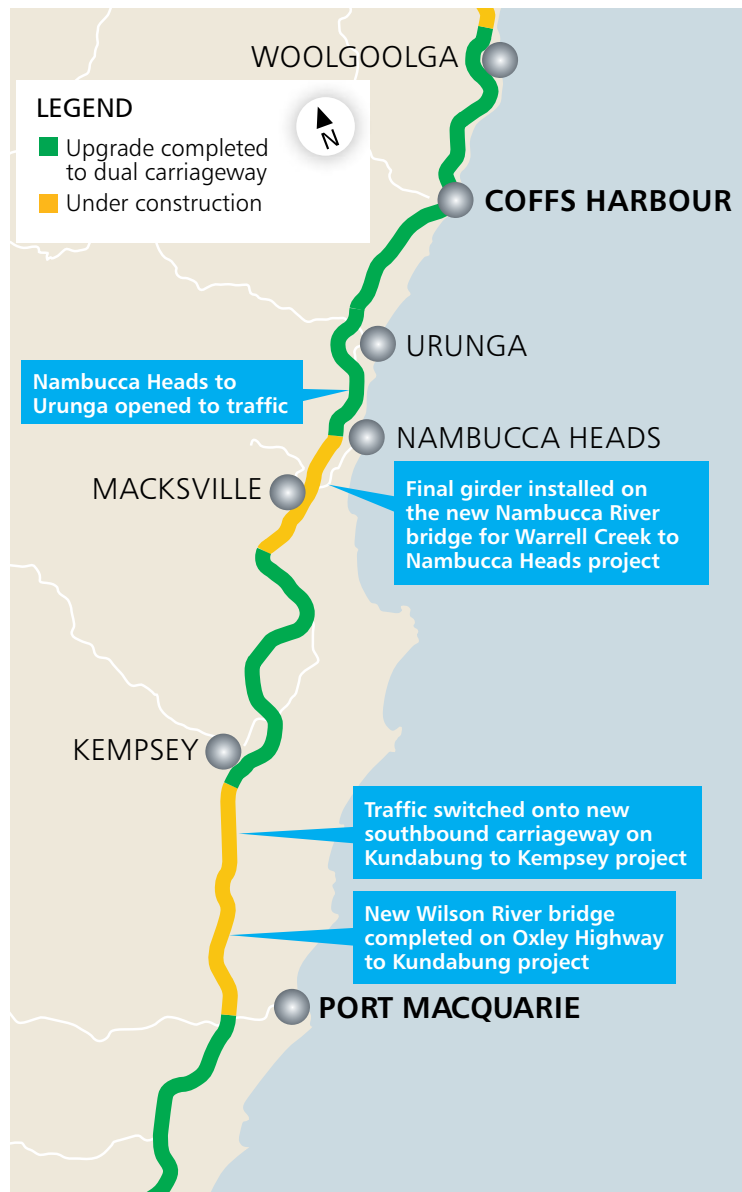
Fauna crossings

- Following three years of monitoring of fauna crossings on the Glenugie upgrade project the regular use of fauna crossing structures by target threatened species including rufous bettong, brush-tailed phascogale, squirrel gliders and microbats has been confirmed. One unexpected record of a koala was recorded using one of the underpasses.

Environmental incidents recorded July to December 2016



Port Macquarie to Coffs Harbour overview



The Australian and NSW governments are investing \$3.3 billion to upgrade 105 kilometres which will complete the Pacific Highway upgrade to four lane divided road between Port Macquarie and Coffs Harbour. The remaining 57 kilometres still to be upgraded is well advanced.

The Nambucca Heads to Urunga project opened to traffic in July 2016. The 26 kilometre Frederickton to Eungai project opened to traffic in May 2016, the Sancrox and Kundabung interchanges have partially opened to traffic. The remaining three projects will open to traffic throughout 2017, weather permitting.

The Coffs Harbour bypass is currently in its planning stages and does not form part of the 2020 completion date for the Pacific Highway upgrade.

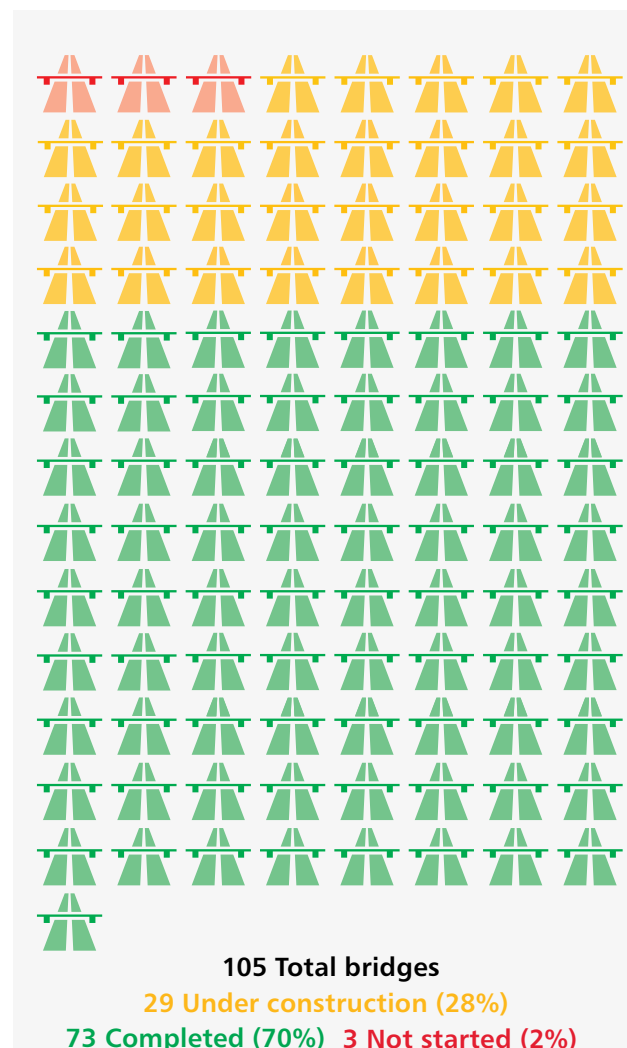
The summaries on the following pages outline progress in completing this section of the Pacific Highway upgrade, including key building activities.



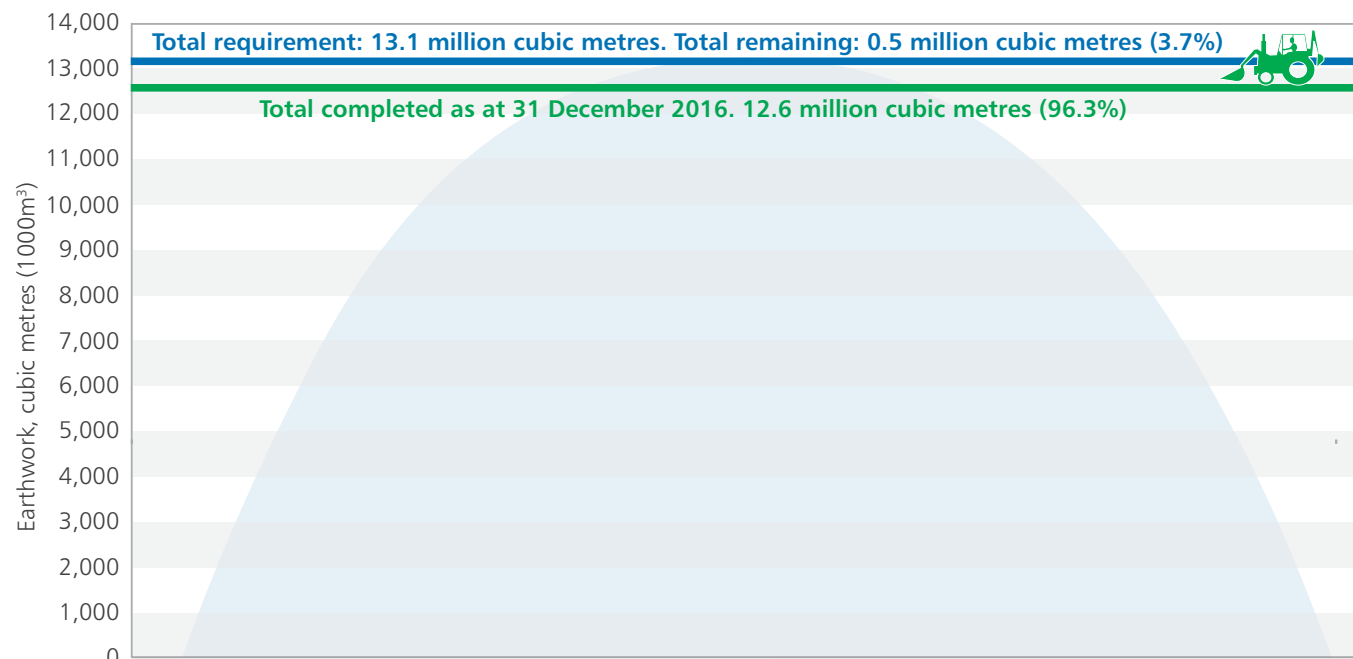
Work in progress on the new Blackmans Point Road interchange, Oxley Highway to Kundabung project (November 2016)

Port Macquarie to Coffs Harbour overview

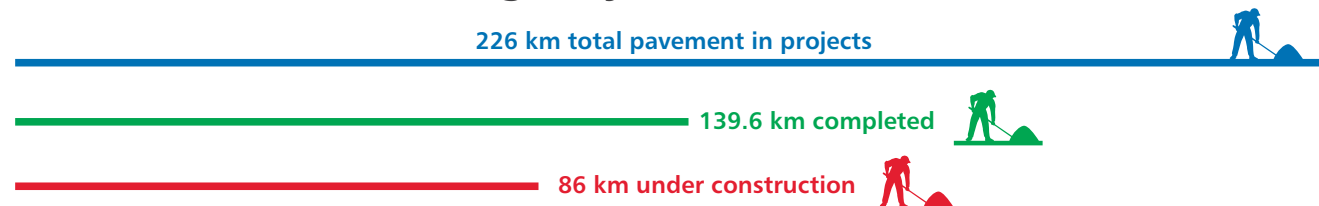
Bridges



Earthwork



Road surface (road carriageway kilometres)



Projects being built

Oxley Highway to Kundabung

Contractors: Lendlease

Form of contract: Design and build

Average workers on site during the past six months: 554 workers per month

Average pieces of large machinery on site during the past six months: 132 pieces of machinery per month

Start date of major construction: October 2014

Completion date: 2017 (weather permitting)

Project value: \$820 million



The Oxley Highway to Kundabung project is the southern section of the Oxley Highway to Kempsey upgrade, which was approved by the NSW Minister for Planning and Infrastructure in 2012 and the Federal Department of the Environment in January 2014.

The project is jointly funded by the Australian and NSW governments. It involves building 23 kilometres of four lane divided road, including bridges over the Hastings and Wilson rivers.

33 days were lost to wet weather in the past six months. 

July to December 2016, work progress: 

- ✓ continued mainline concrete paving and mainline asphalt placement started
- ✓ completed the bridge over the Wilson River
- ✓ completed girder placement on the Hastings River bridge and other floodplain bridges, and completed bridge decks
- ✓ traffic was switched onto the new northbound carriageway between the Oxley Highway and Fernbank Creek to allow completion of the adjacent southbound carriageway
- ✓ traffic was switched onto the new southbound carriageway at Barrys Creek to allow the new northbound Barrys Creek bridge to be built
- ✓ Pacific Highway traffic was temporarily diverted over one of the new Blackmans Point interchange bridges.

January to June 2017, expected work progress: weather permitting

- complete all bridges, except for southbound bridges at Cooperabung Creek and Yarrabee Road
- finish stage two controlled blasting work at Cooperabung cutting

- complete bulk earthwork activities
- continue installing boundary fencing and fauna exclusion fencing
- complete asphalt paving work on the Wilson River floodplain, except for the final wearing course layer
- complete stage two earthwork south of Fernbank Creek and earthwork near Barrys Creek
- complete the northbound pavement between Haydons Wharf Road and Yarrabee Road, and switch traffic so that the southbound lanes can be constructed
- continue mainline concrete paving.

Community issues: 

Scoping for at-house noise treatments continued and building work on some residences continued.

Drainage issues along the Wilson River floodplain are being investigated.

Environmental issues: 

Nil.

 on average
554 workers
on site per month

 on average
132 pieces of large machinery
on site per month



Oxley Highway to Kundabung upgrade. Aerial view of the new bridge at Hastings River (November 2016)

Projects being built

Kundabung to Kempsey

Contractors: McConnell Dowell-OHL joint venture

Form of contract: Build only

Average workers on site during the past six months: 230 workers per month

Average pieces of large machinery on site during the past six months: 116 pieces of machinery per month

Start date of major construction: November 2014

Completion date: 2017 (weather permitting)

Project value: \$230 million



The Kundabung to Kempsey project is the northern section of the Oxley Highway to Kempsey upgrade, which was approved by the NSW Minister for Planning and Infrastructure in 2012 and the Federal Department of the Environment in January 2014.

The project is jointly funded by the Australian and NSW governments. It involves building 14 kilometres of four lane divided road, including a new interchange at Kundabung and two new rest areas.

26 days were lost to wet weather in the past six months.

July to December 2016, work progress:

- ✓ traffic was switched from the existing highway on the new southbound carriageway, and this allowed building work to start on the new northbound carriageway
- ✓ completed concrete paving for the new southbound carriageway
- ✓ completed stage one earthwork
- ✓ completed stage one longitudinal drainage installation
- ✓ completed work to install buildings at the southbound rest area
- ✓ started installation of extensions to box and pipe drains under the existing highway
- ✓ started construction of the new Smiths Creek bridge on the northbound carriageway.

January to June 2017, expected work progress: weather permitting

- complete all nine bridges
- complete all bulk earthwork
- complete concrete paving
- continue work on the new heavy vehicle inspection bay
- continue construction of the new Barrys Creek rest areas
- continue landscaping, fencing and finishing work on the new main highway alignment.

Community issues:

Ongoing consultation about property adjustments.

Environmental issues:

Ongoing review of erosion and sediment control requirements.

on average
230 workers
on site per month

on average
116 pieces of large machinery
on site per month



Kundabung to Kempsey upgrade looking south from Kundabung Road interchange partially opened to traffic (November 2016)

Projects being built

Warrell Creek to Nambucca Heads

Contractors: Pacifico (Acciona Ferrovia Joint Venture)

Form of contract: Design and build

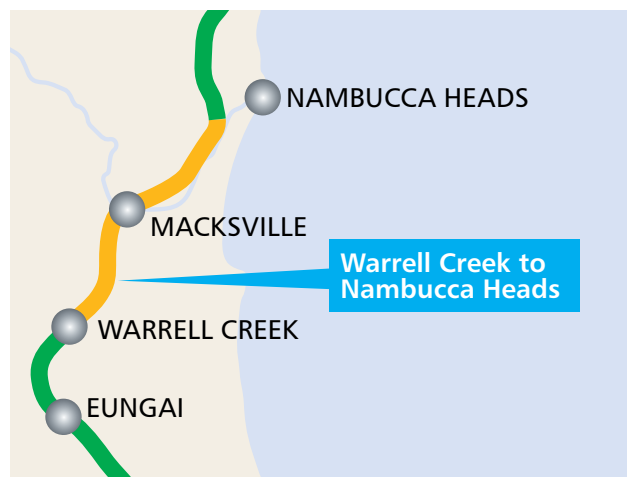
Average workers on site during the past six months: 532

Average pieces of large machinery on site during the past six months: 137

Start date of major construction: December 2014

Expected completion date: Open to traffic late 2017 (weather permitting)

Project value: \$830 million



The Warrell Creek to Nambucca Heads project is the second stage of the Warrell Creek to Urunga upgrade, which was approved by the Minister for Planning and Infrastructure in 2011. The Federal Department of the Environment approved this upgrade in December 2014.

The project is jointly funded by the Australian and NSW governments.

34 days were lost to wet weather in the past six months.

July to December 2016, work progress:

- ✓ completed, and opened to traffic, the local road overbridge at Mattick Road
- ✓ started work to build the remaining three bridges on the project
- ✓ started constructing the underpass of the North Coast railway line
- ✓ mainline concrete and asphalt road paving started
- ✓ all cross drainage and fauna culverts were installed
- ✓ Old Coast Road central was opened to traffic.

January to June 2017, expected work progress: weather permitting

- complete detailed design
- complete bulk earthwork
- continue installing drainage

- continue mainline concrete and asphalt road paving
- complete, and open to traffic, local road overbridges at Cockburns Lane, Rosewood Road, Albert Drive, Bald Hill Road and Old Coast Road south
- continue work on local road overbridges at Scotts Head Road quarry and Old Coast Road north
- continue work for bridges over Upper and Lower Warrell Creek, Williamson Creek, Gumma floodplain and Nambucca River
- continue work for the North Coast railway underpass.

Community issues:

Scoping for at-house noise treatments continued and building work on some residences continued.

Issues with drainage, access and noise are being worked through with impacted residents.

Discussions with council over handover of existing Pacific Highway.

Environmental issues:

Nil.

on average **532** workers on site during the past six months

on average **137** pieces of large machinery on site during the past six months



Warrell Creek to Nambucca Heads upgrade. Aerial view of the final girder being placed on the new Nambucca River bridge (November 2016)

Projects being built

Nambucca Heads to Urunga

Contractors: Lendlease

Form of contract: Design and build

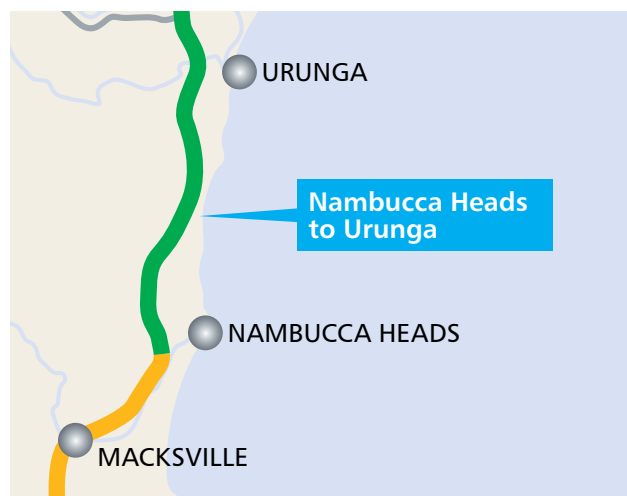
Average workers on site during the past six months: 182 workers per month

Average pieces of large machinery on site during the past six months: 70 pieces of machinery per month

Start date of major construction: November 2013

Expected completion date: Early 2017 (opened to traffic July 2016)

Project value: \$780 million



The Nambucca Heads to Urunga project was the first stage of the Warrell Creek to Urunga upgrade, which was approved by the Minister for Planning and Infrastructure in 2011. The Federal Minister for the Environment approved this upgrade in November 2013.

The project is jointly funded by the Australian and NSW governments. It provides about 22km of four lane divided road from Nambucca Heads to the existing Waterfall Way interchange at Raleigh.

Six and a half days were lost to wet weather in the past six months. ☁️

July to December 2016, work progress: 🚧

- ✓ the project was opened to traffic on 22 July 2016
- ✓ speed limit raised to 110 km/h in November
- ✓ finished bitumen asphaltting work
- ✓ finished landscape planting, animal fencing and top soiling of slopes
- ✓ finished work to install road signs and completed line marking.

January to June 2017, expected work progress: weather permitting

- completion of local road work
- project completion.

Community issues: 👥

Post operational traffic noise monitoring took place in November and December. A report will be published in mid 2017.

Repairs to local roads.

Negotiations continue about handover of existing Pacific Highway.

Environmental issues: 🌿
Nil.

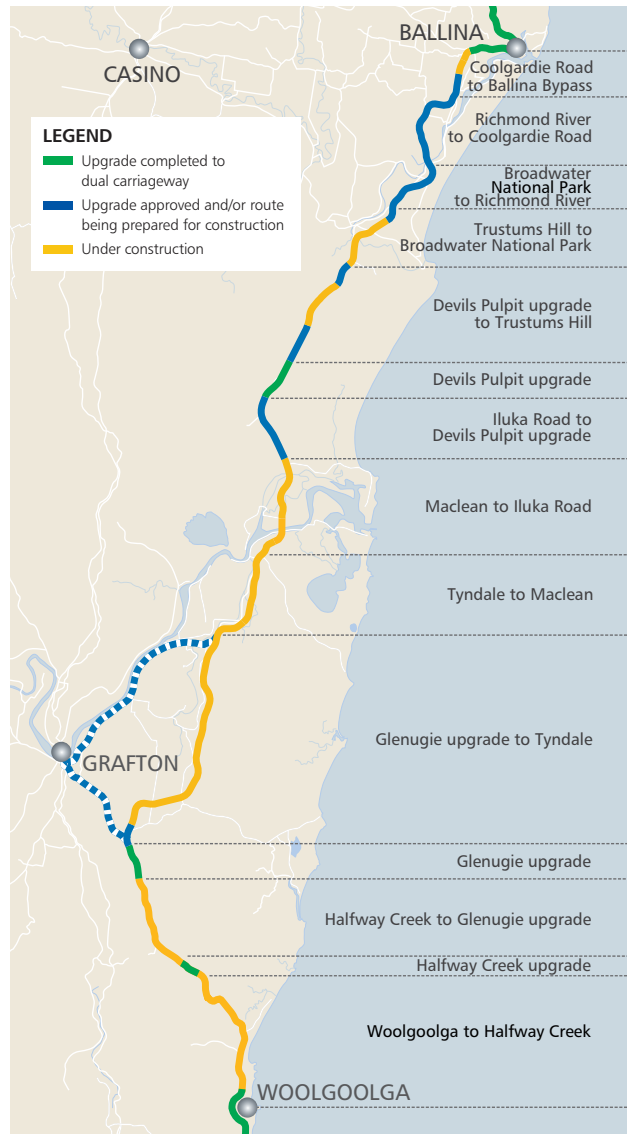
on average
182 workers
on site per month

on average
70 pieces of large machinery
on site per month



Aerial view of the Nambucca Heads to Urunga upgrade - Waterfall Way interchange (November 2016)

Woolgoolga to Ballina overview



The 155 kilometre upgrade between Woolgoolga and Ballina is Australia's largest regional infrastructure project and the last highway link between Hexham and the Queensland border to be upgraded to four lanes.

Roads and Maritime selected Pacific Complete as the delivery partner for the Woolgoolga to Ballina Pacific Highway upgrade.

The project was approved by the NSW Minister for Planning in June 2014 and the Federal Minister for Planning in June 2014 and the Federal Minister for the Environment in August 2014; and is jointly funded by the Australian and NSW governments.

Key features of the Woolgoolga to Ballina upgrade:

- 155 kilometres of dual carriageway
- \$4,356 billion cost
- more than 100 bridges to be built
- 14.2 million cubic metres of earthwork
- nine interchanges
- five towns/villages bypassed.

July to December 2016, work progress:

Work has started on 104 kilometres of the 155 kilometre project, with mainline construction well advanced on 26 kilometres between Woolgoolga and Glenugie which will open to traffic by the end of 2017, weather permitting.

Contracts

- ✓ Issued tenders for the building of mainline bridges (including the bridge over the Richmond River at Broadwater) and major civil work packages
- ✓ Awarded a revegetation package to establish at least 130 hectares of new koala vegetation in the area between Broadwater and Coolgardie
- ✓ Finalised the awarding of all enabling environmental and survey contracts
- ✓ Issued 31 tenders to the market and awarded 16 packages
- ✗ Award the preferred supplier arrangements for the supply of fuel, concrete and quarry materials – expected to be achieved early 2017.

Design

- ✓ Completed most of the detailed design
- ✓ Completed detailed design of all elements required for procurement
- ✓ Managed additional temporary work design carried out by contractors.

Environment

- ✓ Obtained NSW Department of Planning and Environment approval for the borrow site management plans

- ✓ Continued to prepare and obtain approvals for ancillary facility management plans (Glenugie to Ballina)
- ✓ Prepared and submitted the first biannual construction compliance report (Glenugie to Ballina)
- ✓ Obtained Department of Environment and Heritage Protection approval for the Ballina Koala Plan and associated NSW Department of Planning and Environment approval for the Koala Management Plan.

Stakeholder engagement

- ✓ Started the conversation with communities and stakeholders about detailed design, urban design and landscaping, and flooding
- ✓ Continued to hold meetings with stakeholders, community members and directly impacted landowners
- ✓ Continued to facilitate property access
- ✓ Continued providing input to contractor project inductions.

January to June 2017, expected work progress: weather permitting

Contracts

- Shortlist and award tenders for major civil contracts and specialist contracts for koala management
- Award the design and construction contracts for the bridge over the Richmond River at Broadwater.

Design

- Finalise detailed design.

Environment

- Continue installation of about 700 nest boxes in trees along the Pacific Highway upgrade to provide alternative nesting and roosting places for wildlife
- Start work on koala fencing and revegetation between Broadwater and Coolgardie.

Stakeholder engagement

- Continue holding meetings with councils, stakeholders including emergency services, community members and directly impacted landowners along the alignment.



on average
600 workers
on site per month*

*excluding Woolgoolga to Glenugie projects



Foundation work on Coldstream area (November 2016)



Soft soil work, Wave 2, between Whytes Lane and Pimlico Road (July 2016)

Projects being built

Woolgoolga to Halfway Creek

Contractors: OHL and York joint venture

Form of contract: Construct only

Average workers on site during the past six months: 163 workers per month

Average pieces of large machinery on site during the past six months: 100 pieces of machinery per month

Start date of major construction: June 2015

Expected completion date: End of 2017 (weather permitting)

Project value: Forms part of the Woolgoolga to Ballina upgrade



The Woolgoolga to Halfway Creek project – the first section of the overall Woolgoolga to Ballina upgrade – will link the Sapphire to Woolgoolga project in the south and the existing Halfway Creek upgrade in the north, providing about 14 kilometres of divided road.

The project is jointly funded by the Australian and NSW governments. The key features of the Woolgoolga to Halfway Creek upgrade include a 300 metre long twin bridge over the Corindi floodplain to allow flood waters to pass under the highway and bridges over the highway to Sherwood Creek Road and Kangaroo Trail Road for local road access.

18.5 days were lost to wet weather in the past six months.

July to December 2016, work progress:

- ✓ completion of a traffic switch to the new northbound carriageway between Arrawarra interchange and Tasman Street at Corindi
- ✓ completion of traffic switch at Dirty Creek Range
- ✓ completion of all bridges, the majority of earthwork, and all accessible drainage structures throughout the site
- ✓ completion of the second stage of Eggins Drive upgrade and the closure of its northern intersection with the highway.

January to June 2017, expected work progress: weather permitting

- traffic switch onto the new northbound carriageway under contra-flow, north of Range Road
- completion of Eggins Drive upgrade
- continue concrete paving south of Range Road.

Community issues:

Nil.

Environmental issues:

Nil.

on average
163 workers
on site per month

on average
100 pieces of large machinery
on site per month



Aerial view of the Woolgoolga to Halfway Creek project, looking south from the new interchange at Range Road (November 2016)

Projects being built

Halfway Creek to Glenugie

Contractors: Civil Mining & Construction

Form of contract: Build only

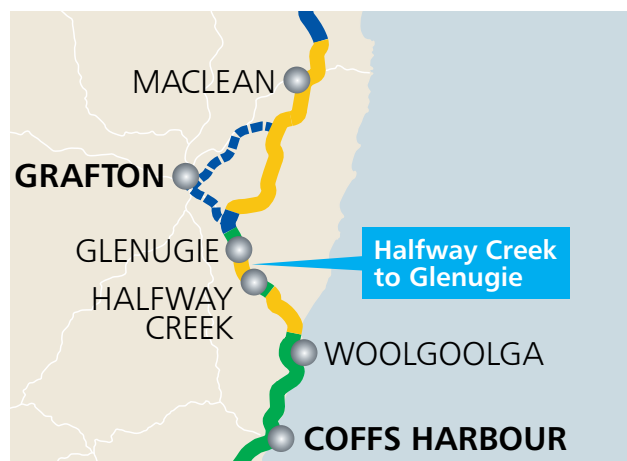
Average workers on site during the past six months: 150 workers per month

Average pieces of large machinery on site during the past six months: 50 pieces of machinery per month

Start date of major construction: June 2015

Expected completion date: 2017 (weather permitting)

Project value: Forms part of the Woolgoolga to Ballina upgrade



The Halfway Creek to Glenugie project – the second section of the overall Woolgoolga to Ballina upgrade – will link the completed Halfway Creek upgrade in the south and the existing Glenugie upgrade in the north. The project will be completed in two stages, the first stage is expected to open to traffic in 2017 and includes 12 kilometres of new southbound carriageway and six kilometres of new northbound carriageway. The second stage, which includes six kilometres of new northbound carriageway from Wells Crossing to Franklins Road, is in planning and will open to traffic in 2020.

The project is jointly funded by the Australian and NSW governments. Key features of the Halfway Creek to Glenugie section include twin bridges over Halfway Creek and Wells Crossing Creek, as well as a wide median to assist animals crossing at Newfoundland State Forest.

25.5 days were lost to wet weather in the past six months. ☁️

July to December 2016, work progress: 🚧

- ✓ completed a traffic switch onto the new northbound carriageway from Kungala Road to Wells Crossing
- ✓ completed northbound carriageway concrete paving from Lemon Tree Road to Wells Crossing
- ✓ temporarily switched highway traffic onto the completed northbound carriageway from Lemon Tree Road to Kungala Road

- ✓ continued drainage and earthwork across the project
- ✓ continued placing concrete paving across the project
- ✓ completed bridges at Halfway Creek.

January to June 2017, expected work progress: weather permitting

- completion of all new bridges on the project
- complete concrete paving
- continue landscaping, fencing and finishing work on the new highway alignment
- continue work on the new heavy vehicle inspection bay at Halfway Creek.

Community issues: 👤

Nil.

Environmental issues: 🌿

Nil.

👷👷 on average
150 workers
on site per month

🚧🚧 on average
50 pieces of large machinery
on site per month



Aerial view of the Halfway Creek to Glenugie upgrade (November 2016)

Soft soil work - Waves 1 and 2

Soft soil (Wave 1) between Farlows Lane to Chatsworth Road (about 6.2 km)

Contractors: Golding Contractors

Average pieces of large machinery on site: 59

Start date: September 2015

Expected completion date: February 2017

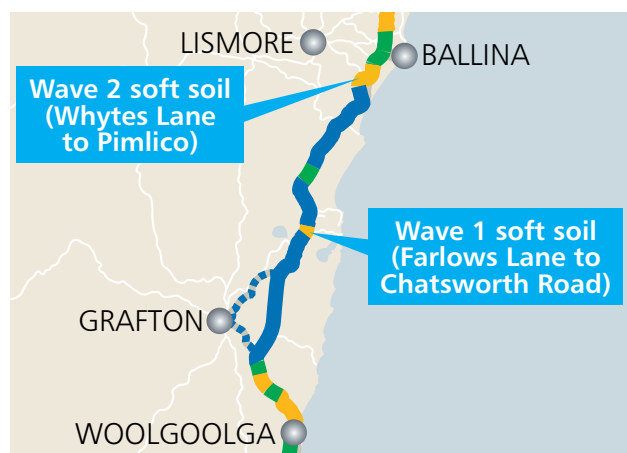
Soft soil (Wave 2) between Whytes Lane to Pimlico Road (about 3.8 km)

Contractors: SEE Civil Pty Ltd

Average pieces of large machinery on site: 2

Start date: November 2015

Completion date: July 2016



A key component of the 155 kilometre upgrade between Woolgoolga and Ballina, which will see the Pacific Highway upgraded to four lanes, is the preparation of soft soil sites.

Preparation of soft soil sites includes clearing, installing erosion and sediment controls, drainage and wicks, and monitoring equipment as well as placing fill on embankments. Once this preparation is complete monitoring of the sites continues during the settlement period. There are four soft soil wave projects. Wave 1 is due for completion in February 2017 and Wave 2 was completed in July 2016. Waves 3 and 4 are currently underway. This early work forms part of the Woolgoolga to Ballina upgrade which is jointly funded by the Australian and NSW governments.

Soft soil work – Wave 1 (Farlows Lane to Chatsworth Road)

Soft soil work started between north of Farlows Lane and Chatsworth Road (around 6.2 kilometres) in September 2015 and is due for completion in February 2017. This early work will enable building to start on the main highway.

Soft soil work – Wave 2 (Whytes Lane to Pimlico Road)

Soft soil work started between Whytes Lane and Pimlico Road (around 3.8 kilometres) in November 2015 and was completed in July 2016 and is now undergoing settlement to enable building to start on the main highway.



Signage for soft soil settlement



Aerial view of Wave 2 soft soil work Farlows Lane to Chatsworth Road



Instrumentation monitoring

Soft soil work - Wave 3 (Tyndale to Maclean)

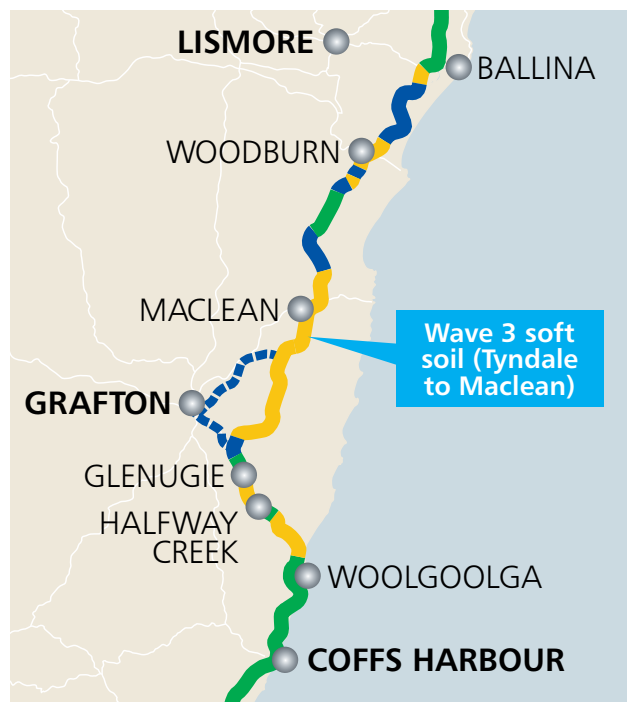
Soft soil (Wave 3) between Tyndale to Maclean (about 11.5 km)

Contractors: FKG Group

Average pieces of large machinery on site during the past six months: 75

Start date: July 2016

Expected completion date: October 2017
(weather permitting)



Soft soil work started between Tyndale and Maclean (about 11.5 km) in July 2016. Following the settlement period, this early work will enable building to start on the main highway road.

16 days were lost to wet weather in the past six months. ☁️

July to December, work progress: 🚧

- ✓ placed foundations and continued wicking of soft soil, south of Shark Creek
- ✓ installed drainage, carried out controlled blasting and started excavation at sites east and north of Tyndale
- ✓ installed monitoring instrumentation at Maclean interchange and south of Shark Creek
- ✓ placed embankment layers at the southern end of the project, north of Causleys Lane.

January to June, expected work progress:

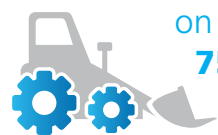
- continue placement of foundations and wicking of soft soil, south of Shark Creek
- continue excavation at Tyndale.

Community issues: 👤

Nil.

Environment issues : 🌿

Nil.



on average
75 pieces of large machinery
on site per month



High strength fabric installation at Maclean



Loading and haulage work at Causleys Lane



Northern end of soft soil work, Wave 3, ground treatment before earthwork at the new Maclean interchange (November 2016)

Soft soil work - Wave 4 (Tuckombil)

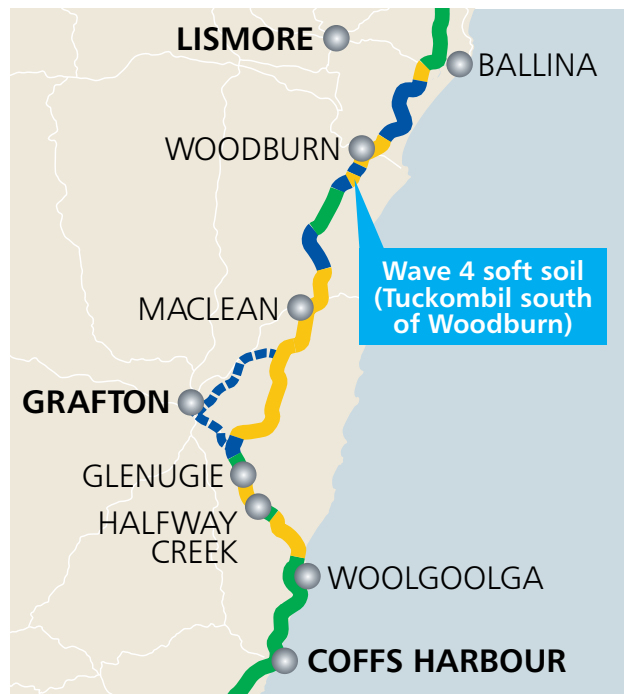
Soft soil (Wave 4) Tuckombil, south of Woodburn (about 1.4 km)

Contractors: SEE Civil Pty Ltd

Average pieces of large machinery on site during the past six months: 20

Start date: April 2016

Expected completion date: May 2017
(weather permitting)



Soft soil work started at Tuckombil, south of Woodburn in April 2016. Following a settlement period, this early work will enable building to start on the main highway.

Seven days were lost to wet weather in the past six months. ☁️

July to December, work progress: 🚧

- ✓ installation of wicks
- ✓ ongoing placement of high strength geo-synthetic material
- ✓ ongoing installation of drainage on the northern embankment
- ✓ general fill placement on the southern embankment
- ✓ monitoring of the embankment fill
- ✓ installed geotechnical instrumentation in additional soft soils area.

January to June, expected work progress:

- completion of soft soil work including installation of wicks and drainage and fill placement
- continue settling and monitoring of soft soils.

Community issues: 👤

Nil.

Environment issues: 🌿

Nil.

on average
20 pieces of large machinery
on site per month




Installation of temporary drainage lines on the southern embankment (September 2016)

Earlywork - Wave 5A (Glenugie to Tyndale)

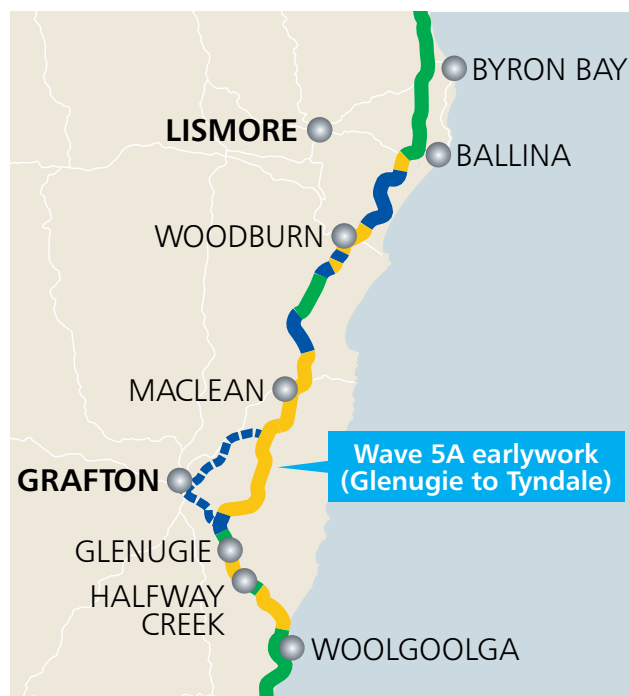
Earlywork (Wave 5A) between Glenugie and Tyndale (about 30 km)

Contractors: Seymour Whyte

Average pieces of large machinery on site during the past six months: 55

Start date: July 2016

Expected completion date: Late 2017
(weather permitting)



Preparation for foundation work between Glenugie and Tyndale began in July 2016. The early work in this section is expected to be complete in late 2017, weather permitting.

Nine days were lost to wet weather in the past six months. ☁️

July to December, work progress: 🚧

- ✓ continued earthwork in the Pillar Valley, Tucabia and Tyndale areas
- ✓ continued clearing work, 60 per cent complete
- ✓ started controlled blasting in November
- ✓ started building the Tyndale site compound in November
- ✓ set up onsite soil lab
- ✓ started rock layer work, clearing and grubbing at soft soil site.

January to June, expected work progress:

- complete Tyndale site compound
- complete earthwork in the Pillar Valley, Tucabia and Tyndale areas
- complete clearing work
- complete controlled blasting
- complete rock layer work, clearing and grubbing at soft soil site.

Community issues: 👤

Nil.

Environment issues: 🌿

Nil.



on average
55 pieces of large machinery
on site per month



The scraper fleet was ready to start in October following clearing works at Wave 5A, between Glenugie and Tyndale

Projects being built

Bridge over Clarence River at Harwood

Contractors: Pacifico Harwood

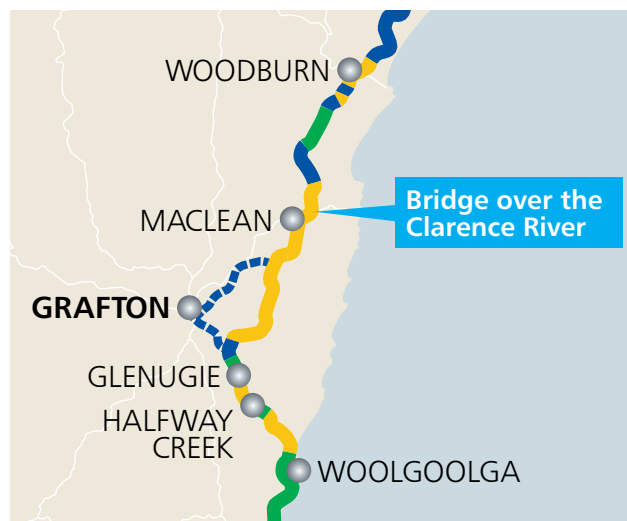
Form of contract: Design and build

Average pieces of large machinery on site during the past six months: 7 pieces of machinery per month

Start date of major construction: August 2016

Expected completion date: Open to traffic by 2020

Project value: Forms part of the Woolgoolga to Ballina upgrade



The bridge over the Clarence River at Harwood will be the longest of more than 100 bridges to be built as part of the Woolgoolga to Ballina Pacific Highway upgrade.

The project involves building a 1.5 kilometre long, four lane divided bridge, about 20 metres east of the existing Harwood Bridge. Activities included drilling and investigation work so that ground condition information can be considered in the detailed design. The main construction work will progress from the northern side of the Clarence River towards the southern bank.

The project is jointly funded by the Australian and NSW governments.

Three and a half days were lost to wet weather in the past six months. 

July to December 2016, work progress: 

- ✓ completed marine geotechnical drilling and investigations from a barge on the Clarence River, and continued on land drilling
- ✓ survey work on land was also carried out to identify and locate services and utilities like telecommunications and water and to confirm the project boundary
- ✓ started importing rock for building the site compound
- ✓ relocated overhead power lines at Yamba Road to underground at the new bridge location.

January to June 2017, expected work progress: weather permitting

- complete fit out of a piling barge at Harwood
- mobilise a piling barge to build a temporary jetty at River Street, Harwood
- mobilise a piling barge for the installation of the main bridge piles
- start the driving of main piles for the new bridge, from north to south
- start the casting of main girders
- complete the importation of quarry materials for the ancillary facility.

Community issues 

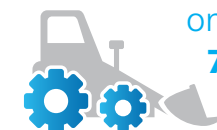
Nil.

Changed traffic and marine conditions

Temporary navigational restrictions will be in place for the duration of the work and the barge will display an all round white light, and flashing orange lights to indicate its location at night.

Environmental issues 

Nil.



on average
7 pieces of large machinery
on site per month



Artists impression of the new bridge over the Clarence River at Harwood

