

Final Business Case Evaluation Summary

Coffs Harbour Bypass



July 2022

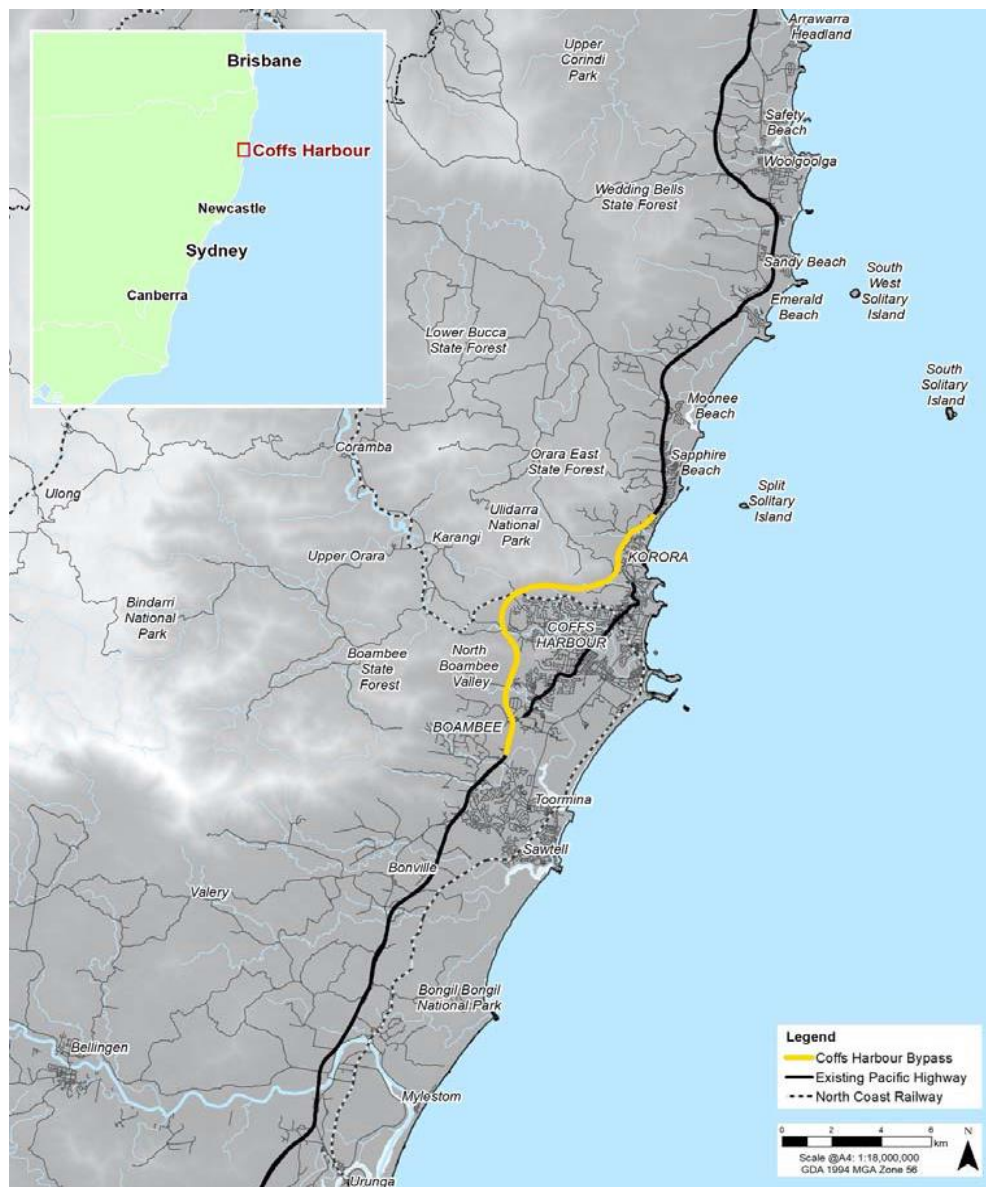
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About this report

The Coffs Harbour Bypass is a proposed 14km 4-lane motorway upgrade of the Pacific Highway from Englands Road to Korora Hill (Figure 1). The project is a priority for the Australian and NSW governments as it will improve connectivity along the Pacific Highway (a key contributor to the national economy) and ensure the Pacific Highway is a continuous 4-lane divided carriageway, essential to supporting growth in traffic volumes, whilst also improving the local road network.

Figure 1: Project location



Source: Transport for NSW 2020, Coffs Harbour Bypass Final Business Case.

The Final Business Case was prepared by Transport for NSW in 2020. This Business Case Evaluation Summary was prepared by Infrastructure NSW, the NSW Government’s independent infrastructure advisory agency.

Strategic context

Pacific Highway Upgrade Program

The Australian and NSW governments, since 1966, have had a shared commitment to upgrade the 657km section of the Pacific Highway between Hexham and the NSW/Queensland border, as part of the Pacific Highway Upgrade Program.

The Coffs Harbour Bypass is one of the remaining ‘missing links’ in the completion of a high standard corridor between Sydney and Brisbane.

Australian and NSW Government commitment

The Australian and NSW governments committed funding to the Coffs Harbour Bypass in 2020.¹ The Coffs Harbour Bypass has been listed as a priority initiative on Infrastructure Australia’s Infrastructure Priority List (IPL) since 2016.²

Alignment to government strategic plans

The Coffs Harbour Bypass either contributes to or aligns with many government strategies and plans. Some of these strategies and plans include the *NSW State Infrastructure Strategy*³, *Regional Development Framework*⁴, *A 20-year Economic Vision for Regional NSW*⁵, *Future Transport Strategy 2056*⁶, *Tourism and Transport Plan*⁷ and the *National Land Freight Strategy*.⁸

The Coffs Harbour Bypass also contributes to local plans including the *North Coast Regional Plan 2036*⁹ and *Local Growth Management Strategy*.¹⁰

¹ Australian Government 2021, *Coffs Harbour Bypass*.

² Infrastructure Australia 2016, *Pacific Highway (A1) – Coffs Harbour Bypass*.

³ NSW Government 2018, *State Infrastructure Strategy*.

⁴ NSW Government 2020, *Regional Development Framework*

⁵ NSW Government 2018, *A 20-year Economic Vision for Regional NSW*.

⁶ Transport for NSW 2020, *Future Transport Strategy 2056*.

⁷ Transport for NSW 2020, *Tourism and Transport Plan*.

⁸ Australian Government 2020, *National Land Transport Strategy*.

⁹ Department of Planning, Industry and Environment 2017, *North Coast Regional Plan 2036*.

¹⁰ Coffs Harbour City Council 2020, *Local Growth Management Strategy*.

Project need

The project's need for investment is driven by the following:

Road users are experiencing congestion and long travel times

Up to 35,000 vehicles travel between Sydney and Brisbane each day (2-way volume). Regional and interstate road users travelling through Coffs Harbour must navigate 12 kilometres of low speed urban and arterial roads, including 12 sets of traffic lights, a major roundabout and 26 intersections. Traffic also mixes with local road users, pedestrians, cyclists and freight vehicles.

The traffic volume through Coffs Harbour contributes to congestion and increased travel times for all motorists.

There is a need to improve road safety in the corridor

There were 270 crashes on the Pacific Highway at Coffs Harbour in the past 5 years to June 2019. Approximately 20% of crashes resulted in fatal or serious injuries. Motorist, cyclist and pedestrian casualty rate along the corridor was more than 4 times higher than the level expected of a similar road.

Road network demand is expected to increase

Over the next 20 years, almost 77% of the population growth on the North Coast of NSW will be in regional cities, including Coffs Harbour. The area is already experiencing high levels of congestion and traffic volumes are expected to increase over time in line with population growth.

The volume of freight vehicles travelling along the Pacific Highway is also expected to increase whilst noting an efficient movement of freight is needed to support economic activity along the Eastern Seaboard.

The existing route is susceptible to flooding

The Pacific Highway alignment at Coffs Harbour is susceptible to high-volume rain events resulting in road closures. Road closures due to flooding cause significant disruptions to national, regional and local activity and restricted access to critical infrastructure such as the Coffs Harbour Health Campus.

Project objectives and design

Objectives

The project has the following objectives:

- Improve travel time for through and local traffic, and business vehicles/freight.
- Support integration with the broader transport network.
- Provide sufficient road capacity to meet traffic demand on the Pacific Highway.
- Improve safety for all road users on the new and existing road.

Design

The Coffs Harbour Bypass includes a 12-kilometre bypass of Coffs Harbour and a 2-kilometre upgrade of the Pacific Highway between Korora Hill and Sapphire.

The project design include the following key elements:

- Four-lane divided highway (bypass) from south of Englands Road roundabout to the existing dual carriageway at Sapphire.
- Upgrade of the existing Pacific Highway between Korora Hill and Sapphire.
- Three tunnels through ridges at Roberts Hill, Shepards Land and Gatelys Road.
- Bridge structures to pass over local roads, creeks and the North Coast Railway.
- Improvements and tie-ins to the local road network.
- Pedestrian and cycling facilities along the Coffs Harbour Bypass and surrounding road network.
- Relocation of the Kororo Public School bus interchange.
- Fauna crossing structures.
- Other ancillary works to facilitate the construction and operation (e.g. noise attenuation, adjusted property access).

Figure 2 illustrates the proposed alignment of the Coffs Harbour Bypass.

Figure 2: Coffs Harbour Bypass alignment



Source: Transport for NSW 2019, Coffs Harbour Bypass Project Update – Design Refinements.

Options identification and assessment

The planning and options development for the Coffs Harbour Bypass has spanned 2 decades through 4 key development stages.

Broad strategic options development (2001-2004)

Works commenced in 2001 with the development of the Coffs Harbour Highways Planning Strategy and the Pacific Highway Upgrade Program. Three strategic options were identified at that point:

- The Far Western Bypass, a bypass of Coffs Harbour and Woolgoolah through the Orara Valley from Englands Road to Halfway Creek.
- The Coffs Harbour City Council (CHCC) Preferred Corridor, aligning along the Coastal Ridge Way.
- The Coastal Corridor, aligning along the coastal plain between Englands Road and Arrawarra Cree with extension to Halfway Creek.

The preferred option was announced in 2004, comprising various elements of each of the above options.

Preliminary concept design development (2004-2013)

The former Roads and Traffic Authority began field investigations to inform the development of the concept design in 2004. A preliminary concept design was released for public comment in 2008 and the feedback from this public consultation was used to support its refinement. The associated corridor was then incorporated into the CHCC Local Environmental Plan in 2013.

Concept design development (2016-2018)

In 2016, the then Roads and Maritime Services recommenced design work and environmental studies for the preferred route. The work focused on the location of interchanges, crossing of major ridges, design standards and staged delivery.

The concept design was exhibited for comment in late 2018.

Refined concept design development (2019-2021)

Refinements were made to the 2018 concept design, resulting in an alternative design being issued. The refinements included the use of tunnels and the lowering the vertical alignment of the main carriageways to reduce noise impacts. The alternative design was subsequently selected as the preferred option.

Further changes were made to the design following feedback provided as part of the Environmental Impact Statement process and consequently incorporated in the Final Business Case.

Economic evaluation

A Cost Benefit Analysis (CBA) of the project options was completed in the Final Business Case. The CBA followed Transport for NSW's economic appraisal guidelines and review processes.

Costs

Key elements of the cost estimates include:

- construction costs, including materials and labour
- cost contingency and nominal escalation
- operating and maintenance costs over 30 years.

Benefits

The Coffs Harbour Bypass is expected to deliver a range of quantifiable benefits to local, regional and interstate road users, including:

- travel time savings for local and bypassing traffic
- vehicle operating cost savings including fuel, maintenance and depreciation
- travel time reliability
- reduced stopping due to improved traffic flows
- improved safety for road users and cyclists
- environmental externality cost savings such as reductions in airborne pollution, greenhouse gas emissions and noise
- improved active transport amenity (pedestrians and cyclists)
- residual value of motorway assets.

Qualitative benefits have also been identified, including improved flood resilience of the Pacific Highway at Coffs Harbour and increased economic activity due to the reduction in congestion in the Coffs Harbour CBD.

The outcomes of the analysis

A discount rate of 7% was used to calculate the present value of future costs and benefits over a 30-year evaluation period. All costs and benefits are presented in 2020-21 dollar terms (June 2021).

The preferred project option has a positive Net Present Value (NPV) of \$308 million and a Benefit Cost Ratio (BCR) of 1.2, demonstrating the project benefits are expected to exceed the costs. This supports the rationale for investment by the Australian and NSW governments.

Sensitivity analysis

Sensitivity tests were completed to account for risk and uncertainty in the CBA and road network assumptions. Key sensitivity tests included an increase in delivery costs, a decrease in anticipated benefits, traffic growth and delays in the opening year.

For most scenarios, the NPV was positive and the BCR above 1. Large increases in project costs, a decrease in expected benefits and the absence of traffic growth would make the project unviable, noting this scenario was deemed unlikely to materialise.

Deliverability

The Coffs Harbour Bypass will be delivered by the Northern Project Office (NPO) within Transport for NSW. Key project partners include the Department of Infrastructure, Transport, Regional Development and Communications (DITRDC) and the CHCC.

Timeframe

Early works commenced in 2020. The construction of the project is expected to commence by mid-2022. Final delivery timeframes will be known following engagement with the construction industry to determine the best delivery strategy and construction timeframes.

Governance

The governance structure includes a project team with oversight through regular reporting to the Director Projects, NPO. Senior oversight is provided by Transport for NSW's Regional and Outer Metropolitan division.

Funding oversight is provided by DITRDC and the NSW Government.

Risk Management

Key risks have been identified through a series of workshops with key stakeholders and the concept design development. These risks include:

- construction and operational noise
- delays in finalising the procurement strategy
- funding shortfall.

A risk management plan has been developed, including the implementation of a process to manage and mitigate project risks.

The Infrastructure NSW view

In December 2020, Infrastructure NSW undertook a review of the Coffs Harbour Bypass Final Business Case.

In Infrastructure NSW's view, the Final Business Case demonstrated:

- a well-developed scope after nearly 2 decades of community consultation and design refinement. While the BCR is close to 1 (based on the P90 cost estimates), this is not uncommon for projects in regional areas and of this size and complexity
- completing construction within the stated timeframe is a potential issue due to complex elements of the construction such as traffic control and the 3 sections of tunnels.