



The Orana Hunter Connections and Beyond Golden Highway Transport Study

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RDA Orana: The Orana Hunter Connections and Beyond Golden Highway Transport Study

The Golden Highway serves as the backbone of our region’s economy, supporting over 2.5 million tonnes of freight in the corridor, travelling by road and rail. This volume is expected to reach 6.3 million tonnes over the next decade, due to the expansion in renewable energy and mining sectors. One million tonnes of freight will travel by road, growing to 1.76 million tonnes within the next decade. Our community stands on the brink of transformation, with Newcastle and Dubbo emerging as pivotal hubs for education, tourism and trade.

To better understand these shifts and their implications for the transport system, The Stable Group was engaged by Regional Development Australia (RDA) Orana to produce the Orana Hunter Connections and Beyond – Golden Highway Transport Study. RDA Orana received funding from the Regional NSW – Business Case Strategy Development Fund to complete an independent study, shedding light on the drivers of freight demand to develop a business case for road and rail transport solutions between Narromine and Newcastle.

Scope

The scope of the study included:

- Desktop review of studies and data on existing freight flows including imports and exports.
- Assessment of the performance of infrastructure (road, rail, air) to support the existing freight flows.
- Quantification and understanding of future freight flows.
- Assessment of network impact of future freight flows on existing infrastructure.
- Stakeholder engagement on the preferred mode of transport, infrastructure barriers and opportunities.
- Identification and cost-benefit analysis of infrastructure improvement opportunities.



Desktop study

A desktop study was conducted to evaluate previous infrastructure, transport and freight studies. The findings show that baseline data from previous studies underestimates the volumes, the commodity mix, imports and exports.

Importantly, economic growth in the Orana-Hunter region has surpassed predictions. This is due to the development of the Renewable Energy Zone, non-coal mining operations, and future expansions at the Port of Newcastle.



56

infrastructure reports, assessments, strategies and published work discussing supply chain infrastructure, freight, and ports were analysed.



9

of these chosen for in-depth analysis.

Stakeholder engagement

As the desktop study demonstrated a significant underestimation of freight volumes from past studies, key stakeholders were engaged who were critical in informing more accurate current and future freight estimates. These stakeholders provided their freight volumes, including current volumes and future freight task, for 2026 and 2033. Importantly, their data was deidentified for the reporting process to protect their commercial operations.



167 potential stakeholders were identified.



30 industry representatives were chosen to participate.

Current and future freight flow volumes

Finding #1: Freight volumes will increase by 148.2% to 2033, higher than previously estimated.

Data collection and stakeholder engagement conducted in October 2023 found the current Golden Highway corridor freight task to be over 2.5 million tonnes. Our data suggests this will grow to over 6.29 million tonnes in 2033 (Table 1). These volumes were significantly higher than the estimates provided by Transport for NSW. In 2016, they estimated the freight volumes on the Golden Highway Corridor to be 4.44 million tonnes by 2036.

Table 1: Future Freight Task of the Golden Highway Corridor (Road + Rail)

Commodity	2023	2033	2050
Agricultural Input	90,000	90,000	90,000
Fuel	113,200	121,700	121,700
Mine Input	131,400	2,184,000	2,184,000
Non-Coal Minerals	460,000	1,627,000	1,627,000
Other	100,000	350,000	500,000
Agriculture	1,640,000	1,919,500	1,817,000
Grand Total	2,534,600	6,292,200	6,339,700

Total Forecast Freight Volumes Golden Highway Corridor (tonnes per annum)

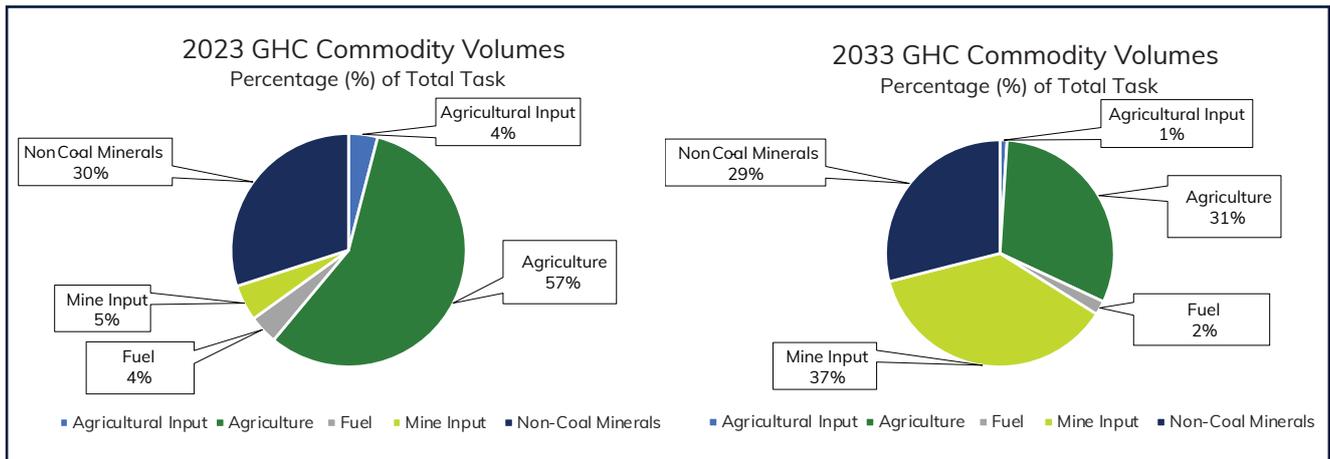
Note: Coal transport is not included in data due to dedicated methodology for rail infrastructure provision via ARTC Hunter Valley Access Undertaking. The decrease in fuel transport is directly related to forecast reduction in coal production within the Ulan area.

The Business Case identifies that the 2033 estimate (6.29 million) will be higher in 2033 than previously forecast by Transport for NSW in 2016. From 2023 to 2033, there will be a 148.2% increase in commodity volumes, growing from 2,534,600tpa to 6,292,200tpa.

Finding #2: Commodity mix is far wider than forecast, with significantly larger numbers of imports driven by mining processing materials.

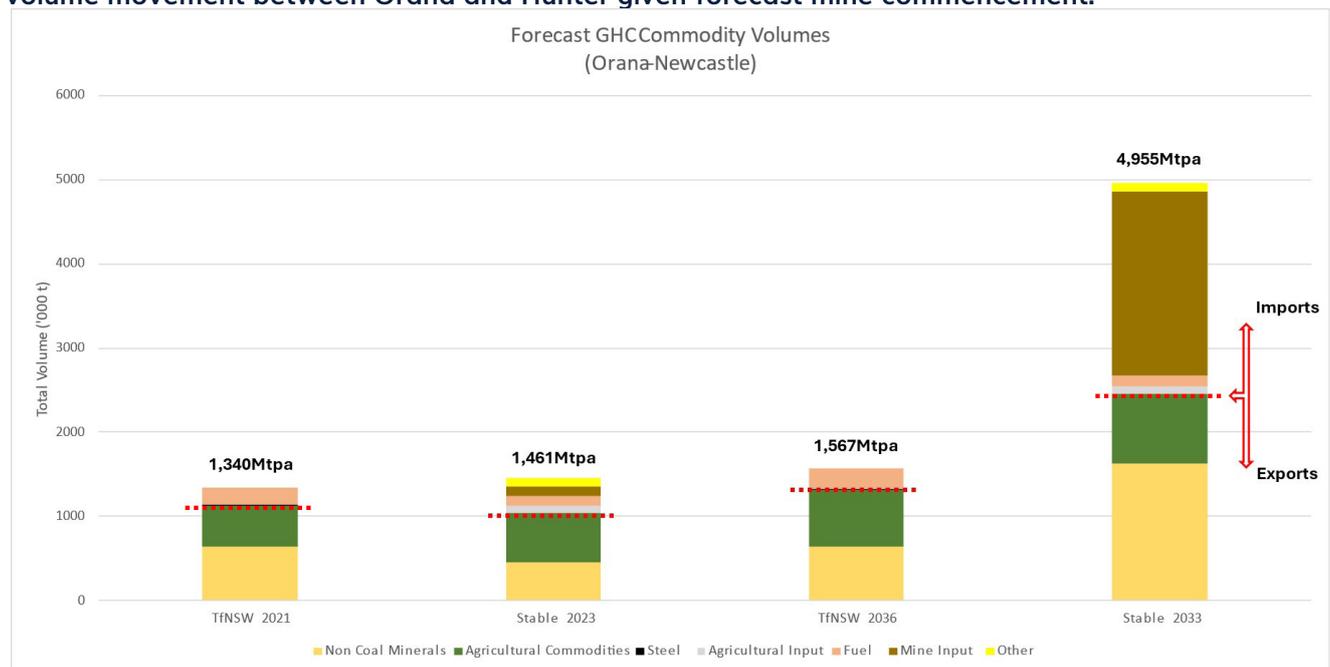
Our consultations indicate that the commodity mix is more diverse than currently estimated by Transport for NSW. The corridor movements will evolve from a majority of agricultural related bulk commodities to those dominated by mining. If transport modes for each commodity remain the same, this wider mix will double truck volumes on the Golden Highway.

There will be a shift from agriculture prominence to mining and mining inputs dominating the increased demand. Specifically, the expected growth in mining inputs is ~2.0Mtpa between 2023 and 2033. By 2033 mining inputs are likely to account for ~37% of all volumes being transported thereby bringing an increase of imports to the Orana region which has previously been assumed to be predominantly focused on export.



The Orana region is highly prospective for critical minerals, which will require significant increases in inputs for processing while simultaneously increasing exports of non-coal minerals. Specifically, mining inputs will increase from 131,400tpa to 2,184,000Mtpa by 2033 - an increase of nearly 1600%. On top of the increase in mine inputs, there will be an increase in non-coal mine exports from 0.46Mtpa to 1.627Mtpa in 2033 representing an increase of 253%.

Forecast Volumes Orana - Newcastle (Source: TfNSW 2019, Stable 2023). These volumes reflect volume movement between Orana and Hunter given forecast mine commencement.



Where have the discrepancies come from?

The discrepancy in freight volumes and commodity mix is most likely due to a lack of stakeholder engagement and data collection from first principles with local importers and exporters in the Orana region.

To ensure the validity of our data, The Stable Group corroborated evidence from ABS (Australian Bureau of Statistics), Transport for NSW Traffic Data and rail volumes, ABARES (Australian Bureau of Agricultural and Resource Economics and Sciences) and AEGIC (Australian Export Grains Innovation Centre) and compared this data with data sourced from our stakeholders' insights.

Infrastructure solutions

What can be done to accommodate the increased road and rail freight volumes?

Two business cases have been developed to improve the freight transportation through the Golden Highway corridor.

1. Golden Highway Road Corridor Business Case

The Business Case is not just about road improvements; our two-phase strategic overhaul of priority one and priority two projects provides a vision for safer, more efficient, and sustainable transport infrastructure.

Implementing targeted upgrades such as:

- The construction of overtaking lanes every 10 kilometres
- Modifications to the Warkworth, Cockfighters and the Krui River bridges, are key to improved connectivity.
- Improving pivotal intersections and level crossings at Beni, Ballimore, East Dunedoo and Denman

We aim to improve safety outcomes, reduce vehicle travel time, and support the oversized needs of critical sectors like renewable energy, agriculture, and manufacturing.

The project is estimated to generate \$802M in benefit to the Orana Region and NSW over 30 years, offset by \$449 million in costs. The nominal investment required to complete the proposal is \$496M. The project has a benefit cost ratio (BCR) of 2.3. The costs included in the business case include a 60% contingency.

Investing in the Golden Highway is not just an investment in asphalt and concrete; it's an investment in the safety, economic growth, and sustainability of our region. It's an opportunity to leave a legacy of progress, resilience, and community trust for generations to come.



2. Orana to Newcastle Rail Corridor Business Case

The Orana Hunter Rail Corridor Improvement Project, aims to significantly enhance the region's freight capacity and efficiency. This initiative focuses on completing the Maryvale to Gulgong line and upgrading the Gulgong to Ulan line to a 25 Tonne Axle Load (TAL), thereby streamlining the movement of critical minerals and other commodities from the Orana Region to the Port of Newcastle and filling a critical gap in the existing infrastructure.

The Current challenges of the existing rail network include the 177 km Dubbo-Merrygoen-Gulgong rail line's limited 20.25 TAL capacity and mandatory shunting at Merrygoen, which hinders efficient freight movement, leading to increased handling times and reduced throughput capacity.

Additionally, congestion on the Main Western Line to Port Botany and Port Kembla are exacerbated by the prioritisation of passenger traffic, with the risk that more freight is pushed onto already overburdened roads through the Blue Mountains. Given Sydney's continued population growth and the expected 34% increase in the NSW freight task from 2021 to 2061, the need for alternative, more efficient freight routes to and from the Orana Region is evident.

The proposed rail improvements are designed to bypass these bottlenecks, offering a sub-24-hour turnaround for freight trains from Dubbo to the Port of Newcastle, a significant advantage over the congested routes to Sydney's ports. This project not only addresses the current inefficiencies but also anticipates for future growth, ensuring the state's infrastructure can support the increasing demand for freight transport while reducing environmental, safety, and economic costs associated with road transport reliance.

By investing in this rail corridor, the project promises to enhance the competitiveness of Australian exports, reduce environmental impacts through decreased road freight, and improve safety by reducing traffic accidents and fatalities.

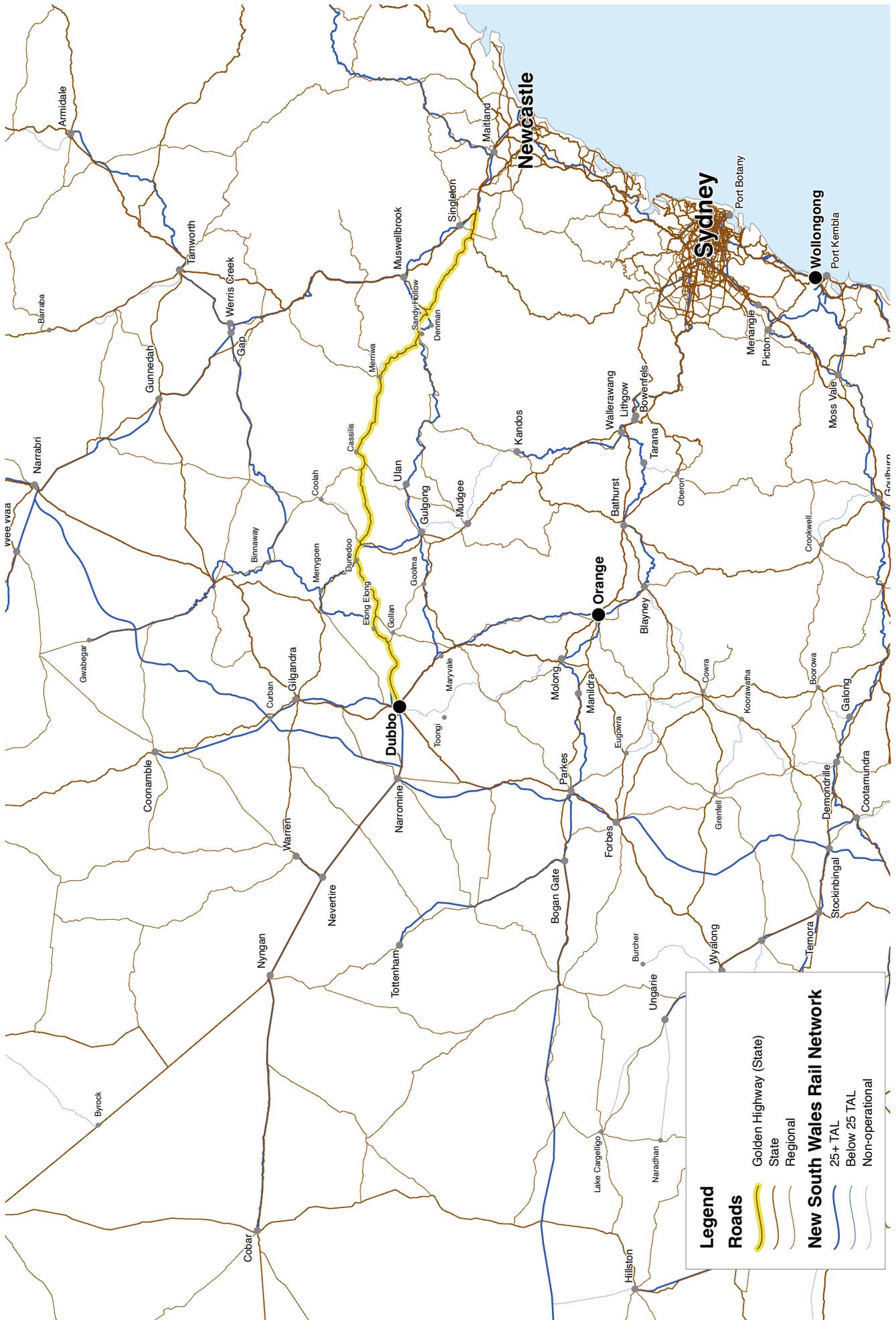
The project provides a strong return on investment, and is estimated to generate over a billion dollars of benefit to the Orana region. The nominal investment required to complete the proposal is \$578.8 million with a net present value (NPV) of \$500 million. The benefit-cost ratio is positive at 1.86.

The Orana Hunter Rail Corridor Improvement represents a strategic step towards sustainable economic growth, environmental stewardship, and a more efficient, reliable freight network for NSW.

Outcomes

By implementing these infrastructure solutions, the Business cases aims to:

1. Enhance and streamline freight transportation through strategic developments.
2. Foster dynamic precincts to drive regional growth and innovation.
3. Expand and enhance airport and defence capabilities.
4. Boost regional connectivity and safety through strategic enhancements and upgrades.





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Contact: Justine Campbell
CEO RDA Orana
ceo@rdaorana.org.au
M: 0409 851 488

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