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To Whom It May Concern,

**Inquiry into a sustainable Queensland Intrastate Shipping Industry**

Thank you for the opportunity to comment on the inquiry into a sustainable Queensland intrastate shipping industry.

As you are aware, Queensland Ports Association (QPA) is the peak industry body representing all Queensland port authorities: Brisbane, Gladstone, North Queensland Bulk Ports, Townsville and Ports North. Ports are critical to maintaining and growing the Queensland economy, enabling the export of our agricultural and mineral commodities and imports such as fuel, cars and household goods that support Queensland communities. Without a strong and prosperous shipping industry, ports cannot properly function and will not be able to grow sustainably in response to future demand.

QPA have contributed significantly to freight policy in Queensland in recent years. During this time we have witnessed plenty of evidence of good 'policy intent', such as the recognition of the need for a multi modal freight network. However, despite this intent, coastal shipping currently only plays a very small role in meeting Queensland's freight task, with road and rail being the dominant freight modes.

The current annual freight task along the Queensland coast is estimated at around 8.6 million tonnes. This freight task is essential to regional communities in Queensland given around 87% of Queensland's population lives within 50km of the coastline. Further, Queensland's population of 4.9 million people (as at 30 June 2017) is projected to increase by between 0.8% and 1.5% per year, reaching a population between 7.5 million and 10.5 million in 2066.

As identified in various government inquiries (including the 2018 Inquiry into National Freight and Supply Chain Priorities), we are faced with significant freight challenges both now and into the future and road and rail alone will not be able to sustainably address these challenges. Urgent reconsideration of the role of coastal shipping in Queensland is needed. A stronger coastal shipping industry has the capacity to deliver significant benefits to the Queensland economy, including:

- Savings of approximately \$70 for every tonne of freight shifted from Queensland roads to coastal shipping.
- Flow-on regional economic benefits throughout Queensland due to the significant economic presence of ports in regional communities.

- The emergence of value adding service industries in close proximity to regional ports, resulting in stronger economic growth and employment opportunities.
- Reduction in road accidents and improvement in road safety, which the Department of Transport and Main Roads has identified as a major priority.
- Reduced road congestion in metropolitan and large regional centres.
- Reduced greenhouse gas emissions and improved safety outcomes.
- Reduced road maintenance which will enable deferral of road capital expenditure.

Given these significant benefits, it is incumbent upon the Queensland Government to ensure more efficient use of and investment in transport infrastructure that better utilises coastal shipping. The key opportunities involve the Queensland Government:

- Appropriately recognising the scope for coastal shipping to enhance the Queensland economy, primarily through shifting of a proportion of the freight task to lower cost coastal shipping.
- Addressing impediments to coastal shipping by:
  - Investing in berth infrastructure/hardstand equipment at some ports.
  - Mitigating quay-side constraints through appropriate port rules which ensure suitable access to infrastructure.
  - Addressing land-based constraints – inadequate road and rail connections to move freight in and out of port precincts and a lack of suitable roads to support increased use of high productivity vehicles.
  - Recognising the significant challenges for new coastal shipping players to enter the market (e.g. Hermes). These types of businesses are likely to be profitable in the long term but they will need to be supported in the initial stages.
- Ensuring policy settings and investment decisions do not distort modal choice:
  - The Freight Action Plan and associated policies should explicitly consider coastal shipping as a legitimate and efficient transport mode
  - The transport policy framework should not distort modal choice by skewing investment towards road, and to a lesser extent, rail infrastructure networks where it is inefficient relative to coastal shipping.

Included in **Attachment A** is a report prepared by Synergies Economic Consulting which further explores these issues. We commend this submission and the attached report the Transport and Public Works Committee and look forward to discussing in more detail.

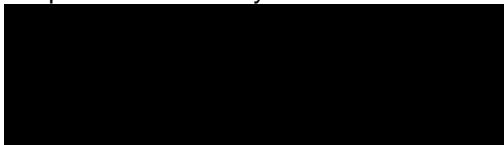
If there are any questions regarding our submission, please contact me on the details below.

Yours sincerely



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***Attachment A – Synergies Economic Consulting Report***



# **Inquiry into a sustainable Queensland intrastate shipping industry**

Report

January 2019

Synergies Economic Consulting Pty Ltd  
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## Executive Summary

Synergies Economic Consulting (Synergies) has been engaged by the Queensland Ports Association (QPA) to prepare a report for the Queensland Parliamentary Inquiry into a sustainable Queensland intrastate shipping industry ('the inquiry').

The current annual land-based freight task along the Queensland coast is estimated at around 8.6 million tonnes.<sup>1</sup> This freight task is essential to regional communities in Queensland given around 87% of Queensland's population lives within 50km of the coastline.<sup>2</sup> Much of this freight task is likely to be contestable by sea, particularly for those commodities which are not time sensitive.

All transport modes; road, rail and sea ('the blue highway'), have a vital role to play in delivering an efficient and reliable multi-modal freight network. A viable intrastate coastal shipping sector can assist governments deliver on key economic, social and environmental objectives where sea provides a lower cost, safer and more environmentally friendly linehaul freight service than alternative modes, particularly road.

Despite sea's competitive advantages over road and rail in terms of cost, safety and environmental impact, coastal shipping plays a minimal role in meeting Queensland's freight task apart from specific dry bulk movements, the most significant of which is between Weipa and Gladstone. There are signs of potential new entry in the Queensland coastal shipping market with Hermes Maritime Logistics planning to offer a weekly shuttle service between Brisbane and Townsville.<sup>3</sup> This is encouraging, yet more needs to be done to enable coastal shipping to compete on a level playing field with road and rail.

A stronger coastal shipping industry has the capacity to deliver significant economic benefits to the Queensland economy, including:

1. savings in freight costs resulting from the establishment of a true multi-modal freight network, translating to lower costs of production and consumer prices for final goods and services

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<sup>1</sup> This estimate is based on freight volumes for the Brisbane to Cairns corridor published by Auslink in its 2005 publication *Brisbane and Cairns Corridor Strategy* and applied an escalation factor using Queensland Gross State Product (GSP) growth rates.

<sup>2</sup> See <http://www.abs.gov.au/ausstats/abs@.nsf/Previousproducts/1301.0Feature%20Article32004> [accessed 10 January 2019]

<sup>3</sup> See <http://hermesmaritime.com.au/history/> [accessed 17 January 2019]

2. a reduction in externalities, particularly from the shifting of freight from road, including reduced road congestion in metropolitan and large regional centres, reduced greenhouse gas emissions and improved safety outcomes (i.e. reduction in road accidents). A stronger coastal shipping industry will also reduce road maintenance and enable deferral of road capital expenditure. These savings amount to around \$70 for every tonne of freight shifted off Queensland roads to coastal shipping
3. flow-on regional economic benefits throughout Queensland – ports have a significant economic presence in regional communities. Where landside logistics are required to support a growing shipping presence, value adding service industries will emerge in close proximity to regional ports, resulting in stronger economic growth and employment opportunities.

Despite these benefits, the task of facilitating the development of a more competitive coastal shipping industry is a significant policy challenge. Many of the issues that have been controversial, such as the regulation and operation of foreign flagged ships in Australian waters, are beyond the Queensland Government's legislative purview. However, the Queensland Government can facilitate more efficient use of and investment in transport infrastructure to better utilise coastal shipping as part of a truly multi-modal freight network and more explicitly recognise the policy significance of coastal shipping as a transport mode.

The key opportunities for the Queensland Government to facilitate the development of a viable coastal shipping industry are as follows:

- appropriately recognising the scope for coastal shipping to enhance the Queensland economy, primarily through the shifting of a proportion of the freight task from road and rail to lower cost coastal shipping
- addressing impediments to coastal shipping contributing to the State's transport task consistent with its underlying cost advantage, through:
  - reducing port based infrastructure constraints – by either:
    - investing in berth infrastructure/hardstand equipment at some ports,
    - mitigating quay-side constraints by implementing appropriate port rules to ensure suitable access to infrastructure
  - ameliorating land based constraints – inadequate road (and, to a lesser extent, rail) connections to move freight in and out of port precincts, particularly a lack of suitable roads to support increased use of high productivity vehicles
  - reviewing the legislative requirements for Masters to obtain pilotage exemptions and considering transitional arrangements to assist vessel

operators in relation to complying with international regulations that require the use of higher cost fuels

- ensuring policy settings and investment decisions do not distort modal choice:
  - the Freight Action Plan and associated policies should explicitly consider coastal shipping as a legitimate and efficient transport mode
  - the transport policy framework should not distort modal choice by skewing investment towards road, and to a lesser extent, rail infrastructure networks where it is inefficient relative to coastal shipping.



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## 1 Introduction

Coastal shipping involves the movement of goods<sup>4</sup> around Australia's coastline on international and domestic shipping vessels.<sup>5</sup> On 15 November 2018, the Queensland Parliament directed the Transport and Public Works Committee to inquire into a sustainable Queensland intrastate shipping industry ('the inquiry'). The Committee's inquiry will cover several key aspects, including:

- the likely benefits (e.g. regional economic development and labour market benefits) associated with a sustainable coastal shipping industry
- potential barriers and options to strengthening coastal shipping, including opportunities for port infrastructure development
- options for legislative, regulatory or policy reform to strengthen coastal shipping including options to minimise any potential impacts on the Great Barrier Reef.

We are pleased to provide this report which accompanies the QPA's submission to the Inquiry. Our report highlights that coastal shipping has historically played a far less significant role in meeting the intrastate freight task than road and rail transport. However, as the most resource efficient and environmentally friendly freight mode, there is scope for coastal shipping to deliver economic benefits by increasing its contribution to the State's freight task.

This submission is structured as follows:

- section 2 provides a brief overview of Queensland's freight task and the role that coastal shipping currently plays in the overall transport task
- section 3 identifies the economic, social and environmental benefits to the State and the broader community associated with a stronger coastal shipping industry
- section 4 outlines the perceived impediments to establishing a more vibrant coastal shipping industry in Queensland
- section 5 presents several recommendations designed to encourage the development of a regular coastal shipping service and thus enhance coastal shipping's role in meeting Queensland's growing freight task
- section 6 concludes this report.

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<sup>4</sup> It also covers the movement of passengers on domestic cruises and ferry services.

<sup>5</sup> The definition of coastal shipping was previously considered by the Queensland Parliament's Transport, Housing and Local Government Committee in December 2014. See the Committee's report 'Inquiry into coastal sea freight', Report no. 59 p.4. A copy is available at <https://cabinet.qld.gov.au/documents/2015/Jun/SeaFreight/Attachments/report.pdf>

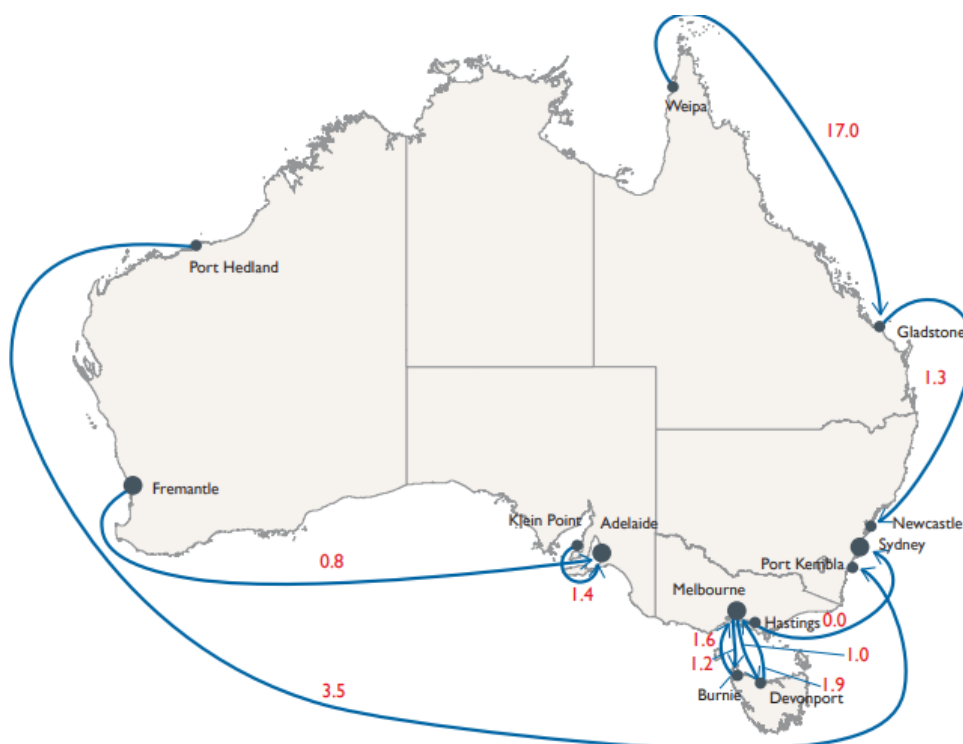
## 2 Queensland’s freight task and the role of coastal shipping

This section assesses the state’s freight task and identifies the potential contribution of coastal shipping to the overall state transport network.

### 2.1 Coastal shipping in Queensland

Nearly all of Queensland’s sea ports are involved in some degree of coastal shipping. Bureau of Industry, Transport and Regional Economics (BITRE) data for 2015-16 (see the figure below) shows that the most significant intrastate coastal freight flows around Queensland originated from North Queensland with 17.0 million tonnes of bauxite moved from Weipa to Gladstone (bauxite), and the most significant interstate coastal freight flows originating in Queensland being the 1.3 million tonnes of alumina moved from Gladstone to Newcastle.

**Figure 1 Coastal freight carried on the top ten routes, 2015-16 (million tonnes)**



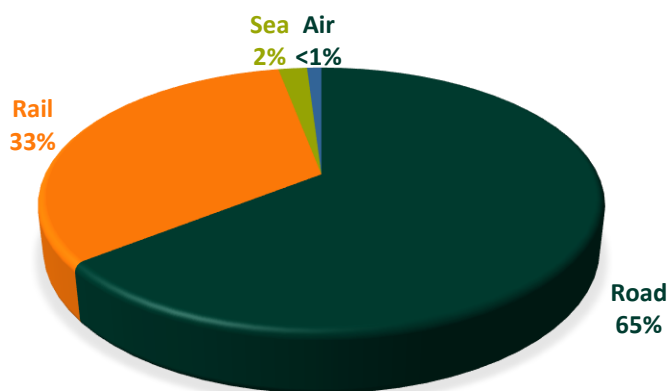
Source: BITRE (2018), Australian Sea Freight 2015-16, May 2018, table 2.6, p.31

<sup>6</sup> BITRE (2018), Australian Sea Freight 2015-16, May 2018, table 2.6, p.31.

In 2015-16, there were 35 vessels in Australia’s coastal trading fleet, 18 of which were Australian registered (the remainder were international vessels registered overseas).<sup>7</sup> This compares with 30 Australian registered ships in 2006-07 (and 9 overseas registered ships).<sup>8</sup> Fewer Australian flagged vessels has implications in terms of a loss of skills in the Australian shipping sector, such as vessel maintenance and maritime training. Of the coastal trading fleet currently visiting Queensland ports, there are general cargo ships calling at North Queensland ports (Cairns, Thursday Island and Weipa) as well as LPG tankers calling along the coast (e.g. Brisbane, Cairns, Gladstone, Townsville).<sup>9</sup>

The Draft Freight Strategy published by the Queensland Department of Transport and Main Roads (TMR) in July 2018 notes that approximately 955 million tonnes of goods were moved in Queensland in 2016-17, with road the dominant form of transport. Figure 2 shows the estimated modal shares.

**Figure 2 Freight modal share in Queensland, 2016-17**



**Source:** Reproduced by Synergies based on data from the Department of Transport and Main Roads (2018), Queensland Freight Strategy – Advancing Freight in Queensland, July 2018, p.4.

The figure above shows that coastal shipping accounts for only around 2% of Queensland’s total intrastate freight task. The Queensland Government’s 2013 Moving Freight Strategy noted that Queensland’s intrastate coastal shipping task comprises bauxite trade (between Weipa and Gladstone), petroleum products (between Brisbane to Gladstone and Mackay) and cement trade (between Gladstone and Townsville).<sup>10</sup> This is supported by maritime data published by BITRE which showed that, nationally,

<sup>7</sup> BITRE (2018), Australian Sea Freight 2015-16, May 2018, table 5.1, p.63.

<sup>8</sup> BITRE (2018), Australian Sea Freight 2015-16, May 2018, table 5.1, p.63.

<sup>9</sup> BITRE (2018), Australian Sea Freight 2015-16, May 2018, table 5.9, p.71.

<sup>10</sup> Queensland Government (2013), Moving Freight, Transport and Main Roads, December 2013, p.16-17.

in 2015-16, 73% of coastal freight (in terms of weight) was dry bulk cargo (e.g. bauxite and iron ore), 13% was liquid bulk (e.g. oil and fuel), and 14% was general cargo (containers and other cargo).<sup>11</sup>

This is not unexpected given that the characteristics of coastal shipping (i.e. lower cost, lower frequency and longer transit times) mean that it is most competitive with road and rail for the transportation of bulk cargoes over longer distances, which make up a smaller proportion of the intrastate freight task, rather than containerised freight. However, given the right conditions, coastal shipping can play an important role in the movement of containers as is evidenced by the shipping of containers between Sydney and Melbourne and Fremantle.

In order to provide an insight into the potential for coastal shipping to play a stronger role in the intrastate freight task, it is useful to have an appreciation of the size of Queensland's freight task that is occurring along the coastline (i.e. the Brisbane to Cairns corridor). The current land-based freight task on this corridor is estimated to be around 8.6 million tonnes in 2017-18.<sup>12</sup> While a proportion of this freight task is unlikely to be contestable by coastal shipping (particularly if it is time sensitive freight), it is reasonable to expect that a significant portion of this general freight task (i.e. furniture removals, non-perishable items, certain retail goods and project cargo) could feasibly switch to sea.

As such, there is scope for coastal shipping to play an important role in improving the competitiveness and efficiency of Queensland's freight transport sector and in doing so reduce the economic cost of freight transportation and stimulate economic growth and employment in regional Queensland.

We note plans are underway for new entry with Hermes Maritime Logistics announcing its intention to establish a dedicated weekly coastal shipping service between Brisbane and Townsville.<sup>13</sup> This announcement is encouraging as it demonstrates the potential contestability of freight along Queensland's coastline.

Further coastal trading opportunities at other ports may also be possible. Small regional ports such as Bundaberg, Mackay and Lucinda, have significantly under-utilised quayside and landside infrastructure capacity. Policies that are designed to increase the utilisation of existing assets will enhance the expected returns generated from these past investments.

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<sup>11</sup> BITRE (2018), Australian Sea Freight 2015-16, May 2018, table 3.1, p.37.

<sup>12</sup> Synergies has based this estimate on freight volumes for the Brisbane to Cairns corridor published by Auslink in its 2005 publication *Brisbane and Cairns Corridor Strategy* and applied an escalation factor using Queensland Gross State Product (GSP) growth rates.

<sup>13</sup> See <http://hermesmaritime.com.au/history/> [accessed 17 January 2019]

Ensuring the efficient utilisation of freight infrastructure capacity will be of increasing importance given that Queensland's freight task is expected to grow by more than 20% over the next decade.<sup>14</sup> However, for this to occur, measures must be implemented and policies pursued to address the current constraints on the competitiveness of coastal shipping relative to road and rail so that coastal shipping can play its natural role as part of a truly multi-modal freight network.<sup>15</sup>

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<sup>14</sup> Department of Transport and Main Roads (2018), Queensland Freight Strategy – Advancing Freight in Queensland, July 2018, p.4.

<sup>15</sup> Section 4 identifies the impediments to establishing a viable coastal shipping service.

### 3 Benefits of coastal shipping

This section assesses the economic and social benefits resulting from the development of a competitive intrastate coastal shipping service. The key benefits include:

1. direct freight cost savings from the establishment of a more efficient logistics sector
2. reduced economic costs of freight transport due to lower road capital and maintenance expenditure and reduced negative externalities, including improved safety outcomes
3. regional benefits associated with employment impacts of increased activity at regional ports, including value adding services.

These are discussed in more detail below.

#### 3.1 Freight cost savings from more efficient freight networks

The stronger the competition between linehaul service providers across transport modes, the more efficient the movement of Queensland's freight task. Intrastate coastal shipping services that present a viable alternative to road and rail will lead to the development of a truly multi-modal freight system and a more competitive and efficient freight network. The gains in efficiency will be as follows:

- freight services will be provided at least cost, as increased competitive pressure ensures service providers operate efficiently to maintain market share
- modal shift towards coastal shipping will alleviate pressure on road and rail infrastructure, reducing capital and maintenance expenditure requirements
- competition will incentivise freight infrastructure owners to invest in technological innovation (e.g. new services and/or new technologies) to retain and grow their market share.

These efficiencies will result in economy-wide benefits. For example, businesses for which freight is a significant component of production costs (e.g. cargo owners, manufacturers) will be key beneficiaries where competition results in a reduction in freight transport costs. Consumers will also benefit in terms of lower final prices for goods and services. These benefits were acknowledged by the Australian Competition and Consumer Commission (ACCC) in its 2014 submission to the Federal Government.<sup>16</sup>

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<sup>16</sup> ACCC (2014), Submission to the Government's Options Paper: Approaches to regulating coastal shipping in Australia, May 2014, pp.8-9.



The link between increased efficiency and lower freight costs is supported by BITRE research in which it estimated that cost savings associated with investments in road and rail projects were expected to generate cost savings of around 1.3% of total industry costs for the road freight industry and 2.7% of industry costs for the rail freight industry.<sup>17</sup> Such savings benefit cargo owners in terms of lower transport costs which in turn benefit consumers.

## 3.2 Reduced economic costs of freight transport

In addition to improving the efficiency of the freight transport network, coastal shipping also reduces the negative externalities associated with freight transportation. The negative externalities associated with road transport are particularly significant. A competitive coastal shipping sector that shifts freight from the road network to the 'blue highway' will reduce these negative externalities, including accident costs, road congestion and greenhouse gas emissions. Furthermore, enhancing the role of coastal shipping in meeting Queensland's freight task will reduce the pressure on road and rail infrastructure, reducing maintenance costs and enabling major road and rail capital investments to be deferred.

### 3.2.1 Safety

Coastal shipping is the safest of the freight transport modes. The accident costs associated with road freight transportation, including fatalities, injuries and property damage, are particularly significant. Whilst accidents involving freight trains are far less frequent, the cost of individual events can be significant. Table 1 presents estimates of total accident costs by road and coastal shipping.

**Table 1 Estimation of accident costs by transport mode**

Parameter estimate	Road	Coastal shipping <sup>b</sup>
Estimated average annual fatalities (freight-related)	191	1
Estimated average annual injuries (freight-related)	38,302 <sup>c</sup>	1.17
Average crash costs per year (\$m)	\$2,618	\$8
Freight task (billion tonne-km) estimated 2017-18 <sup>a</sup>	227	117
<b>Cost (cents per tonne km) in 2017-18 prices</b>	<b>1.154</b>	<b>0.007</b>

<sup>a</sup> Annual growth rate of 3% applied to the 2015-16 freight task figure from BITRE (2018) Australian Statistics Yearbook

<sup>b</sup> Excludes fishing boats and passenger ships from ATSB Safety Investigation Reports. Average crash cost excludes property damage due to unavailability of data.

<sup>c</sup> Only includes hospitalised injuries. The injury rate is based on BITRE (2017) Road Trauma Australia – Annual Summaries for 2015.

**Note** Synergies has used parameter values for different types of accidents from the Transport and Infrastructure Council (2016) and data on accident occurrences from the BITRE.

<sup>17</sup> BITRE (2014), Infrastructure, Transport and Productivity, Information sheet p.55.

**Source:** Synergies modelling. For details, please refer to Attachment B.

The results from the above table show that the accident cost for road of 1.154 c/tkm is over 150 times the costs incurred by coastal shipping (0.007c/tkm). This suggests there would be a net saving in accident costs of approximately 1.147 cents for every net tonne kilometre transported by coastal shipping compared to road.<sup>18</sup>

To put these estimates into context, under the scenario in which 1 million tonnes of freight per annum is shifted from road to sea between Brisbane and Townsville, the reduction in accident costs would be approximately \$30.7 million per annum (i.e. accident costs of \$30.9 million per annum<sup>19</sup> avoided from the reduction in road transport less \$0.2 million per annum<sup>20</sup> attributable to coastal shipping).

This suggests that better alignment of our freight network to the demands of customers with the use of coastal shipping is likely to improve road safety outcomes due to less heavy vehicles and reduced interface between trucks and passengers.

Promoting coastal shipping as a safer transport mode will also have broader flow-on benefits in terms of securing the critical skills of our future marine pilots and harbour masters.

### 3.2.2 Environmental

Minimising the environmental impact of freight transportation is becoming an increasingly important policy issue, particularly with regard to greenhouse gas emissions. As with accident costs, coastal shipping has a distinct advantage over road in terms of its environmental impact. Table 2 sets out the estimates for the cost associated with greenhouse gas emissions from road and coastal shipping.

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<sup>18</sup> Using this estimate, this would mean that there would be accident cost savings of approximately \$184 for an average container (12 tonnes) shifted from road to sea from Brisbane to Townsville as per the calculation below.

$$\$184 \text{ accident cost savings per TEU} = 1.147 \text{ cents per tonne km} \times 12 \text{ tonnes} \times 1,340 \text{ one-way trip km}$$

<sup>19</sup> \$30.92 million = 1.154 cents per tonne km × 1 million tonnes × 2,680 round trip km

<sup>20</sup> \$0.19 million = 0.007 cents per tonne km × 1 million tonnes × 2,680 round trip km

**Table 2 Reduction in cost of carbon emissions as a result of modal shift from road to sea**

Parameter estimate	Road (Heavy Vehicles)	Coastal shipping
Total emissions (1,000 tonnes of CO2 equivalent) in 2017-18 <sup>a</sup>	21,027	2,335
Estimated total CO2 Cost (\$m) per year <sup>b</sup>	\$1,300	\$144
Freight task (billion tonne-km) estimated 2017-18 <sup>a</sup>	227	117
<b>Carbon unit cost (cents/tonne km) in 2017-18</b>	<b>0.57</b>	<b>0.12</b>

**a** Based on BITRE (2018) Australian Statistics Yearbook p167-168. Emissions from articulated and rigid trucks used for heavy vehicle emissions.

**b** Carbon price of \$61.81 per tonne of CO2 was used consistent with the unit cost published by Austroads (2012) Guide to Project Evaluation Part 4: Project Evaluation Data

**c** Annual growth rate of 3% applied from 2015-16 to 2017-18

**Note** Carbon emission and freight task data based on BITRE (2018) Australian Statistics Yearbook 2018

**Source:** Synergies modelling. For details, please refer to Attachment B.

The table above shows for 2017-18, the economic cost of greenhouse gas emissions of 0.57 c/tkm is approximately five times higher than the cost estimate for coastal shipping of 0.12 c/tkm. Based on these estimates, under the scenario in which 1 million tonnes of freight per annum is shifted from road to sea between Brisbane and Townsville, the economic cost attributable to carbon emissions would be reduced by approximately \$12 million per annum.<sup>21</sup>

The establishment of a coastal shipping service would not result in an increase in the environmental risk to the Great Barrier Reef (GBR). The Transport, Housing and Local Government Parliamentary Committee examined this issue as part of its inquiry in 2014 and was satisfied with advice from TMR that a coastal shipping service would not have a negative impact on the GBR on the following basis:<sup>22</sup>

- for ships travelling between the Port of Brisbane, when inside the GBR, ships travel through a mix of international and Queensland waters and there is a seamless transition in terms of safety and navigation
- there would be enough port pilots to support a coastal shipping service.<sup>23</sup>

This advice was confirmed by the Committee during its visit to the GBR and the Torres Strait Vessel Traffic Service Centre (Reef VTS) in Townsville as part of this inquiry. Initiatives such as the Reef VTS ensure ongoing adaptive management of safety and environment risks.

<sup>21</sup> \$12 million = (0.57 – 0.12)cents per tonne km × 1million tonnes × 2,680 round trip km

<sup>22</sup> Queensland Parliament, Transport, Housing and Local Government Committee (2014), Inquiry into coastal sea freight Report no. 59, December 2014, p.21.

<sup>23</sup> Queensland Parliament, Transport, Housing and Local Government Committee (2014), p.14.

The Reef VTS monitors vessel traffic in the region to prevent collisions or incidents by:

- improving navigational safety by giving information to vessels about potential traffic conflicts
- lowering the risk of maritime incidents in the region that may otherwise result in ship-sourced pollution and damage to the marine environment
- responding quickly if there are any safety or pollution incidents.<sup>24</sup>

The compatibility of coastal shipping and GBR protection is consistent with findings in the 2014 GBR Outlook Report which assessed the environmental impact of the various uses of the GBR and concluded that shipping was a low impact activity, also noting that despite an increase in shipping activity, GBR impacts were relatively stable and proactive management was addressing emerging risks.<sup>25</sup>

The importance of preserving the GBR is also provided for in the North East Shipping Management Plan, which strengthens management measures to ensure that within the GBR, Torres Strait and Coral Sea, shipping continues to be conducted to the highest possible standards.<sup>26</sup>

### 3.2.3 Reduced congestion

Sustained growth in Queensland's population and freight transport task is leading to significant congestion on the State's road network. It is estimated that the average cost of excessive congestion in the South East Queensland metropolitan area is approximately \$1.2 million per day.<sup>27</sup> Whilst the cost of road congestion is greatest in urban areas, it is increasingly becoming an issue in major regional centres and major roads. Enhancing the role of coastal shipping in meeting the intrastate freight task will assist in alleviating the pressure on the road network.

Synergies has modelled the congestion cost savings that could be achieved by shifting 1 million tonnes of freight per annum from road to sea between Brisbane and Townsville as shown in Table 3 (see Attachment B for the assumptions and parameters used). This

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<sup>24</sup> See <https://www.msq.qld.gov.au/Shipping/Reefvts.aspx> [accessed 17 January 2019]

<sup>25</sup> Great Barrier Reef Marine Park Authority (2014), The Great Barrier Reef Outlook Report 2014, p.142.

<sup>26</sup> Australian Maritime Safety Authority (2014), The North-East Shipping Management Plan, October 2014, p.vi.

<sup>27</sup> Department of Transport and Main Roads (2017) Cost and causes of congestion - changing the way we think about congestion presentation p.16.



analysis assumes that a modal shift would remove the need for approximately 28,000<sup>28</sup> B-double trucks to travel from Brisbane to Townsville.<sup>29</sup>

**Table 3 Estimation of potential congestion savings resulting from modal shift**

Parameter estimate	Road
Estimated Brisbane to Townsville route distance – Metropolitan <sup>a</sup>	67 km
Metropolitan road congestion cost (\$ per B-Double-km) <sup>b</sup>	\$2.88
Weighted Average Congestion Cost in 2017-18 prices (Cents per B-Double-km) <sup>c</sup>	14.98
<b>Annualised cost savings from modal shift (\$m)</b>	<b>\$11.15m</b>

**a** Calculated by applying a proportion of 5% to the total Brisbane to Townsville distance.  
**b** Based on a Sydney Wide estimate from Transport for NSW (2016) Principles and Guidelines for Economic Appraisal of Transport Investment and Initiatives adjusted by its recommended B-Double conversion factor of 8.  
**c** Weighted by the proportion of the route in metropolitan areas (5%). It is assumed there is no road congestion cost for non-metropolitan areas.  
**Source:** Synergies modelling. For details, please refer to Attachment B.

The results under the modelled scenario show that the average congestion cost per B-double-km is 14.98 cents<sup>30</sup> and thus a modal shift of 1 million tonnes of freight from road to sea would result in an annual reduction in congestion costs of approximately \$11.15 million.<sup>31</sup>

### 3.2.4 Reduced road capital and maintenance expenditure

In addition to the direct cost savings and reduction in road accident costs, urban congestion, and environmental costs, another key benefit from the development of a competitive coastal shipping industry is the reduction (or deferral) in road infrastructure maintenance and investment costs.

The ‘Blue Highway’ does not require the same infrastructure investment or maintenance that land transport infrastructure requires. All governments are under increasing budgetary pressure and there is an increasing need to demonstrate the value for money for all types of expenditure, including spending on infrastructure. In this regard, coastal shipping requires the lowest level of national infrastructure development.

The State Infrastructure Plan (SIP) outlines the Queensland Government’s strategic direction for planning and delivery of infrastructure in Queensland. An updated four-

<sup>28</sup>  $27,778 \text{ truck trips} = 1 \text{ million tonnes} \div 12 \text{ tonnes per TEU} \div 3 \text{ TEUs per BDouble}$  (rounded to 28,000)  
<sup>29</sup> Shifting the cargo transport from road to sea might not totally eliminate the need for a trucking movement for the first mile (from origin to port) or last mile (from port to destination), hence not all of these costs might be avoided.  
<sup>30</sup>  $14.98 \text{ cents per BDouble km} = (5\% \times \$2.88 \text{ per BDouble km} + (95\% \times \$0 \text{ per BDouble km}))$   
<sup>31</sup>  $\$11.15 \text{ million} = 14.983 \text{ cents per BDouble km} \times 27,778 \text{ B Doubles} \times 2,680 \text{ round trip km}$

year plan was released in 2018 which shows road investment is significant, estimated at approximately \$21.7 billion over the next four years to 2021-22.<sup>32</sup>

More specifically, the Queensland Government's 2018-19 Capital Statement provides for \$128.5m of funding as part of the State Infrastructure Fund for upgrades to the Bruce Highway.<sup>33</sup> The State Government indicated that it is essential to maintain and upgrade the Bruce Highway to ensure freight, travel and commuter transport is safe and efficient. The Queensland Government is also working with the Australian Government to deliver the Bruce Highway Upgrade Program.<sup>34</sup>

For this report, Synergies has estimated the average incremental road maintenance costs that could potentially be avoided through facilitating the shift of freight from road to sea between Brisbane and Townsville. Based on our analysis of maintenance costs applicable to similar road freight zones used in Western Australia<sup>35</sup>, it was estimated the average road maintenance cost per B-double-km was 21.81 cents<sup>36</sup>, resulting in potential cost savings associated with a shift of 1 million tonnes of freight per annum in the order of \$16.24 million per year.<sup>37</sup>

Switching freight from road to coastal shipping would be expected to alleviate (or perhaps defer) the need for some parts of this expenditure program, providing governments with greater flexibility to pursue other policy commitments.

In addition to the direct cost savings to government, shifting freight tonnages from road to coastal shipping will also enable funds to be used to target strategic investments in the freight transport network, such as improving intermodal infrastructure.

<sup>32</sup> Queensland Government (2018), State Infrastructure Plan, Plan B: Program - 2018 update, July 2018, p.52.

<sup>33</sup> Queensland Government (2018), Capital Statement - Budget Paper No. 3, p.5.

<sup>34</sup> Queensland Government (2018), Capital Statement - Budget Paper No. 3, p.9.

<sup>35</sup> Estimated from the study 'Estimating the Incremental Cost Impact on Sealed Local Roads from Additional Freight Tasks' conducted by the Australian Road Research Board (ARRB) for the Western Australian Local Government Association (WALGA) which estimated the increased marginal costs from road wear due to increased volumes from heavy vehicles in Western Australia.

<sup>36</sup>  $21.81 \text{ cents per BDouble km} = (95\% \times 21.02 \text{ cents per BDouble km}) + (5\% \times 36.79 \text{ cents per BDouble km})$

Synergies has primarily used the marginal costs from Cost Zone 4 on a 10 year duration based on a loading scenario of 200,000 ESA per year. The assumed road type proportions of 95% for regional distributor (similar to a highway) and 5% for local distributor is then applied to the B-double marginal costs assuming 5 ESA per B-double.

<sup>37</sup>  $\$16.24 \text{ million} = 21.81 \text{ cents per BDouble km} \times 27,778 \text{ B Doubles} \times 2,680 \text{ round trip km.}$

Note the 1 million tonnes of freight per annum translates to approximately 27,778 truck trips per annum assuming 12 tonnes per TEU and 3 TEUs per B-double.

### 3.3 Regional economic benefits

Increasing utilisation of coastal shipping services will also have positive impacts on economic growth and employment, particularly throughout regional Queensland. The regional economic benefits from the increased utilisation of coastal shipping are set out in the section below.

#### 3.3.1 Expanded ports sector and value adding services

Increasing the role of coastal shipping in meeting Queensland's intrastate freight task will have positive flow-on impacts on the Queensland port sector and related value adding service industries.

Ports provide an important regional presence that extends beyond the vital trade based linkages they provide for communities to encompass their role as a significant local employer, including in the context of any new investment. For example, an increase in the volume of intrastate freight being transported via coastal shipping will lead to increased demand for cargo handling at regional ports and for related services such as stevedoring, cargo storage, freight consolidation centres, and landside transport management. This will create new investment and employment opportunities in these related service industries, particularly in regional areas. According to Ports Australia estimates, around 44% of employees in the maritime sector are employed in regional areas (i.e. outside of capital cities), compared with the average of 33% across all industries.<sup>38</sup>

The importance of the role played by ports in regional economies is demonstrated by the flow-on impacts attributable to major capital projects that lead to an increase in port activity. For example, the Coordinator-General's September 2017 assessment of the Townsville Port Expansion Project demonstrates the economic growth benefits and employment opportunities associated with increased regional port activity.

The Coordinator General was satisfied that port expansion at Townsville would provide significant economic opportunities in the region, with the project's Environmental Impact Statement (EIS) estimating a total increase in gross regional product in Townsville of \$1.6bn (to 2025) and \$6.6bn for Queensland (to 2040). Port expansion was estimated to create around 2,300 full time equivalent (FTE) employees per annum at the

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<sup>38</sup> Estimated from ABS data.



height of construction activity with a substantial increase in the labour force in Queensland once the expanded port was operating.<sup>39</sup>

The Australian Logistics Council has previously estimated that for every 1% increase in efficiency in the Australian logistics supply chain (which incorporates road, rail, sea ports and intermodal terminals), GDP will be boosted by \$2bn.<sup>40</sup> Similarly, the NSW Government has previously estimated that a 1% increase in freight efficiency could save the national economy \$1.5bn.<sup>41</sup>

A strengthened coastal shipping sector will create opportunities for regional ports to attract new investment from a broader range of customers, creating a stronger, more diverse port community that adds considerable supply chain value in regional Queensland, including by enabling regional economies to become better connected to global supply chains. This will have a positive impact on the competitiveness of local suppliers and the prosperity of regional economies.

The growth of roll-on roll-off (RORO) trade at the Port of Mackay provides an example of the regional economic benefits that ensue from growth in regional port activity. The port welcomed its first RORO trade in August 2018 as a result of a \$9.8 million infrastructure upgrade delivered under the State Government's Accelerated Works Program. The upgrade involved replacing the fenders at two wharves within the port and amending the wharf infrastructure so that a RORO ramp can be used to roll cargo on or off a ship, as opposed to lifting heavy vehicles off vessels using a crane.

Prior to the infrastructure upgrade, RORO vessels could not berth at the Port of Mackay and hence this cargo was being transported significant distances on the road network from southern ports. As demonstrated in section 3.2, this imposes significant costs on the community through increased road maintenance costs and negative externalities.

### **3.3.2 Resilience and sustainability of transport networks**

The resilience of Queensland's transport networks is important to the sustainability of its regional communities. Transport infrastructure plays a critical role in responding to natural disasters.

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<sup>39</sup> Department of State Development (2017), Townsville Port Expansion Project, Coordinator-General's evaluation report on the environmental impact statement, September 2017, p.111.

<sup>40</sup> Australian Logistics Council (2016), Getting the supply chain right - building the economy through efficient and safe supply chains, May 2016, p.3.

<sup>41</sup> NSW Government (2013), NSW Ports and Freight Strategy, November 2013, p.51.



A report by IAG in November 2017 indicated that, over the past decade, Queensland has been the most disaster prone of any Australian jurisdiction. The total economic cost for Queensland over this period has averaged \$11bn per year and is forecast to reach \$18bn per year by 2050.<sup>42</sup> Minimising the impact of natural disasters on the State's regional economy by ensuring vital freight connections remain in place is critical for many regional and remote towns. Coastal shipping is able to offer an ongoing service delivery during events such as natural disasters (e.g. fires) and significant rain events (tropical cyclones and monsoonal floods) which would typically cut rail and rail connections.

Enhancing the role of coastal shipping in meeting Queensland's future freight task will enhance the resilience and sustainability of the State's transport networks. Reducing the tonnages of freight transported by land will extend the economic life of existing road and rail infrastructure, whilst fewer trucks and trains will also alleviate network capacity constraints.

Maintaining coastal shipping networks can also assist in an emergency to deliver supplies such as clean water, medical equipment or construction vehicles before land infrastructure has been repaired. The current under-utilisation of coastal shipping as a transport mode represents an opportunity for future growth in the intrastate freight task to be accommodated with reduced investment in expanding the capacity of roads or railways, particularly in urban areas or around existing regional centres.

### **3.4 Summary of economic benefits**

There are significant economic benefits to be derived from the implementation of a policy framework that is conducive to facilitating the establishment of a viable coastal shipping service within a competitive and efficient freight transport sector. These benefits include:

- the direct cost savings from a more efficient freight transport sector, including a reduction in the costs incurred by freight owners and reduced road and rail capital and maintenance expenditure
- a reduction in the economic costs, including negative externalities such as accident costs and greenhouse gas emissions, associated with road freight transport
- flow-on benefits to regional economies in terms of increased economic growth and employment, including as a result of growth in throughput at regional ports and associated value adding services.

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<sup>42</sup> See <https://www.iag.com.au/natural-disaster-costs-reach-39-billion-year-2050> [accessed 7 January 2019]

Table 4 summarises the annual cost savings derived from shifting 1 million tonnes of freight between Brisbane and Townsville from road to coastal shipping amount to over \$70 million.<sup>43</sup>

**Table 4 Estimated annual cost savings from shifting 1 million tonnes/annum of freight between Brisbane and Townsville from road to coastal shipping**

<b>Benefit</b>	<b>(\$m per annum)</b>
Accident cost savings	\$30.73
Carbon cost savings	\$12.04
Annual incremental road maintenance cost savings	\$16.24
Congestion cost savings	\$11.15
<b>Total annual savings</b>	<b>\$70.16m</b>

**Source:** Synergies modelling. For details, please refer to Attachment B.

In other words, these savings amount to around \$70 for every tonne of freight shifted off Queensland roads to coastal shipping.

<sup>43</sup> In practice, an increase in coastal shipping's modal share of the intrastate freight task will come at the expense of both road and rail. To the extent that there is a shift in modal share from rail to coastal shipping (as opposed to a modal share from road to rail or from road to coastal shipping), the economic benefits will be lower than estimated in this submission.

## 4 Impediments to coastal shipping

There are currently several impediments to creating a viable coastal shipping service, which can be broadly categorised as follows:

1. port based infrastructure constraints – insufficient berth infrastructure/hardstand equipment at some ports
2. land based constraints – inadequate road and rail connections to move freight in and out of port precincts, including a lack of suitable roads to support increased use of high productivity vehicles
3. policy settings that distort modal choice by artificially skewing investment decisions towards existing road, and to a lesser extent, rail infrastructure networks making coastal shipping uneconomic.

Each of these are discussed briefly below.

### 4.1 Port based infrastructure constraints

Two types of possible constraints to running a viable shipping service may exist in terms of (1) lack of port infrastructure (2) access to port infrastructure.

The infrastructure already exists in Queensland ports to support an enhanced role for coastal shipping in meeting Queensland's intrastate freight task.<sup>44</sup> Port owners are also currently undertaking investments that will facilitate increased quay-side activity, and this could benefit coastal shipping. Examples include the current infrastructure upgrade occurring at the Port of Townsville, including berth upgrades, quayside terminal construction and the construction of a port access road,<sup>45</sup> and the investment in infrastructure necessary to accommodate RORO cargo, as discussed in section 3.3.1.

The other potential constraint relates to access to port infrastructure and the degree of berth availability that exists to service coastal vessels. The extent to which this is a problem at ports may depend on whether the coastal movements are part of a scheduled service. In the case of a scheduled service, problems may arise where established and planned international ship schedules (with significantly more volumes) are prioritised or have access to the most attractive windows.

The Queensland Government's Sea Freight Action Plan – Coastal Shipping (Addendum, May 2014) contained an assessment of port side infrastructure (port depth, berths, berth

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<sup>44</sup> Queensland Ports Association (2017), Submission to the Inquiry into National Freight and Supply Chain Priorities, July 2017, p. 3

<sup>45</sup> See <https://www.townsville-port.com.au/operations-trade/trade/trading-through-townsville/>

equipment) and noted Brisbane, Gladstone and Townsville offered a greater number of options to support shipping rotations, with multiple berths able to handle cargo. At ports with fewer berths, the application of local rules and/or tide windows impacted on shipping cycle times. The Plan indicated that the level of accessible and appropriate hard stand infrastructure needed to be reviewed at each port to support sustainable development.<sup>46</sup>

The degree to which access to port infrastructure acts as a constraint in practice can be mitigated to some extent by changes to port rules such that container vessels are better able to secure slots and relatively low cost infrastructure enhancements for hardstands and in some cases road improvements. It is understood several ports have already made appropriate provision in port rules for such priority berthing.

#### 4.1.1 Other port side impediments

There are other port-side impediments to operating a competitive coastal shipping service that may warrant policy intervention:

- pilotage costs – pilotage represents a material cost of operating a coastal vessel. There is scope for pilotage exemptions to be granted to Australian flagged vessels, however the legislative requirements currently make it difficult for Australian Masters to be granted pilotage exemptions in Queensland. There may exist scope for the Queensland Government to review these requirements to ensure that exemptions are granted where appropriate
- the cost of complying with new fuel standards – from 1 January 2020, all ships and vessels operating anywhere in the world will be required to use fuel oil with a low sulphur content.<sup>47</sup> Compliance with this new standard will result in a material increase in the fuel costs faced by coastal vessels, which will adversely impact on the viability of new entrants into the coastal shipping sector.<sup>48</sup> Implementing transitional arrangements would alleviate this compliance cost in the short term, removing this impediment on the establishment of viable coastal shipping services.

If left unaddressed, these impediments will adversely affect the competitiveness of coastal shipping and undermine the benefits on offer from a more competitive and efficient freight transport sector.

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<sup>46</sup> Queensland Government (2014), Sea Freight Action Plan – Coastal Shipping, Addendum, May 2014, pp.13-14.

<sup>47</sup> See <https://www.amsa.gov.au/news-community/news-and-media-releases/transition-2020-low-sulphur-fuel-requirements> [access 17 January 2019]

<sup>48</sup> For example, it was reported that the move to low sulphur fuel is expected to cost the global shipping industry up to \$60 billion. See <https://www.maritime-executive.com/article/hapag-lloyd-announces-sulfur-fuel-charge> [accessed 17 January 2019]

## 4.2 Land based constraints

A distinct disadvantage for coastal shipping relative to road, and to a lesser extent rail, is its lack of a door-to-door service offering. This means that landside transport is required at either end of the logistics chain (i.e. origin to port and port to destination). Depending on the efficiency of the connection, these landside costs can be significant. Alternatively, road transport offers a faster, more efficient first mile and last mile connection with less double handling and re-packaging of freight and fewer transfers. Given this characteristic, it is critical that efficient landside transport links are established to ensure coastal shipping is a competitive, alternative transport mode.

Technological improvements enable the introduction of higher performance vehicles and progressive limited increases in regulated heavy mass limits which increase the productivity of road transport. High productivity freight vehicles, including B doubles and road trains, define the strategic road freight network in Queensland, in terms of access and approved routes. However, the configuration of the roads around many Queensland ports does not support the use of high productivity vehicles; landside access to ports has not kept pace with productivity improvements.

All ports are capable of handling B Double vehicles. However, Gladstone has limited access for road train services (which are important in the bulk grain export supply chain). Historically, Mackay port has been constrained in the use of fuel tankers due to inadequate road infrastructure which has limited the carriage of dangerous or hazardous cargoes. Access to the Port of Mackay has also been limited to one B Double route, which has a reduced speed bridge on its route, restricting vehicle movements.<sup>49</sup> In December 2018, works were completed to replace 2 bridges at Vines Creek, which are key links in Mackay's transport network as they are the sole access for heavy vehicles travelling to the Port.<sup>50</sup>

We note that some landside improvements have occurred at Gladstone in 2018 with the replacement of five timber bridges to increase access road vehicles east of Biloela to Gladstone port,<sup>51</sup> however further infrastructure works are required to improve access for larger freight vehicles.

We further note that some landside improvements have also commenced at Mackay with the 'Stage 1' upgrade of the Mackay Ring Road, which is a two-lane rural highway

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<sup>49</sup> Queensland Government (2014), Sea Freight Action Plan – Coastal Shipping, Addendum, May 2014, p.15.

<sup>50</sup> See <https://www.tmr.qld.gov.au/Projects/Name/V/Vines-Creek-Bridges-replacement> [accessed 17 January 2019]

<sup>51</sup> See 'Queensland invests in better road train access (30 July 2018) at <http://www.roadsonline.com.au/qld-invests-in-better-road-train-access/>

deviation which will improve safety for the heavy vehicle industry and connectivity to the Port of Mackay and is due to be completed by mid 2020.<sup>52</sup> However, 'Stage 2' of the development, which involves upgrading the Mackay port access road to a two-lane highway from the Bruce Highway North intersection to the Harbour Road intersection, is still several years from commencement.<sup>53</sup>

The poor landside infrastructure access to and from regional ports has significant cost implications where freight is necessarily having to travel much longer distances and with an empty backhaul movement to reach its port destination. For example, some bulk grain exports have been diverted from the Port of Gladstone through to the Port of Townsville as road trains are not able to enter the port at Gladstone due to a lack of suitable road infrastructure. This results in higher transport costs for cargo owners and inefficient use of existing road networks. We estimate additional transport costs to be around \$3,000 per day for a typical road movement of a B Double road train between Gladstone and Townsville (this includes no adjustment for a backhaul movement).<sup>54</sup> Similar restrictions also affect the movement of hazardous cargoes at the Port of Mackay.

For coastal shipping to more readily compete with road and rail, a more efficient service may also require the ports' community, logistics operators and distributors to consider the location of landside facilities. In some cases, distribution and consolidation hubs are not located close to ports, which could affect service delivery standards and increase freight costs where coastal shipping is used as part of a broader logistics chain.

### 4.3 Policy settings

Logistics chains are typically effective at identifying and exploiting the lowest cost transport solution. It is therefore good policy to align the lowest cost solution with what is socially and economically desirable for the State.

The Queensland Government is not in a position to address all of the issues that collectively distort modal choice.<sup>55</sup> However, the Queensland Government can ensure

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<sup>52</sup> See the Mackay Isaac Whitsunday Regional Transport Plan (p.46) available at <https://www.tmr.qld.gov.au/About-us/Corporate-information/Publications/Regional-Transport-Plans> [accessed 17 January 2019]

<sup>53</sup> Daily Mercury (2017), Mackay needs the entire ring road completed to boom, 28 September 2017. See <https://www.dailymercury.com.au/news/mackay-needs-the-entire-ring-road-completed-to-boom/3229316/> [accessed 9 January 2019]

<sup>54</sup> A truck operating cost calculator published by Freight Metrics has been used to construct this estimate. Assumptions used include a travel distance of 827km between Gladstone and Townsville and the truck movement of a flat-top B Double road train carrying 24 tonnes 6 days per week, 46 weeks per year.

<sup>55</sup> For example, the Queensland Government does not control infrastructure pricing for heavy vehicle usage that results in road use being heavily subsidised by federal and state governments. Similarly, subsidised pricing for the use of roads by heavy vehicles constrains rail access pricing (which is also subsidised). Consequently, freight charges for road and rail transport are not reflective of the full efficient cost of service provision. This undermines the

that its transport investment decisions are made so as to encourage utilisation of the mode that is most economically and socially desirable. In order to achieve this, the Freight Strategy and Action Plans should explicitly consider coastal shipping as a legitimate and efficient transport mode.

Moreover, the Freight Strategy and Action Plans should explicitly recognise the scope for coastal shipping to enhance the Queensland economy, primarily through the shifting of a proportion of the freight task from road and rail to lower cost coastal shipping. We turn now to a more detailed consideration of policy recommendations.

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competitiveness of coastal shipping, which does not benefit from such subsidies. Without effective reform in this area, for example the implementation of cost-reflective heavy vehicle pricing, coastal shipping will continue to operate at a competitive disadvantage relative to road and rail.



## 5 Policy recommendations

An efficient freight transport sector leads to more efficient infrastructure utilisation, lower negative externalities, and increased economic growth and employment outcomes, particularly in regional areas. The efficiency of the freight transport sector is maximised when there is effective competition across transport modes and the lowest cost transport solution is aligned with what is socially and economically desirable for the State.

The objective of the policy framework in the freight transport sector should be to ensure that transport modes are able to compete on a level playing field so that market participants are able to make decisions to maximise the efficiency of the freight sector. This overarching approach is well aligned with existing Queensland Government policy to create a true multi-modal and resilient transport system.

The benefits of a true multi-modal freight transport system are not currently being realised due to the lack of competitiveness of the coastal shipping sector. As discussed in the preceding sections, infrastructure and policy constraints are currently preventing coastal shipping from competing with road and rail. This, in turn, is constraining the efficiency of Queensland's freight transport sector because modal decisions are not necessarily aligned with the objective of minimising economic and social costs. For coastal shipping to contribute more effectively to Queensland's growing freight task, we have identified 3 actions for the State Government to consider:

1. appropriately recognising coastal shipping in freight policies
2. addressing impediments to coastal shipping's contribution to the State's transport task through investment that targets port and land based infrastructure constraints
3. ensuring policy settings and investment decisions do not distort modal choice.

These actions, and their importance to the competitiveness of coastal shipping and efficiency of Queensland's freight transport sector, are discussed in detail below.

### 5.1 Recognising coastal shipping in freight policies

A policy framework that supports a viable coastal shipping industry and an efficient freight transport network is aligned with TMR's policy position of creating a "true multi-modal transport system" (see Draft Queensland Freight Strategy), along with several government policy objectives:

- cost of living – reduced transport costs as a result of increased competition from all transport modes resulting in improved outcomes for consumers



- economic development – an enhanced coastal shipping sector will create business and investment opportunities and increase regional economic growth and employment
- decentralisation – increased economic activity and employment will stimulate population growth in regional areas and attract people away from more densely urbanised areas
- liveable cities – taking more freight off the road network will reduce congestion and negative externalities from freight transport, thus improving liveability, whilst decentralisation will have a positive impact on housing affordability and improve quality of life in urban areas.

Several of the Queensland Government's existing policies, including the State Infrastructure Plan 2018 and Moving Freight 2013, identify a commitment to develop a sustainable and productive multi-modal freight network.

However, more can be done to highlight the strategic importance of coastal shipping to the intrastate freight task. The State Government should explicitly recognise the scope for increasing the role of coastal shipping to improve the efficiency of Queensland's freight transport system and in doing so enhance the Queensland economy.

Similarly, the Queensland Freight Strategy and Freight Action Plans should explicitly recognise coastal shipping as a legitimate and efficient transport mode and acknowledge the economic benefits to be derived from expanding the role played by coastal shipping in meeting Queensland's growing freight task, including the regional growth and employment benefits.

## **5.2 Addressing port and land-based impediments to coastal shipping**

Despite continuing investment,<sup>56</sup> it is important that the State Government recognise and work with port managers and owners to address constraints in relation to the operating arrangements applying to port-based infrastructure and its availability. In particular, the State Government should:

- continue to support port managers/owners in establishing more effective port rules to address perceived or real arrangements that would otherwise block guaranteed scheduled berth availability necessary to encourage particular vessel calls

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<sup>56</sup> Noting the scope for projects such as Port of Townsville's Channel Capacity Upgrade Project to create additional opportunities for coastal shipping.

- ensure there is sufficient availability of port-based infrastructure to guarantee scheduled berth availability and to provide common user material handling equipment suited to coastal shipping. This may involve ports investing in berth infrastructure and hardstand equipment at some ports.

Inefficiencies caused by insufficient land-based infrastructure are a key constraint on the competitiveness of coastal shipping. It is critical the State Government focus on investing in 'last/first mile' road and rail infrastructure to, from and within the ports, to ensure that the efficiency of coastal shipping is maximised, enabling it to compete on a level playing field with road and rail. Access roads around the Port of Mackay to accommodate the movement of hazardous cargoes as well as road train access at the Port of Gladstone are specific examples where infrastructure problems have arisen. Despite some recent upgrades, ongoing land-side access problems need to be addressed.

There is also scope for the Queensland Government to reassess the legislative requirements for Masters to obtain pilotage exemptions to ensure that exemptions are granted where appropriate and to consider transitional arrangements to assist vessel operators in adjusting to increased fuel costs as a result of new international regulations.

### **5.3 Not distorting modal choice**

Logistics chains are typically effective at identifying and exploiting the lowest cost transport solution. It is therefore good policy to align the lowest cost solution with what is socially and economically desirable for the State. In turn, the Queensland Government can ensure that its transport investment decisions are made so as to encourage utilisation of the mode that is most economically and socially desirable.

It is important that investments in road, rail and port infrastructure are appraised having regard to the full economic cost of the utilisation of that infrastructure (including the full capital and maintenance costs incurred in providing the infrastructure and negative externalities associated with road freight transport). Ideally, all levels of government should be focused on reforming the transport policy framework to remove distortions that are leading to inefficiencies in the freight transport sector.

In order to achieve this, the Freight Strategy and Action Plan should explicitly recognise coastal shipping as a legitimate and efficient transport mode, and with it, the scope for coastal shipping to enhance the Queensland economy, primarily through the shifting of a proportion of the freight task from road and rail to lower cost coastal shipping where it is socially and economically efficient to do so.

## 6 Conclusion

Significant opportunities exist for coastal shipping to play a greater role in Queensland's general freight transport task. Expanding the role of coastal shipping will produce benefits that will spread throughout the entire economy, including direct cost savings to shippers (and ultimately consumers); reductions in the economic cost of transporting freight; cost savings to government through reduced road maintenance expenditure; and increased economic growth and employment for regional communities.

However, for these economic benefits to be realised, the Queensland Government must address the current impediments on the productivity of coastal shipping. In particular, the State Government should explicitly recognise the scope for increasing the role of coastal shipping as part of an efficient and reliable multi-modal freight network. Doing so will improve the efficiency of Queensland's freight transport system and enhance the Queensland economy.

There is a corresponding need for government action to address infrastructure constraints at key regional ports, including increasing the magnitude of, and bringing forward, investment that will alleviate portside and landside constraints as well as increasing the policy focus on coastal shipping. Effective investment that improves the productivity of coastal shipping will enable the sector to play a greater role in meeting Queensland's growth intrastate freight task, in addition to improving the efficiency of the overall freight logistics sector.

## A. Inquiry terms of reference

The Committee<sup>57</sup> is to consider:

- (a) The regional economic development and labour market benefits of a sustainable intrastate shipping industry in Queensland;
- (b) Current intrastate coastal shipping task and identify any barriers and options to strengthen the intrastate shipping industry;
- (c) Queensland's contribution to, and the need for, an Australian inter-state shipping industry, and identify ways in which Queensland could contribute to improving the Australian inter-state shipping industry;
- (d) Opportunities for future common user port infrastructure, and any adjustments to the provision of port services, to support the viability of a regular intrastate freight shipping service;
- (e) Working conditions and safety practices on current coastal shipping vessels, comparing international vessels to Australian vessels;
- (f) Any practices that are being used to erode working conditions, such as entitlements and legislative protections that currently apply to employees in the industry;
- (g) Options for legislative, regulatory or policy reform that could strengthen the intrastate shipping industry, and ensure that Queensland's labour market would benefit from this expanded industry, considering current Commonwealth legislation, reviews and constitutional limitations;
- (h) Options for legislative, regulatory or policy reform to maintain the safety, rights and protections of workers in Queensland ports and maritime industry; and
- (i) Options to minimise any potential impacts on the Great Barrier Reef from a strengthened intrastate shipping industry.

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<sup>57</sup> On 15 November 2018, the Queensland Parliament directed the Transport and Public Works Committee to inquire into a sustainable Queensland intrastate shipping industry. The Committee is due to table its report on Friday 26 April 2019. See <https://www.parliament.qld.gov.au/work-of-committees/committees/TPWC/inquiries/current-inquiries/8Shipping>

## B. Estimating the avoided costs resulting from modal shift

This attachment sets out the assumptions and parameter estimates applied to estimate the avoided costs and potential cost savings as a result of a modal shift from road and to coastal shipping.

### B.1 Modal shift and freight assumptions

The modal shift is based on the scenario in which 1 million tonnes of freight per annum is shifted from road to coastal shipping between Brisbane and Townsville assuming assumed that only B-doubles would be used in road freight task. Below are some of the general assumptions used in the analysis.

**Table 5 General assumptions used to model the modal shift to coastal shipping between Brisbane and Townsville**

Assumption	Value	Source
Distance - Brisbane to Townsville	1,340 Km	Google Maps
Annual Tonnage shifted	1 million tonnes	Synergies
Average tonnes per full TEU	12 tonnes	Synergies
Annual TEUs shifted	83,333 Full TEUs	Calculated by dividing the annual tonnage by the average tonnes per full TEU
B-Double TEU average capacity	3 TEUs	National Traffic Commission (2016) Increasing heavy vehicle volumetric load capacity without increasing mass limits
Number of Annual B-Double Equivalent Trips	27,778 truck trips	Calculated by dividing the estimated Annual TEUs by the B-Double TEU capacity
Road Freight Task (billion-tonne-km) in 2015-16	213.90	BITRE (2018) Australian Infrastructure Statistics Yearbook 2018 T2.1c p67
Coastal Shipping Freight Task (billion-tonne-km) in 2015-16	110.20	
Annual growth rate for Freight	3%	Synergies

### B.2 Estimation of avoided congestion costs

The estimation of avoided congestion costs is primarily based on a Sydney-wide cost estimate from Transport for NSW (2016) Principles and Guidelines for Economic Appraisal of Transport Investment and Initiatives which is used as a proxy for the metropolitan congestion cost. The congestion cost estimate is converted to a cost per B-Double-km by assuming an equivalency factor of 8 and applying this cost to the assumed proportion of the route within metropolitan areas noting that there would be zero

congestion costs outside of metropolitan areas. Below are the assumptions used to estimate the avoided congestion costs.

**Table 6 Assumptions used to estimate the congestion costs**

Assumption	Value	Source
Metropolitan Congestion cost (\$ per PCU-km)	\$0.36	Transport for NSW (2016) Principles and Guidelines for Economic Appraisal of Transport Investment and Initiatives p257-8
B-Double Passenger Car Equivalency Factor	8	
Regional Congestion Cost	Nil	Assumed congestion costs outside of metropolitan areas to be zero.
Brisbane to Townsville – metropolitan proportion	5%	Synergies
Brisbane to Townsville – Regional proportion	95%	Synergies

### B.3 Estimation of avoided accident costs

Estimation of avoided accident costs are typically estimated through either the hybrid human capital approach or the willingness to pay (WTP) approach. The WTP approach captures people’s willingness to pay to avoid fatalities, major and minor injuries which is primarily used in Synergies’ modelling. As per below, the accident costs per annum are calculated by applying the value of statistical life or value of injury to the average fatalities and injuries per annum together with an estimation of property damage costs. For road, Litchfield (2017) had estimated the total accident costs for road using the WTP approach, and thus, these values are used in our analysis. Below are the assumptions used to estimate the avoided accident costs.

**Table 7 Assumptions used to estimate the avoided crash costs**

Assumption	Value	Source
Coastal Shipping		
Average annual fatalities	1.00	Based on 2013-18 reports from Australian Transport Safety Bureau (ATSB) Safety Investigation Reports
Average annual injuries	1.17	
Road		
Total cost of Fatalities (\$m) in 2017-18	\$10,200	Litchfield (2017) The cost of road crashes in Australia 2016: An overview of safety strategies
Total cost of Injuries (\$m) in 2017-18	\$13,580	
Total cost of Property Damage (\$m) in 2017-18	\$9,380	
Road Freight Proportion – Fatalities	15.75%	BITRE (2018) Australia Road Deaths Database 2011-18
Road Freight Proportion – Injuries	4.00%	BITRE (2016) Heavy truck safety: crash analysis and trends, information sheet 78 p1
Road Freight Proportion – Property Damage	4.00%	

Rail		
Average annual fatalities	4.05	Estimated by applying the assumed rail freight proportion to the 2012-13 data from BITRE (2018) Australian Infrastructure Statistics Yearbook 2018 T8.1b p138-140.
Average annual injuries	18.35	
Property Cost in 2017-18 (\$m)	\$94	BITRE (2003) Rail accident costs in Australia, Report 108
Rail Freight Proportion	30%	Laird, P (2005) Revised Land Freight External Costs in Australia p 7
Other		
Value of statistical life (\$m) in 2017-18	\$8.12	Based on the average values in the Australian Transport Assessment and Planning (ATAP) Guidelines – PV2 Road Parameter Values p 25.
Value of injury (\$m) in 2017-18	\$0.14	

### B.4 Estimation of avoided emission costs

The total emission costs are estimated by applying the cost of CO2 per tonne by the estimated emissions per transport mode. Below are the assumptions used to estimate the avoided emission costs.

**Table 8 Assumptions used to estimate the avoided emission costs**

Assumption	Value	Source
Total emissions (1,000 tonnes of CO2) - Maritime	2,335	
Total emissions (1,000 tonnes of CO2) – Rail	3,721	BITRE (2018) Australian Infrastructure Statistics Yearbook 2018 T9.4 & T9.5
Total emissions (1,000 tonnes of CO2) – Road Freight	21,027	
Cost of CO2 (\$/tonne) in 2017-18	\$61.81	Austrroads (2012) Guide to Project Evaluation Part 4: Project Evaluation Data p35

### B.5 Estimation of the average incremental road costs

The estimation of the average incremental road maintenance costs were based on a study conducted by the Australian Road Research Board (ARRB) for the Western Australian Local Government Association (WALGA). The study estimated the increased marginal costs from road wear due to increased volumes of heavy vehicles operated by the freight industry. The marginal cost was modelled by using FAMLIT, a custom tool developed by ARRB to model the life of the road based on deterioration curves for different types of roads.

**Table 9 Assumptions used to estimate the average incremental road costs**

Assumption	Value	Source
Cost Zone	Cost Zone 4 – 100%	Synergies
Road Type	Local Distributor – 5%	Synergies
	Regional Distributor – 95%	



Assumption	Value	Source
Duration of Loading Scenario	10 years	Synergies
Loading Scenario (ESA/year)	200,000	Synergies, based on the assumed scenario of shifting 1 million tonnes from road to coastal shipping.
Marginal Cost Local Distributor (\$/ESA.km)	\$0.07	WALGA (2015) Estimating the Incremental Cost Impact on Sealed Local Roads from Additional Freight Tasks – User Guide
Marginal Cost Regional Distributor (\$/ESA.km)	\$0.04	
ESA per B-Double Full	5	Calculated by multiplying ESA per B-Double to the Marginal Cost
Marginal Cost Local Distributor (\$/B-Double.km)	\$0.37	
Marginal Cost Regional Distributor (\$/B-Double.km)	\$0.21	