



Premier
& Cabinet



From Roots to Routes

A ground up approach to freight and supply chain planning for the Northern Rivers NSW



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INTRODUCTION

The concept to research the freight and supply chain constraints and improvements in the Northern Rivers Region of NSW was borne from a partnership comprising Regional Development Australia – Northern Rivers Inc. (RDA-NR), Northern Rivers Region of Councils, NSW Department of Premier and Cabinet and Southern Cross University as research partner. Under this partnership, Southern Cross University has undertaken the research study and strategy development as an important priority for all partners who need to better identify and understand the critical aspects of the freight infrastructure and supply chain issues in the Northern Rivers Region of NSW.

This Strategy and the underpinning research study, has built upon the Scoping Report for a Northern Rivers Freight and Supply Chain Study completed by Southern Cross University in 2016, responding to the need for a strategy to improve the efficiency of freight movements to assist local industry and other stakeholders and improve the economic potential of the Region.

The objectives was therefore to make visible the impediments and supply chain restrictions of the Region's freight network, together with the opportunities, and develop strategies to facilitate the efficient and effective movement of freight to and from the Northern Rivers Region.

As a good quality transportation network is vital to a region achieving its economic growth potential, this would enable the appropriate regional development for the Northern Rivers Region of NSW.

A five step process was followed to meet these objectives by;

1. Identifying network and system deficiencies and opportunities, through in depth consultation with stakeholders,
2. Generating detailed and quantifiable network information using agent based modelling, that assists industry stakeholders to identify value adding initiatives and assist relevant levels of government to make transportation network planning decisions,
3. Analysing the information leading to a number of principles that characterise good supply chain approaches,
4. Determining a list of potential initiatives for the freight & supply chain network,
5. Proposing a Regional Freight & Supply Chain Strategy, providing a mechanism by which business and industry in the Region will have direct input into the ongoing formulation of the freight and supply chain initiatives.

The study included extensive stakeholder engagement and employed participatory techniques to seek stakeholder input, including interviews and participatory workshops. As a result, the study has benefited from the valued local input from the Northern Rivers' producers, manufacturers, council staff and industry bodies who took part in the interviews and workshop across the consultative months of the study.



THE FREIGHT TASK FOR THE NORTHERN RIVERS REGION OF NSW

Freight activity in the Northern Rivers Region requires interconnectivity between regional, inter-regional and international producers, manufacturers and markets. Many different industries rely on these supply chain connections to operate and thrive. Production and manufacturing in the Region is a diverse mix of types and scales; with boutique, local goods production (tea, coffee, construction materials, extracts and so on), to major activities in forestry and the sugar industry. The Region includes fisheries, a diverse mix of fresh fruit, vegetables, nuts, meat, milk and milk goods and beverage manufacturing, all at both a small and larger scale.

At the larger scale, there is the sourcing of raw materials/milk/livestock from neighbouring regions in NSW and QLD for processing in the macadamia, milk product and meat industries, through to the regional movements of raw and processed sugar and seafood to Australian markets and international shipping exports for milk products and wagu beef. At a smaller scale of production, specialist tea and coffee producers rely on international imports for mixed and single original tea leaves, specialist coffee beans, through to the export of the Region's goods to the growing Asian markets for boutique Northern Rivers Region goods (such as hemp goods or fruit extracts).

Many Northern Rivers Region producers and manufacturers compete effectively in the national and international marketplace and rely on this competitiveness to survive and prosper. Freight efficiency within and outside the Region is one factor that can affect competitiveness, both in the ability to access raw materials and to reach markets in a timely manner. It is both an enabler and a limiter to economic activity across the Northern Rivers Region, a key ingredient to the productivity of the Region. The coordination and efficiency of these freight movements range from advanced scheduling programs which direct truck movement based on remote sensor results, to traditional demand driven freight scheduling.

The strength of the Northern Rivers Region freight and supply chain is the local knowledge of established, community based businesses and the history of cooperative businesses, the relationships between and within industries and government and some key infrastructure such as the recent (and continuing) upgrades of the M1 Pacific Highway links to Brisbane and Sydney.

However; without change, businesses and communities will find it increasingly hard to compete against other regions and international suppliers for market share. The Region needs increased connectivity to raw materials available from outside the Region for processing and more efficient and new ways of reaching domestic and international markets.

A VISION FOR THE FUTURE OF THE FREIGHT & SUPPLY CHAIN NETWORK FOR THE NORTHERN RIVERS REGION OF NSW

The following image provides a vision of the freight & supply chain network that will underpin the future freight & supply chain needs for the Northern Rivers Region of NSW, building upon the existing road and rail networks that are already in place. Key changes are:

- Connection to Bromelton, the Port of Brisbane and Brisbane itself through **additional B-double routes** through the Summerland Way, Bruxner Highway west of Casino and the Clarence Way north of Tabulam.
- The utilisation of the coastal railway and the under construction Inland Rail corridor to **create a rail shuttle** to the Port of Brisbane and to Toowoomba/ Wellcamp Airport. New intermodal hubs at Kyogle, Casino and Grafton provide direct access to rail from within the Region.
- Connection to the Gold Coast Airport via the existing Bruxner and Pacific Highway B- double routes.
- Potential for services from Ballina, Lismore and Grafton regional airports to connect with larger airports with domestic and international services.

Each of these enhancements provide for better access to Brisbane, southern Queensland and northern regions of NSW. The connection to the Inland Rail corridor provides for better access to markets in Melbourne and via Parkes to Adelaide and Perth. Connections to airports provide better access for more distant domestic and international markets for air freight.



Figure 1: A Vision of the Future Supply Chain Network

STRATEGY INITIATIVES OVERVIEW

This Strategy has identified 20 initiatives (figure 2) that will be needed to realise this vision of the freight & supply chain network and to meet freight & supply chain needs for the Northern Rivers Region. These initiatives can be viewed at three different scales, Global, National/ State and Regional/Local.



Figure 2: 20 Initiatives to meet the Freight & Supply Chain Needs of the Northern Rivers Region

A number are global in their influence, enabling freight and supply chain efficiency for businesses within the Northern Rivers to reach international markets. Initiatives 1 to 5 primarily focus on this global scale, aligning with access to ports, access to/presence in Asian markets and access for fresh food in foreign markets.

At the national/state scale, Initiatives 6 to 12 are primarily focused on national connectivity for the Northern Rivers Region Supply Chain, getting freight to and from capital cities and regional centres in efficient ways.

Initiatives 13 to 20 are primarily focused on regional and local efficiency in the supply chain, inclusive of better use of local services, local facilities, precinct activities/ needs/ opportunities, coordination of resources, regional messaging, understanding the integration of all initiatives and data sharing.

The insight from the engagement with many of the Region’s producers, manufacturers, freight companies, terminal operators and local agency stakeholders has provided the basis for the initiatives that have been included in the Strategy. Collectively the interview and workshop outcomes were used to gain an understanding of the needs and issues both now for the Region as well as a vision for the future. Key themes that have come from the engagement process to shape the initiatives, are shown in Figure 3.



Figure 3: Inputs to Formulation of Initiatives

The study team’s discernment of the information from the engagement process, the themes in Figure 3, reinforced with secondary information and trends at global, national, regional and local scale and transport modelling has led to the formulation of the 20 initiatives in Figure 2 to form the substance of this Strategy.

STRATEGY IMPLEMENTATION PROCESS

Implementation of the strategy will occur at various levels within the Region, some actions will also need to occur at a state, inter-state or even national level. It is key to embedding resilience that stakeholders participate in the decision making processes through the implementation phase (as a continuation of their ongoing involvement in the identification of freight and supply chain improvement initiatives).

This will give the users and providers of freight and supply chain services a front-seat in the implementation of the initiatives. The list of initiatives in Figure 2 have been given colour coded flags to give an indication of the likely stakeholder groups, as indicated in the figure, that would generally progress each initiative.

The following approach (the 'how' of the strategy) includes establishment of Precinct Working Groups (one working group per precinct) and an overarching Precinct Collaborative Network.

Regional Level Implementation with broad industry consultation

Activities within this group will be implemented by regional groups within the Northern Rivers in collaboration with industry and other agencies. For example, this study was funded by Regional Development Australia (Northern Rivers), the Department of Premier and Cabinet and the Northern Rivers Councils.

- A. Freight and Supply Chain Initiatives (complete Jan 2019)
 - Create a common understanding of the principles that drive freight and supply chain improvements.
 - Develop a regional model for freight and supply chain to support the initiatives and any future business case development.
 - Identify freight and supply chain improvement initiatives.
- B. Precinct Working Groups
 - Identify *Precincts* of businesses and service providers whose ability to survive, adapt and grow is reliant on common freight and supply chain needs.
 - Initiate *Precinct Working Groups* to drive the freight and supply chain initiatives from the Strategy, that support improvements for their precinct.
- C. Precinct Collaborative Network
 - Develop a network for inter-precinct cooperation.
 - Create a preliminary profile of which initiatives will be pursued at the Network level, e.g. common markets or supply chain, changing technologies and regulation etc.

Precinct (Industry) Level Implementation with Local Government and Other Agency Support and Involvement

These precincts may be groups of similar or dissimilar industries, but they have in common a shared reliance on 'facilitating' infrastructure, such as roads, bridges and the rail link. The industries that would participate in the precinct level collaboration would include the producers and manufacturers within the precinct, but also the freight services providers to that precinct.

- D. Freight Movement Analysis
 - Data collection and analysis, including data logging of vehicle movements.
 - Load the precinct level data into the Northern Rivers Freight Model to develop a business case that supports alternative supply chain configurations (e.g. upgrades to local roads or bridges). The business case will need to consider forecasting future freight movements over the life of the analysis.

- E. Implementation of specific initiatives that apply to the precinct
 - Consider commercial arrangements and potential service providers.
 - Work with service providers to identify anchor businesses that will facilitate the initial stages of development.
 - Seek government funding for the initiative(s)
- F. Participate in the Precinct Collaborative Network

Precinct Collaborative Network Level Implementation

- G. Develop a virtual communication hub to support the PWGs and enable inter-precinct collaboration to occur in a virtual environment
- H. Maintain oversight of the strategy
 - Monitor the activities of the PWGs and report successes
 - Provide regular review of the strategy
- I. Pursue major infrastructure initiatives in collaboration with state, inter-state and national government

It is envisaged the 20 initiatives of this report will be implemented by the PWGs and PCN established in the process above. Figure 4 provides an initial view of both PWGs and Region wide initiative PCN activities that could start the process.



Figure 4: Possible Initial PWGs and Region Wide PCN activities

It is envisaged the 20 initiatives of this report will be implemented by the PWGs and PCN established in the process above. This process will address the need to embed resilience in the planning process by ensuring there is a broad and comprehensive stakeholder base that is engaged in the process. Additionally, by drawing businesses and services providers for precincts together into Precinct Working Groups there will be a natural tendency to also draw together external synergies (not just the freight and supply chain initiatives) into consideration – meeting the need for resilience to be ‘integrated’ into diverse systems (e.g. telecommunications, land use planning, etc.).

It is desirable that each of the initiatives should commence in the next 12 months, to enable sufficient development time to more clearly determine the interrelationships between each initiative. It is also recognised that each initiative is likely to have very different time frames on completion and realising the benefits. Determining this will be one of the expectations for each Precinct Working Group and the Precinct Collaborative Network.

INITIATIVE STARTER CARDS

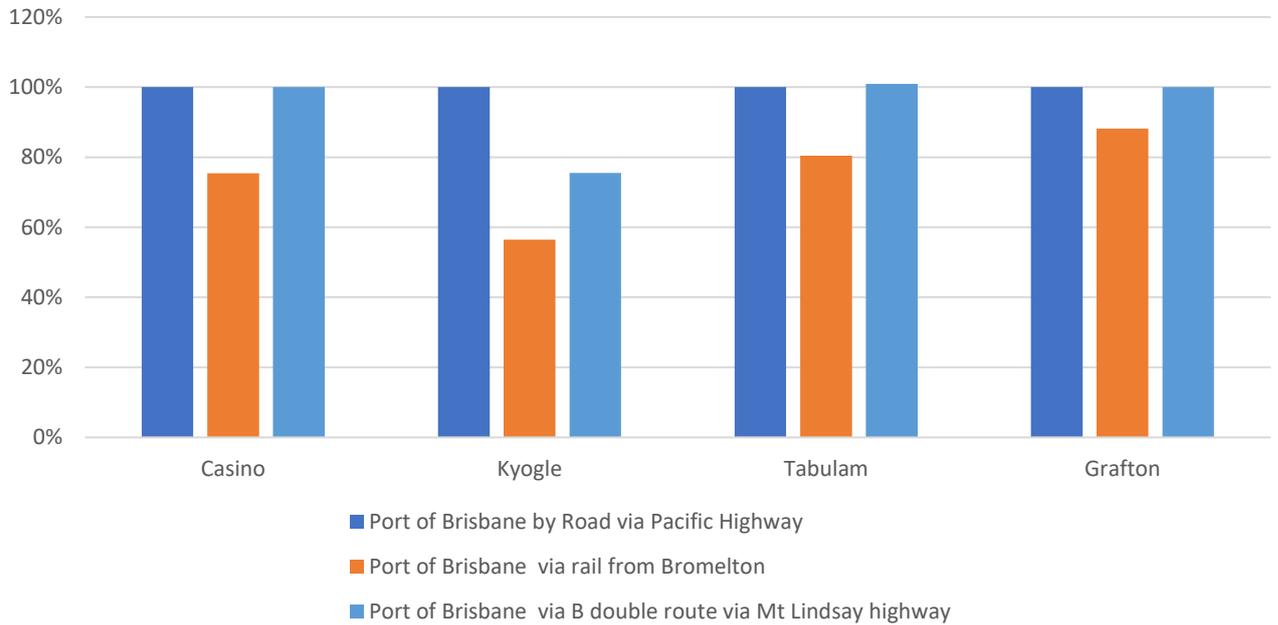
Each initiative has been provided with an Initiative Starter Card to provide a starting point for the facilitation of each initiative to take shape. It is envisaged that these will be used by the relevant Precinct Working Groups and the Precinct Collaborative Network when commencing the initiatives.

INITIATIVE # 1 INVESTIGATE ALTERNATIVE METHODS TO REACH THE PORT OF BRISBANE

<p>INITIATIVE # 1</p>  <p>(Related to Initiative 2, 5 and 7)</p>	<p># 1 – Investigate alternative methods to reach the Port of Brisbane for freight export. For example utilising rail access into the Port and a second B-double route across the Queensland Border.</p>
<p>PRIORITY</p>	<p>BACKGROUND</p>
<p>H/M/L</p>	<p>This initiative has been recognised by producers, manufacturers and local government for some time, as a potential supply chain connection into the Port of Brisbane. Road access into the Port is becoming increasingly difficult with both increased throughput of the Port and increasing congestion as the Gold Coast and Brisbane urban areas grow.</p>
<p>IMPACT</p>	<p>The opportunity is to leverage off other initiatives including the Bromelton Intermodal Hub near Beaudesert in Queensland’s Scenic Rim and the access that will be afforded by the Inland Rail Corridor and new freight rail link to the Port of Brisbane.</p>
<p>Connectivity via a western north south corridor into Brisbane will increase the accessibility to the Port of Brisbane for the western half of the Northern Rivers Region from Grafton through to Casino, Tabulam, Kyogle and Lismore.</p>	<p>There are three available alternatives to the current Pacific Highway B-double road access to the Port of Brisbane;</p> <ol style="list-style-type: none"> 1. Truck via an alternate route. For example if B-double access was made possible through the Summerland Way into Queensland then an alternate route would be available. This may become of increasing importance as road congestion in South East Queensland worsens. Though this route would not be immune from road congestion nearer to Brisbane. It would also bypass the congestion which currently occurs at the Lismore Wilson River Bridge and associated Bruxner Highway roundabouts. 2. Truck to Bromelton then via rail to the Port of Brisbane. This may become a useful option if congestion prevents growth in services to the Port of Brisbane or if the broader operating time at Bromelton better suits the freight movements of the Region at the Port of Brisbane which has restricted operating hours, however freight can be received at Bromelton at any time – this did not emerge as an issue for stakeholders through the participatory process but may provide additional flexibility to freight service providers. <p>If B-double access was made possible through the Summerland Way into Queensland to reach Bromelton. This route would be advantageous from a trucking perspective for most of the Region and has the advantages of not being subject to road congestion or hours of operation. While there would be additional double handling costs, there is also the possibility for a future customs/AQIS service at Bromelton, and co-locating this activity with the intermodal activity will reduce double handling costs.</p>

	3. Direct rail access via a Rail Shuttle within the Region to the Port of Brisbane (either via Bromelton or direct)	
RESILIENCE	STAKEHOLDERS	IMPLEMENTATION PATHWAY
<p><i>How does this affect resilience?</i></p> <p>The provision of a second north south route into Brisbane and to the Port of Brisbane provides alternative accessibility in the event that either route is disrupted by climate such as flooding or fire or other events such as accidents.</p> <p><i>Does this initiative preclude other initiatives from being carried out in the future?</i></p> <p>No</p>	<p>Producers and manufacturers in the western half of the Region. Logistics companies, Local Government and agencies.</p>	<ol style="list-style-type: none"> 1. Adoption of this regional level overarching strategy (by Northern Rivers Local Governments, NSW Government, Producers and Manufacturers) to provide the framework for the transition pathway. 2. The Precinct Collaborative Network with the relevant Precinct Working Groups (inclusive of rail operators) to develop the business case for the link. 3. Seek cross border cooperation with Queensland Local Government and Queensland Government. 4. Ongoing review and adjustment processes as the future freight demands and required adaptations unfold.
MODELLING		
<p>For precincts in the western and southern half of the Northern Rivers, the provision of a second B-double route via the Summerland Way is of similar unit cost of freight operation as via the Pacific Highway route for most precincts with the exception of Kyogle which due to the shorter western B-double route to Brisbane shows a 25% lower freight cost.</p>		

Western Precincts to Port of Brisbane via Bromelton: relative to B double pricing on Pacific Highway



Additionally an East of Mount Lindesay deviation would potentially reduce the freight cost of a B-double journey in the order of another 10% over the existing Pacific Highway route. However whilst the road freight cost reduction is mainly of benefit to the Kyogle precinct, it is important to note the benefits of a combined B-double and intermodal at Bromelton can only occur for the western precincts if the Summerland Way /Mt Lindesay B-double route is developed. The modelling shows that this link will have the potential for a 20% to 50% reduction in the freight costs for a wider number of precincts, predominantly Casino, Kyogle, Tabulam and Grafton.

For Tabulam, this initiative should be considered together with the modelling and details in Initiative 7.

GUIDING INSIGHTS & PRINCIPLES

The NSW Government and local councils are very aware and focused on ensuring safety not only for the truck drivers, but also for other motorists, community and environment. Truck accidents are usually very serious and can result in fatalities, road blockages and contamination of environment. Separation of road users through dual roads, and town bypasses are an inherent feature of the newer road design in the Pacific Highway investments of recent years. However, the opportunity for additional separation via a western north south route between Grafton and Brisbane via Casino, use of newer safer trucks as B-double routes are provided, greater integration with rail and roles for future autonomous vehicles should all be explored with earnest given the safety benefits that will parallel any productivity benefits.

It is generally desirable to separate freight and passenger vehicles from a safety perspective. Even to move as much freight as possible to rail (where freight/passenger interactions are the most directly controllable). An emerging technology (already implemented in the US) sees autonomous vehicle, currently under driver supervision, being used to further improve the safety and efficiency of trucking operations.

This is only seen as a viable option (with current technology) when there is a low mixing of freight and passenger vehicles. The alternative route to Southern Downs / Brisbane may provide the opportunity to construction a freight preferred route to Brisbane from Grafton that is specifically design for autonomous trucks. This would provide freight from Sydney to Brisbane a section of road that is separated from the significant number of passenger vehicles in South East Queensland and also autonomously driven (if/when regulation permits).

INITIATIVE #2 DEVELOP A CONCEPT FOR THE NORTHERN RIVERS RAIL SHUTTLE TRANSPORT MODEL

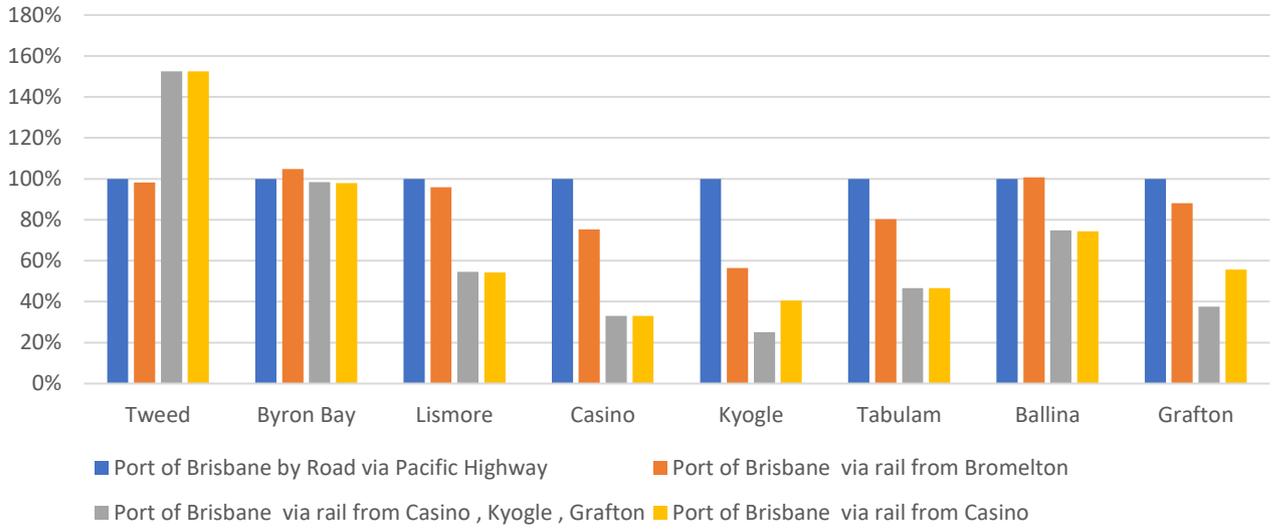
<p>INITIATIVE # 2</p> <p style="text-align: center;"></p> <p>(Related to Initiative 1, 5 and 7)</p>	<p># 2 – Develop a concept for the Northern Rivers Rail Shuttle Transport Model. This will include site selection for intermodal facilities and a preliminary business case to support the project.</p>	
<p>PRIORITY</p>	<p>BACKGROUND</p>	
<p>H/M/L</p>	<p>Reshaping of the east coast rail services with the introduction of the Inland Rail route will likely shift the use of the existing coastal route through the Northern Rivers to suit shuttle freight train service trains out of Brisbane rather than through services between Sydney and Brisbane.</p> <p>The opportunity exists for the creation of shuttle rail services from Intermodal facilities at locations such as Grafton, Casino and Kyogle to run directly between the Northern Rivers to Acacia Ridge and Port of Brisbane. The attractiveness of a cross rail connection to inland rail services at Bromelton, as a stop of the shuttle service to Brisbane, provides opportunity to gain access to the Melbourne market via the inland rail corridor. However the concept of a short shuttle between Northern Rivers and Bromelton alone will require market testing for this to be considered further.</p> <p>With the inclusion of the planned triangle at Kagaru, some rail operators have suggested the concept of a three way shuttle could be an option with services between Brisbane and Northern Rivers; Northern Rivers and Wellcamp Airport/ Toowoomba; and Wellcamp Airport/Toowoomba and Brisbane as a concept to explore. A key part of the viability of shuttle services is having sufficient economic density at the regional destinations and preferably the opportunity for two way flow of goods, to generate sufficient volume for a shuttle train to operate.</p>	
<p>IMPACT</p>		
<p>Connectivity via a western north south corridor into Brisbane, Toowoomba Wellcamp Airport and the Inland Rail Corridor will increase the accessibility to markets within Brisbane and connected by the Inland Rail to export and other domestic markets in other states. The major beneficiaries are precincts in the western half of the Northern Rivers’ Region from Grafton through to Casino, Tabulam, Kyogle and Lismore. However, benefits will also build for precincts in the eastern half of the Region.</p>		
<p>RESILIENCE</p>	<p>STAKEHOLDERS</p>	<p>IMPLEMENTATION PATHWAY</p>
<p>How does this affect resilience?</p>	<p>Producers and manufacturers in the western half of the Region. Logistics companies,</p>	<p>1. Adoption of this regional level overarching strategy (by Northern Rivers Local Governments, NSW Government, Producers</p>

<p>The provision of a second north south route into Brisbane and to the Port of Brisbane provides alternative accessibility in the event that either route is disrupted by climate such as flooding or fire or other events such as accidents.</p> <p><i>Does this initiative preclude other initiatives from being carried out in the future?</i></p> <p>No</p>	<p>Local Government and agencies.</p>	<p>and Manufacturers) to provide the framework for the transition pathway.</p> <ol style="list-style-type: none"> 2. The Precinct Collaborative Network with the relevant Precinct Working Groups (inclusive of rail operators) to develop the business case for the rail services. 3. Seek cross border cooperation with Queensland Local Government, Queensland Government and Federal Government in relation to Inland Rail and reshaped east coast rail arrangements. 4. Ongoing review and adjustment processes as the future freight demands and required adaptations unfold.
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MODELLING

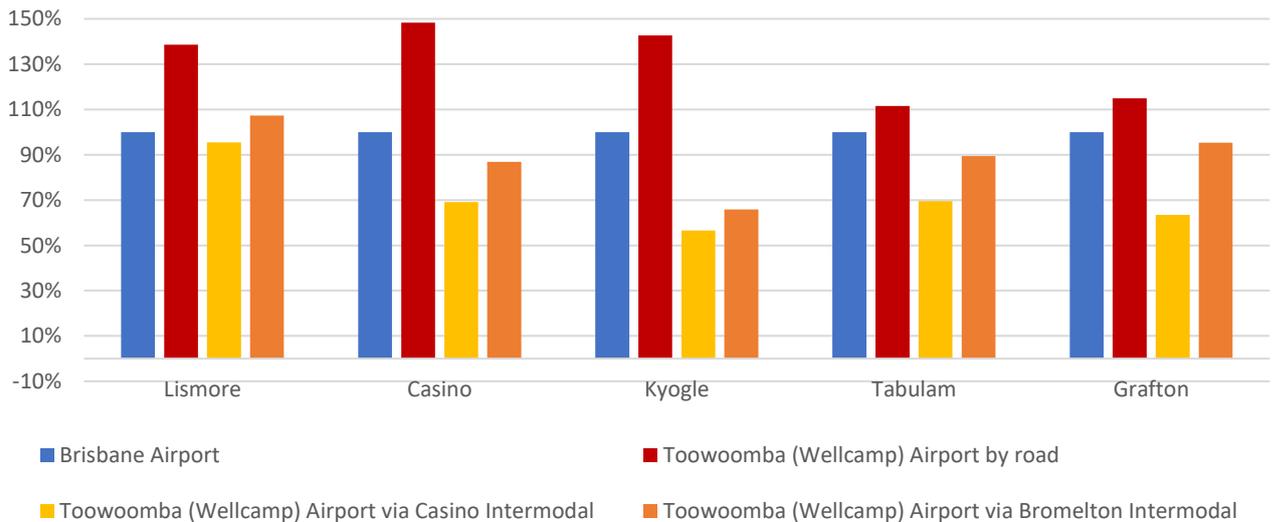
Modelling shows that compared with unit price rate for B-double's across the same journey, a shuttle service from Casino, or Grafton, Casino, Kyogle could reduce freight cost in the order of 40% to 66%, inclusive of intermodal transshipment cost, for western precincts and also provide some more modest reductions for most eastern precincts, apart from the Tweed and Byron Bay.

Precinct to Port of Brisbane by Rail Scenarios: relative to B double pricing

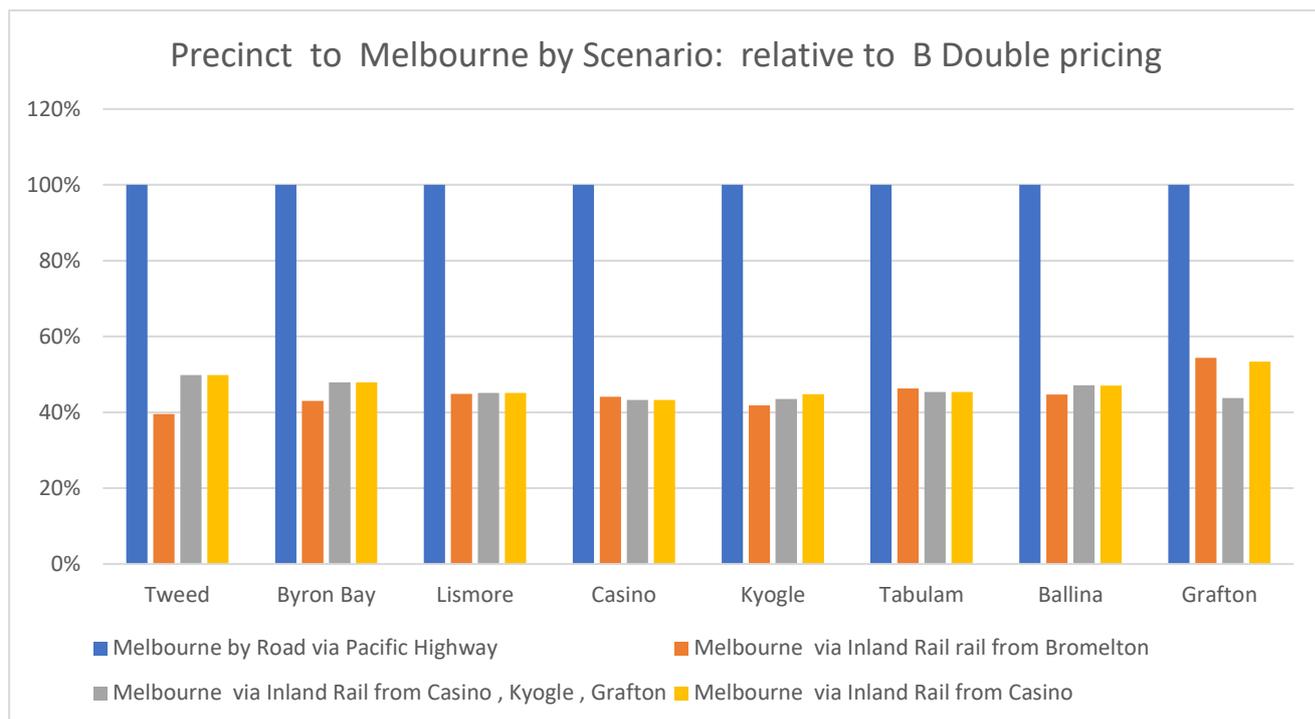


The modelling shows the relative freight costs for accessing Toowoomba (Wellcamp) Airport by rail against the existing road journey, and most importantly in comparison to the existing B-double journey to Brisbane Airport. For both rail options, the freight price unit cost is less than for both Brisbane and Toowoomba (Wellcamp) by B-double truck for most of these precincts.

Precinct to Toowoomba Airport: relative to existing precinct to Brisbane Airport by B double



For destinations in Melbourne via Inland Rail through intermodal hubs at Casino, Bromelton or Kyogle/Casino/Grafton, the freight costs could reduce to 40% to 50% of the current B-double costs across all of the precincts in the Northern Rivers.



GUIDING INSIGHTS & PRINCIPLES

Modelling has indicated that there are significant savings (50% to 66%) for most areas of the Northern Rivers Region if a rail shuttle is used and that there is likely to be sufficient economic density to support the rail activity.

While this study has focussed more specifically on Regional exports – there is a significant volume of Regional imports that could be serviced by using a rail shuttle network. This could include goods such as fuel, gas, raw materials for manufacturing, building supplies etc.

Pursuit of these initiatives will have the potential to;

- Provide better access for Northern Rivers manufacturers to source raw materials (macadamias, milk, hemp seed etc.) from around Australia via the Inland Rail network),
- Reduce the costs of getting to market both domestically and internationally,
- Provide alternative routes to get to market in the case of network interruptions (infrastructure failure etc.),

- Stimulate economic growth around the shuttle terminal locations through co-located manufacture and transport services.

The opportunity for a two way flow of goods will provide for a stronger business case for a shuttle service.

There are eight pre-conditions for a rail-shuttle service. They are listed below in the context of the Northern Rivers Region.

1. Are the goods suitable for rail transport

There is a very diverse mix of goods in the Northern Rivers Region, much of which is already containerised or palletised and suitable for rail transport.

2. Do the goods meet the minimum volume thresholds

In 'round' numbers there would need to be around 5,200 containers/wagons per year to support a weekly rail shuttle activity. From the data gathered during the interview process this figure appears achievable solely with Casino based businesses to the Port of Brisbane (assuming the product can be 'held' for the weekly delivery).

Let alone sourcing additional cargo from within the region either via truck to Casino (or where-ever the terminal is) or with multiple terminals in Kyogle, Casino and Grafton.

This is also without recognising the market opportunities that would open up with a) air freight access via Wellcamp Airport to Hong Kong and b) access to the Inland Rail network and other capital cities.

Additionally, rail shuttle planning does not result in a rail-only transport solution. A rail shuttle would become a part of the supply chain solution and, generally, road transport would continue to run in parallel with rail transport.

Another consideration is the 'return' trip and the source of material both a) from further afield that before via the Inland Rail link and b) direct from the Port of Brisbane to the region via rail. It was observed during the interview process that many smaller business (tea/coffee/speciality goods) include freight importing or raw materials through the Port of Brisbane as a large component of their business activity. Having access to a rail connection would significantly advantage these businesses and potentially stimulate the movement of such businesses 'towards' the rail corridor. Already (during the interview process) some of the smaller businesses noted that land pricing and availability (competing for residential uses) and inadequate infrastructure in the coastal zone of the region is encouraging businesses to grow by moving inland.

3. Does the rail shuttle meet minimum frequency, transit time and reliability requirements?

The current frequency requirements have not been determined, nor the potential for changing frequencies if needed. Rail shuttle services need to provide comparable accessibility as to road transport in order to be effective (regardless of costs).

While this is understandable, it does not necessarily allow for some freight tasks being more flexible than others to different transit frequencies and times.

Additionally, whether less frequent services (say weekly) are made more attractive for businesses by having an associated cold storage facility, is a detail that needs to be explored further.

4. Is the demand for goods subject to peaks and troughs?

Certainly some goods are subject to peaks and troughs. This is another reason why, having a good road transport system alongside the rail system is critical to the success of a rail shuttle. 'Peak' times can be met through growing

the train length or increasing the frequency of services, but where there is not sufficient additional demand, then road transport can meet the need.

5. Is there suitable infrastructure in place?

The rail infrastructure is in place, however the storage and intermodal infrastructure is not in place and would need to be constructed to allow most businesses to participate in the rail shuttle. There are already some proposals for this in Casino. These developments should be encouraged to think broadly about the producers/manufacturers' needs including incorporating suitable cold and dry storage.

6. Optimal train operating solution

The train operating solution will need to be optimised to suit the specific freight task of the Region and it will change over time as the goods and freight needs change. The rail network operator(s) should employ a systems engineering approach to best determine this. The optimal solution will be refined during the feasibility, concept and business case stages of the implementation of this initiative and continue to be refined through the life of the operation.

7. Have commercial arrangements been determined?

While the development of this strategy has included engagement with industry representatives (including rail operators) to map a pathway for implementation, it will be imperative that rail network operators are involved through the implementation of the initiative so that the commercial arrangements be discussed early in the process to best meet the desired outcomes for rail network operators and users of the scheme.

8. Is the rail option cost competitive with other forms of transport?

The modelling that supports this report shows that the rail option is preferable from a cost perspective.

INITIATIVE #3 IMPROVE PRESENCE OF NORTHERN RIVERS BUSINESSES IN FOREIGN MARKETS

<p>INITIATIVE # 3</p>  <p>(Related to Initiative 4, 5 and 6)</p>	<p># 3 – Improve presence of Northern Rivers businesses in foreign markets to improve access into markets and the visibility of the supply chain once the goods reach the foreign market.</p>	
<p>PRIORITY</p>	<p>BACKGROUND</p>	
<p>H/M/L</p>	<p>Most business that were interviewed expressed a commercial aspiration to sell directly into Asian markets, or increase that activity where some export already occurs. However import restrictions on the market side of the activity (particularly China) were cited as the main difficulty in entering those markets. A second difficulty cited was a lack of transparency on what happens to the product once it is in the foreign country.</p>	
<p>IMPACT</p>		
<p>Increase the likelihood of developing a stable demand for exports from Northern Rivers businesses and realising the value of supply chain enhancements.</p>		
<p>RESILIENCE</p>	<p>STAKEHOLDERS</p>	<p>IMPLEMENTATION PATHWAY</p>
<p><i>How does this affect resilience?</i></p> <p>Creating greater certainty in export stability provides for more confidence in the strategic investments needed to support the export supply chain.</p> <p><i>Does this initiative preclude other initiatives from being carried out in the future?</i></p> <p>No</p>	<p>RDA, producers and manufacturers with an interest in international exports, RDA, Austrade, other Federal and NSW government agencies with a role in export development.</p>	<ol style="list-style-type: none"> 1. Assist producers and manufacturers to conduct market reconnaissance in foreign markets. 2. Provide a mechanism to enable producers and manufacturers to establish a presence in foreign markets.

MODELLING

Application of modelling methodology to the foreign market leg of the supply chain to be further investigated. This will depend on availability of supply chain data and constraints at the destination market.

GUIDING INSIGHTS & PRINCIPLES

Insights from a number of producers and manufacturers that have trialled establishing a presence in foreign markets is the need for the producer or manufacturer to have a physical presence, or a trusted representative, in the market place to ensure that:

- Relationships with the market are real and lasting
- Goods despatched from the Northern Rivers Region are arriving in good condition and to manage the ongoing distribution to the market place in that country.

It was also observed that this destination market side need was initially more limiting the ability of Northern River's businesses reaching export markets than the landside limitations on the Australian side.

INITIATIVE #4 INVESTIGATE ALTERNATIVE AIRPORTS TO SERVICE AIR-FREIGHT EXPORT NEEDS (TOOWOOMBA/ GOLD COAST)

<p>INITIATIVE # 4</p>  <p>(Related to Initiative 2, 3 and 6)</p>	<p># 4 – Investigate alternative airports to service air-freight export needs (Toowoomba / Gold Coast).</p>	
<p>PRIORITY</p>	<p>BACKGROUND</p>	
<p>H/M/L</p>	<p>Producers and manufacturers in the Northern Rivers Region currently make limited use of airfreight for export of goods to market. This is partly due to availability of a supply chain to nearby airports, but also due to the maturity of the market presence in destination countries. Never the less producers and manufacturers have expressed a keen interest in exploring the opportunity for this mode of transport to provide fast delivery of higher value perishable goods to international markets.</p>	
<p>IMPACT</p>	<p>Three major airports of Brisbane, Gold Coast and the Toowoomba (Wellcamp) were nominated in the scoping study on the basis they currently have a level of international jet aircraft operations in proximity of the Northern Rivers. Of these only Toowoomba (Wellcamp) has proximity to rail access that could connect to the Northern Rivers.</p>	
<p>Open up greater access to international and some domestic markets. Provide access options that are less impacted by the unreliability impacts resulting from road congestion, giving greater opportunity for just in time despatch of goods.</p>	<p>The opportunities for airfreight will need active participation of producers and manufactures in the target international markets for supply chain investments to be forthcoming. The drivers for airfreight supply chain at new candidate airports such as Gold Coast will be sufficient demand from producers and manufacturers to stimulate investment by logistic companies into lands available at the airport site.</p> <p>It is also possible that regional airports such as Ballina Byron and Lismore could be opportunities for airfreight in the future, however they would need to achieve a level of frequency and capacity and accessibility advantage to overtake the attractiveness of the three major airports under study at this time.</p>	
<p>RESILIENCE</p>	<p>STAKEHOLDERS</p>	<p>IMPLEMENTATION PATHWAY</p>
<p><i>How does this affect resilience?</i></p> <p>Toowoomba (Wellcamp) and Gold Coast airfreight options add to greater resilience through opening up choice for reaching markets under climate and</p>	<p>Producers and manufacturers in the Region. Logistics companies, airport operators, airfreight operators, Local Government and agencies.</p>	<ol style="list-style-type: none"> 1. Adoption of this regional level overarching strategy (by Northern Rivers Local Governments, NSW Government, Producers and Manufacturers) to provide the framework for the transition pathway. 2. The Precinct Collaborative Network with the relevant Precinct Working Groups develop the business case that supports investment in airport facilities and freight services.

other disruption events. It also adds greater choice for tapping into new markets as future markets need to change.

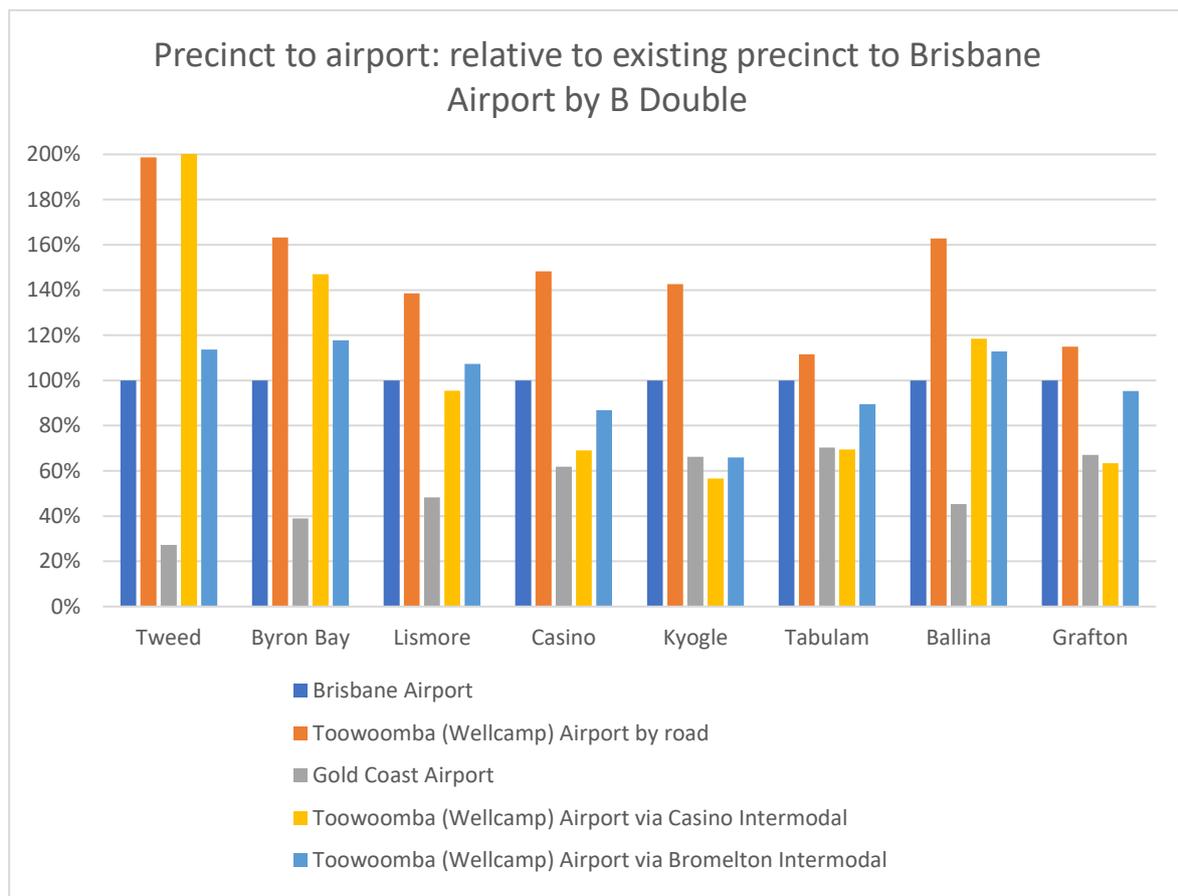
Does this initiative preclude other initiatives from being carried out in the future?

No

3. Seek cross border cooperation with Queensland Local Government and Queensland Government for road access infrastructure planning at the Gold Coast precinct.
4. Ongoing review and adjustment processes as the future freight demands and required adaptations unfold.

MODELLING

The three major airports of Brisbane, Gold Coast and the Toowoomba (Wellcamp) have been investigated in terms of the freight pricing as a measure of access, from each Local Government Area precinct in the Northern Rivers.



Modelling indicates that unit rate freight costs per B-double equivalent are:

- less than current costs to Brisbane Airport for the option of Gold Coast Airport for all precincts in the Northern Rivers Region. Costs could be as low as 10% to 75% of current B-double costs to Brisbane airport, depending on the precinct location.
- less than current costs to Brisbane Airport for the option of Toowoomba (Wellcamp) by intermodal for all precincts in the Northern Rivers Region, with the exception of the north eastern precincts of the Tweed, Byron Bay and Ballina. Costs could be as low as 50% to 75% of current B-double costs to Brisbane airport, depending on the location of the other precincts.
- For the north eastern precincts of Tweed, Byron Bay and Ballina the best price option for reaching Toowoomba (Wellcamp) is to B-double via the Gold Coast to Bromelton and then a shuttle train to the airport. Freight costs appear to be between 30% and 50 % cheaper than by B-double all the way to this airport. However, the freight costs compared to Brisbane are higher in each case.

GUIDING INSIGHTS & PRINCIPLES

The freight model was used to demonstrate the advantage to the Region in using alternative airports (other than Brisbane Airport) to reach international markets. The obvious advantage of the Gold Coast area is its proximity to the Region, and Toowoomba (Wellcamp) is the dedicate air-freight operations into Asian markets. Toowoomba (Wellcamp) has been highlighted by the National Government as a hub location for air-freight export to Asian markets.

The Gold Coast Airport is a more efficient location for the Northern Rivers Region to reach for international air freight compared with Brisbane Airport, on the basis of road freight costs. With a greater percentage impact, the closer the source location is to the Gold Coast (i.e. Tweed has the highest percentage benefit).

Toowoomba (Wellcamp) airport was not more attractive than Brisbane airport via road transport, however if combined into a regional rail shuttle activity, then Toowoomba (Wellcamp) is a more effective location that the Gold Coast for all Northern Rivers air export activities.

Similarly, with increasing congestion, accessibility to Brisbane Airport will reduce and become more expensive over time. Access to alternative airports may be required if the produce being exported is struggling with price-competitiveness in the export market (noting that currently most air-freight export products from the Northern Rivers are higher-value commodities that may not be impacted significantly by marginally increasing freight costs).

GOLD COAST AIRPORT:

The Gold Coast Airport, currently provides freight services in mixed freight / passenger aircraft only. While the trucking component of the supply chain journey would be reduced if going from Gold Coast, the down side is that there are currently less available destinations compared to Brisbane Airport. However, the current throughput of aircraft are set to increase and can be gauged by the forecast increase in passenger numbers from the Gold Coast Airport Master Plan, anticipating a jump in passengers from 6.6 million passengers per annum in 2018, to 16 million passengers per annum in 2037.

The Gold Coast Airport has already identified two locations on their land that are capable of being developed for freight activity in the western and southern zones of the airport lands. The southern zone (precinct) is a 5 hectare site adjacent Wollemi Place near the off the M1 into the Gold Coast Highway. The site could provide a suitable location for a freight storage and distribution hub for dry product. A second site to the west of the airport is a much larger zone (precinct) 39 to 60 hectares in area, immediately adjacent the airport operational lands. This site has the most potential for

integration of an air freight facility with a cold store capability, but would require off and on ramps on the M1 to provide efficient access to the site. This is considered key to unlocking this parcel for logistics and freight opportunities.

The western zone particularly has the capacity to be a major freight hub for the Region. It is anticipated that the major activity for hubs at either location would be to intercept freight from Sydney heading to Brisbane and then dispatch it from this location. This would negate the need for freight to travel past its ultimate destination before being 'shipped back' (i.e. Freight from Sydney to the Gold Coast being sent to Brisbane first for subsequent dispatch to the Gold Coast). Subsequently, the design of the freight hub at this location (or other similar locations) would not be to specifically support Northern Rivers' activities. The advantage is that there are other (larger) driving factors that will see this development progressed without the need for specific resources from the Region.

There is also an opportunity for the Region to participate in the overall design of the facilities (should they go ahead) but this is something that would need to be progressed by major producers in the Region who have a specific need (such as a combined cold store / air freight export opportunity) that can be met at the Gold Coast Airport – e.g. Blueberry Growers.

TOOWOOMBA (WELLCAMP) AIRPORT:

The Toowoomba (Wellcamp) Airport has been identified by multiple levels of government as an ideal location for airfreight export to Asian markets. It also has connection to the Inland Rail Network and could be part of a Northern Rivers Region rail shuttle network.

By road it is not more effective to get Toowoomba (Wellcamp) Airport than other airports (Brisbane or Gold Coast), but as a port, alternate market destinations may emerge at this location that are not available at other airports. As a result, the use of Toowoomba (Wellcamp) Airport may become more prevalent in the future even without progression of the rail shuttle initiative.

REGIONAL AIRPORTS:

The Northern Rivers has a number of smaller, regional airports that could, at some future stage, be consider for distant domestic and international export. It is anticipated that this would emerge as an industry driven initiative and be linked very closely to one or two major activities that would drive this option.

For example; if a new industry or market destination emerges that could utilise dedicated freight export (or even combined passenger / freight export) from a small airport into distant domestic destinations or in a foreign market, then the cost savings of a shorter trucking distance would need to be compared to the cost of any upgrades or other costs (intermodal costs, other airport costs) to support a business case for the upgrade.

Alternatively, the smaller regional airports may be able to provide Regional freight flights to nearby larger domestic/international airports, such as Brisbane, Gold Coast or Toowoomba (Wellcamp) Airport, for ongoing connections to more distant domestic and international destinations.

It is suggested that airport operators consider the option of distant domestic and international freight in their long term planning. This would involve understanding the supply and demand characteristics of nearby industry. The Precinct Working Groups would be ideal mechanisms to further examine this possibility.

INITIATIVE #5 COLLABORATE TO IMPROVE USE OF CLIMATE CONTROLLED CONTAINERS FOR FRESH PRODUCE INTO INTERNATIONAL MARKETS

<p>INITIATIVE # 5</p>  <p>(Related to Initiative 1 and 2)</p>	<p># 5 – Collaborate with shipping companies and industry to improve Northern Rivers use of climate controlled containers for fresh produce into international markets.</p>	
<p>PRIORITY</p>	<p>BACKGROUND</p>	
<p>H/M/L</p>	<p>In order to reach foreign markets, food producers must rely on speed or preservation methods or both in order for goods to arrive in the destination market with a suitable shelf life.</p>	
<p>IMPACT</p>		
<p>Improve the time available for reaching international markets, minimising loss in quality and potential loss in market share.</p>		
<p>RESILIENCE</p>	<p>STAKEHOLDERS</p>	<p>IMPLEMENTATION PATHWAY</p>
<p><i>How does this affect resilience?</i></p> <p>Provides a greater range of options for reaching international markets, for both air and sea freight.</p> <p><i>Does this initiative preclude other initiatives from being carried out in the future?</i></p> <p>No</p>	<p>Producer, manufacturers, freight services providers, technology providers.</p>	<ol style="list-style-type: none"> 1. Review and evaluate existing technologies 2. Identify opportunities for use of the technology. 3. Identify a pilot supply chain for implementation. 4. Complete and evaluate pilot program. 5. Market and roll out the technology solution across the Region.

MODELLING

Identify opportunities to support the evaluation with modelling to better understand the benefits to producer manufacturers.

GUIDING INSIGHTS & PRINCIPLES

Air-Freight from any of the accessible airports is the fastest way of reaching destination markets but is high cost and has less established freight routes than sea freight. Trends in international shipping shows that temperature and climate control in sea freight (containers) may make foreign markets more accessible for Northern Rivers Region fresh foods as an alternative to (or complimenting) expanded air freight routes.

INITIATIVE #6 PURSUE OPPORTUNITIES FOR FREIGHT HUBS THAT ARE LOCATED OUTSIDE CAPITAL CITIES

<p>INITIATIVE # 6</p>  <p>(Related to Initiative 4)</p>	<p># 6 – Pursue opportunities for freight hubs that are located outside capital cities. To reduce the costs of the freight task to the capital city.</p>	
<p>PRIORITY</p>	<p>BACKGROUND</p>	
<p>H/M/L</p>	<p>B-double access to capital cities and regional centres (outside of the Northern Rivers) is solely via the Pacific Highway. However, urban sprawl in Sydney and Brisbane has outpaced the re-location of freight hubs to suit that purpose. This means that trucks are entering congested city roads to offload goods for further dispatch. This ‘last-mile’ can add significant cost to the long-haul trip, particularly as fatigue management is important on these routes and any inefficiencies can significantly impact the trip.</p>	
<p>IMPACT</p>		
<p>Reduce cost of services, increased ability for reaching market quicker and greater frequency.</p>		
<p>RESILIENCE</p>	<p>STAKEHOLDERS</p>	<p>IMPLEMENTATION PATHWAY</p>
<p><i>How does this affect resilience?</i></p> <p>Greater flexibility in despatch of goods from the Region and reliability of supply chain. Including resilience in the face of disruptions from climate events, accidents and congestion.</p> <p><i>Does this initiative preclude other initiatives from being carried out in the future?</i></p> <p>No</p>	<p>Producers, manufacturers, freight services providers, freight hub operators, state government agencies and local government.</p>	<ol style="list-style-type: none"> 1. Identify potential freight hub locations. 2. Liaise with freight services providers, potential hub operators, state and local government agencies in the identified locations. 3. Foster ongoing Regional participation in potential freight hubs.
<p>MODELLING</p>		
<p>The existing model can be developed in order to help determine the effectiveness of the specific initiative locations.</p>		

GUIDING INSIGHTS & PRINCIPLES

It is important for the Northern Rivers to participate in State Government (and other) planning initiatives that create freight hubs on the fringes of Brisbane and Sydney. For example; the Gold Coast / Tweed area has been identified by others as a potential freight dispatch location. This will mean that, say, B-double travel times would decrease to the dispatch location – which then would dispatch in smaller configuration vehicles to market.

There is a proposal on the Gold Coast Airport site for this kind of hub, which has the advantage of also providing air freight export opportunities along with the freight forwarding opportunity.

INITIATIVE #7 MT LINDESAY HWY/SUMMERLAND WAY/CLARENCE WAY FREIGHT ROAD NETWORK UPGRADE

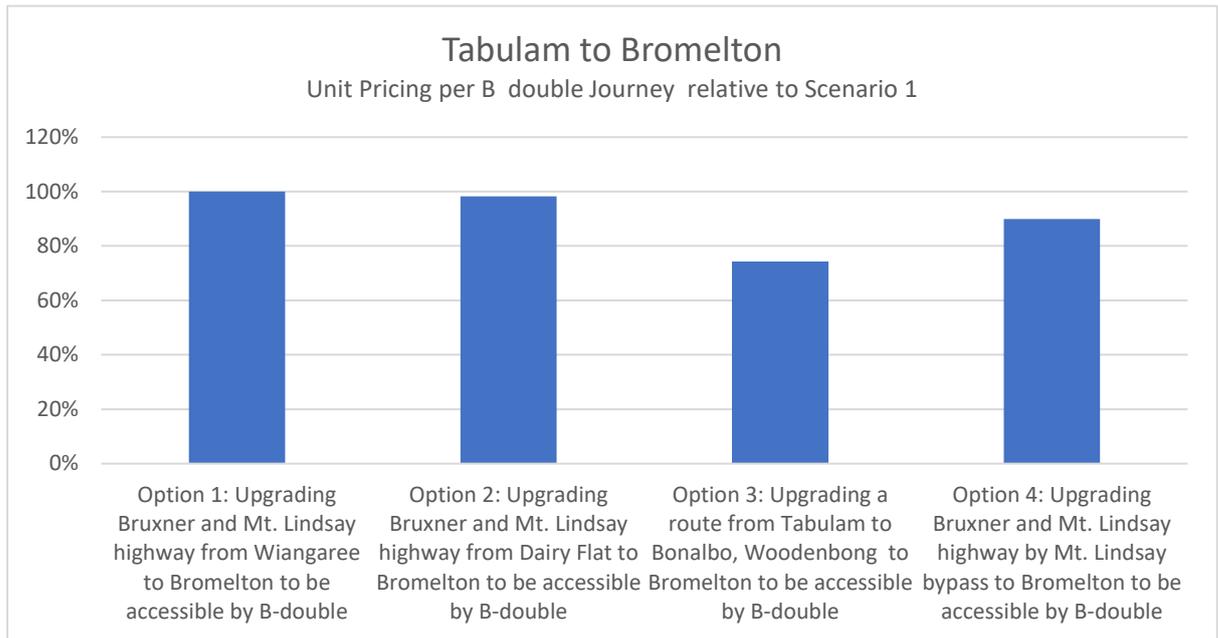
<p>INITIATIVE # 7</p>  <p>(Related to Initiative 1 and 2)</p>	<p># 7 – Mt Lindesay Hwy/Summerland Way/Clarence Way freight road network upgrade.</p>	
<p>PRIORITY</p>	<p>BACKGROUND</p>	
<p>H/M/L</p>	<p>The current corridor via Mt Lindesay Highway does not permit the passage of B-double trucks, requiring smaller trucks up to a semi-trailer size to be used. Alternatively B-double traffic is able to use the Pacific Highway route from Casino, Kyogle and Lismore to reach Queensland destinations. This is also a restriction for incoming produce and stock from western Queensland and NSW, in servicing food manufacturing plants in Casino and Lismore, which currently restricts the use to either single body or semi-trailer loads to access the Region via Tenterfield or Summerland/ Mt Lindesay Highway from Queensland.</p> <p>A number of deviations to the East of Mt Lindesay have been identified by Kyogle Council, together with specific sections of upgrade to the existing Summerland Way and Mt Lindesay Highway. In particular providing B-double access via a 10km deviation from near Dairy Flat on Summerland Way to near Palen Creek on the Mt Lindesay Highway is of interest. Also of interest is the potential for a B-double route from Tabulam via the Clarence Way through Bonalbo and Woodenbong to the Mt Lindesay Highway with upgrade to B-double standard.</p>	
<p>IMPACT</p>		
<p>Connectivity via a western north south corridor via the Summerland Way and across the Queensland Border near Mt Lindesay will increase the accessibility to Brisbane and the Darling Downs via Beaudesert for the western half of the Northern Rivers' Region from Grafton through to Casino, Tabulam, Kyogle and Lismore.</p>		
<p>RESILIENCE</p>	<p>STAKEHOLDERS</p>	<p>IMPLEMENTATION PATHWAY</p>
<p><i>How does this affect resilience?</i></p> <p>The provision of a second north south route into Brisbane and the Darling Downs providing greater all weather accessibility</p>	<p>Producers and manufacturers in the western half of the Region. Logistics companies, Local Government and agencies.</p>	<ol style="list-style-type: none"> 1. Adoption of this regional level overarching strategy (by Northern Rivers Local Governments, NSW Government, Producers and Manufacturers) to provide the framework for the transition pathway. 2. The Precinct Collaborative Network with the relevant Precinct Working Groups develop the business case for the upgrade. 3. Seek cross border cooperation with Queensland Local Government and Queensland Government. 4. Ongoing review and adjustment processes as the future freight demands and required adaptations unfold.

<p>during climate or other disruption events.</p> <p>Adding to greater resilience through opening up choice for reaching markets under climate and other disruption events. It also adds greater choice for tapping into new markets as future markets need to change.</p> <p>Improvements to corridor infrastructure will also provide immunity of bridges and roadways in this corridor from local flood disruptions.</p> <p>Improvements should increase the opportunity for incident response vehicles to access emergency situations such as bush fires.</p> <p><i>Does this initiative preclude other initiatives from being carried out in the future?</i></p> <p>No</p>		
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MODELLING

Modelling of a number of route options between Tabulam and Bromelton to make visible the freight costs of each route was conducted. The basis for comparison was the Unit Price per B-double truck journey between Tabulam and Bromelton with the different route options. The options considered were:

1. Option 1 includes 52 km upgrade of Bruxner Highway (from Tabulam to Casino), and 84 km upgrade of the route from Wiangaree to Bromelton.
2. Option 2 includes upgrading 52 km of Bruxner Highway (from Tabulam to Casino), and 63 km upgrade of Mt. Lindesay highway when it enters the Queensland border (from Mt. Lindesay Quarantine station to Bromelton).
3. Option 3 includes upgrading a route from Tabulam through Bonalbo, Woodenbong to Bromelton for 354.6 km which is not accessible by B-double trucks except the segment between Woodenbong and Mt. Lindesay highway up the QLD border for 14 km.
4. Option 4, includes the Mt. Lindesay bypass where a 10 km deviation from Dairy Flat on the Summerland way to Palen Creek cuts the route, shortening of 18 km but with a higher speed.



The comparison of route options relative to Option 1 is shown above. For Tabulam, the modelling indicates that on a freight cost comparison without recovery of capital costs, there could be a 25% reduction in cost via Option 3, a Bonalbo Woodenbong upgrade. This translates into a potential 25% reduction in freight cost compared to any of the other Tabulam via Casino routes.

An East of Mount Lindesay deviation Option 4, with a 10 km deviation over Option 1, would potentially reduce the freight cost of a B- double journey in the order of 10% over the existing Pacific Highway route, for most other western precincts. However, for the Kyogle precinct, this reduction would be 35% (inclusive of a 25% reduction from Option 1 over the Pacific Highway Route). Whilst the road freight cost reduction of Option 4, is mainly of benefit to the Kyogle precinct, it is important to note the benefits of a combined B-double and intermodal at Bromelton can only occur for the western precincts if the Summerland Way /Mt Lindesay B-double route is developed. This advantage to Kyogle, Casino, Grafton and Tabulam producers and manufacturers may be a more significant benefit to the Region's industry.

GUIDING INSIGHTS & PRINCIPLES

A B-double route from Kyogle through to Bromelton would open up an alternative freight route from Grafton to Brisbane. This would help to separate freight movements from passenger cars which would improve safety and freight efficiency (reduce the exposure to congested routes). It may also be possible to construct this section of road as a dedicated autonomous vehicle route, especially for freight vehicles. This section of road could become a global flag-ship of alternate route planning for freight movements.

In addition to the B-double accessibility to the Brisbane area, one of the specific benefits for the Northern Rivers Region coming from this initiative and Initiative 8, is the creation of B-double connectivity to the Southern Downs Region of Queensland. This area is becoming increasingly import for Northern Rivers Region manufacturing capabilities (supply of Macadamias and Blue-berries).

INITIATIVE #8 UPGRADE THE BRUXNER HIGHWAY FOR B-DOUBLE ACCESS FROM CASINO TO TENTERFIELD / NEW ENGLAND HIGHWAY

<p>INITIATIVE # 8</p>  <p>(Related to Initiative 1, 2, 4 and 8)</p>	<p># 8 – Upgrade the Bruxner Highway for B-double access from Casino to Tenterfield / New England Highway.</p>	
<p>PRIORITY</p>	<p>BACKGROUND</p>	
<p>H/M/L</p>	<p>The Region does not have direct B-double access to Tenterfield. The Bruxner Highway currently only provides B-double access to Casino. The Tabulam bridge upgrade once complete, will provide a significant step in the potential for B-double access to the west of Casino. In order to be able to improve the efficiency of outbound and inbound freight services between the Northern Rivers and the Tenterfield area, there needs to be a large upgrade of the Bruxner Highway, inclusive of the intersection with the New England Highway.</p>	
<p>IMPACT</p>	<p>Connectivity will increase the B-double accessibility to the Southern Downs and to the northern regions of NSW enabling greater access for supplies. Provide B-double accessibility for Tabulam.</p>	
<p>Connectivity will increase the B-double accessibility to the Southern Downs and to the northern regions of NSW enabling greater access for supplies. Provide B-double accessibility for Tabulam.</p>	<p>Providing this connection will increase the competitiveness of the Northern Rivers Region manufacturers, against other manufacturers, for raw materials that otherwise travel along the New England Highway.</p>	
<p>RESILIENCE</p>	<p>STAKEHOLDERS</p>	<p>IMPLEMENTATION PATHWAY</p>
<p><i>How does this affect resilience?</i></p> <p>This initiative provides an alternative means for sourcing raw materials and for distribution of finished product. Specifically this initiative provides greater all weather accessibility during climate or other disruption events.</p> <p>Adding to greater resilience through opening up choice for reaching markets under climate and other disruption events.</p> <p>Improvements to corridor infrastructure will also provide immunity of bridges and roadways in this</p>	<p>Producers and manufacturers in the western half of the Region. Logistics companies, local government and agencies.</p>	<ol style="list-style-type: none"> 1. Adoption of this regional level overarching strategy (by Northern Rivers Local Governments, NSW Government, Producers and Manufacturers) to provide the framework for the transition pathway. 2. The Precinct Collaborative Network with the relevant Precinct Working Groups develop the business case for the upgrade. 3. Ongoing review and adjustment processes as the future freight demands and required adaptations unfold.

<p>corridor from local flood disruptions.</p> <p>Improvements should increase the opportunity for incident response vehicles to access emergency situations such as bush fires.</p> <p><i>Does this initiative preclude other initiatives from being carried out in the future?</i></p> <p>No</p>		
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MODELLING

Modelling of Tabulam to Brisbane via Mt Lindesay Highway includes the portion of the Bruxner Highway from Tabulam to Casino (refer to Initiative #7). The existing model could also be utilised to analyse the freight cost savings of modifying infrastructure in the Lismore portion of the Bruxner Highway and also the freight cost savings via the Bruxner Highway west to Tenterfield and the connected regions.

GUIDING INSIGHTS & PRINCIPLES

One of the specific benefits for the Northern Rivers Region coming from this initiative and Initiative 7, is the creation of B-double connectivity to the Southern Downs Region of Queensland. This area is becoming increasingly import for Northern Rivers Region manufacturing capabilities (supply of Macadamias and Blue-berries).

There are a number of infrastructure hurdles (6-8 bridge upgrades, road widening, overtaking lanes, Tenterfield connectivity) to upgrade the Bruxner Highway to allow full East-West B-double connectivity for the Region. However, doing this will provide further capacity for the Region to source raw materials for processing from western regions of NSW as well as other more distant locations.

As an initiative, there is presently no specific 'what-if' data that is available to identify the increase in goods that could be sourced or sold in the case of an upgraded Bruxner Highway.

INITIATIVE #9 COLLABORATE TO IMPROVE ACCESS TO, RELIABILITY OF, FREIGHT IN THE REGION

<p>INITIATIVE # 9</p>  <p>(Related to Initiative 2, 10, 15, 16, 19 and 20)</p>	<p># 9 – Develop a collaborative activity to improve access to, and the reliability of, freight in the Region. Particularly through sharing of data and services (combined pickups / drop-offs) between businesses.</p>	
<p>PRIORITY</p>	<p>BACKGROUND</p>	
<p>H/M/L</p>	<p>It was observed that there are issues, at many scales, in the Region with availability of freight services and lack of competition within the logistics services market. At the boutique end of the market, when producers are seeking to send goods that are smaller than a pallet (say individual parcels), goods ‘pickups’ are often limited to certain days of the week and suppliers can struggle to meet their customer expectation of next day / day after delivery – particularly to capital cities where the expectation for immediate delivery is high. Also, the price of these services can add a significant portion to the overall price of the goods and affect the price-competitiveness of the product.</p>	
<p>IMPACT</p>		
<p>Reduce cost of services, increased ability for reaching market quicker and greater frequency.</p>		
<p>RESILIENCE</p>	<p>STAKEHOLDERS</p>	<p>IMPLEMENTATION PATHWAY</p>
<p><i>How does this affect resilience?</i></p> <p>Opens up more avenues for producer manufacturers to receive freight services.</p> <p><i>Does this initiative preclude other initiatives from being carried out in the future?</i></p> <p>No</p>	<p>Producers, manufacturers, freight service providers, data sharing technology providers.</p>	<ol style="list-style-type: none"> 1. Review opportunities to develop cooperation between producers and manufacturers to coordinate freight services. 2. Pilot a coordinated freight activity across various producer /manufacturer groups. 3. Coordinate with initiative #19 activities.

MODELLING

Utilisation of the model with more tailoring to model the collaborative opportunities, will provide facts and data to help producers, manufacturers and freight service providers in their decision making.

GUIDING INSIGHTS & PRINCIPLES

Improved coordination between different producers may help to improve the frequency and reliability of these activities. This collaborative activity may be simply the sharing of freight activities between businesses, or the shared ownership of freight facilities and vehicles. Whatever the scale of the collaboration the resultant initiative may help improve the price competitiveness and delivery speed of goods from the Northern Rivers.

The initiation of 'virtual hubs' like the Northern Rivers Food Network can provide a mechanism for this type of collaboration. The expansion of this idea to assist with freight and supply chain efficiency will assist in the implementation of data sharing and freight coordination activities.

INITIATIVE #10 COLLABORATE WITH MARKETS AND INDUSTRY TO DEVELOP A RELIABLE 'PACKAGING RETURN' PROCESS

<p>INITIATIVE #10</p>  <p>(Related to Initiative 9, 15, 19 and 20)</p>	<p># 10 – Collaborate with markets and industry to develop a reliable 'packaging return' process from market back to local industry.</p>	
<p>PRIORITY</p>	<p>BACKGROUND</p>	
<p>H/M/L</p>	<p>A sub-issue of market competitiveness is the availability of customer trailers to support local industry. For example some sea food products are not shipped in their ideal truck type because it is not economical for the freight service provider to use the correct trailer type for such a limited activity. This results in difficulty ensuring the product is meeting its cold-chain requirements during transport and the need for custom made transport boxes that have also been difficult to return back to the Region after delivery.</p>	
<p>IMPACT</p>		
<p>Reduce cost of freight for producers and manufacturers.</p>		
<p>RESILIENCE</p>	<p>STAKEHOLDERS</p>	<p>IMPLEMENTATION PATHWAY</p>
<p><i>How does this affect resilience?</i></p> <p>Greater efficiency in supply chain.</p> <p><i>Does this initiative preclude other initiatives from being carried out in the future?</i></p> <p>No</p>	<p>Producers, manufacturers, freight service providers, technology providers.</p>	<ol style="list-style-type: none"> 1. Review and evaluate existing technologies. 2. Identify a pilot precinct for implementation. 3. Complete and evaluate pilot program. 4. Roll out technology solution across the Region.
<p>MODELLING</p>		
<p>Identify opportunities to support the evaluation with modelling to better understand the benefits to producer manufacturers.</p>		
<p>GUIDING INSIGHTS & PRINCIPLES</p>		

INITIATIVE #11 PRIORITY INITIATIVES FROM THIS STRATEGY TO BE FURTHER DEVELOPED BY TRANSPORT FOR NSW IN THE NORTHERN RIVERS REGIONAL FUTURE TRANSPORT PLAN

<p>INITIATIVE # 11</p>  <p>(Related to Initiative 1, 2, 4, 6, 7, 8, 15, 16, 19 and 20)</p>	<p># 11– Advocate for the inclusion of priority initiatives from this Strategy to be further developed by Transport for NSW in the Northern Rivers Regional Future Transport Plan.</p>	
<p>PRIORITY</p>	<p>BACKGROUND</p>	
<p>H/M/L</p>	<p>Government plans (whether freight planning, economic development and land use planning or some other kind of planning – like climate change response planning) occurs across multiple departments from multiple levels of government (national, state and local government agencies). Successful planning requires mature planning process, which engage broadly and meaningfully with stakeholders and recognise interdependencies. Unsuccessful planning results in misaligned planning outcomes that do not meet the user’s requirement, impacting effective and efficient freight and supply chain solutions.</p>	
<p>IMPACT</p> <p>Prevent unnecessary projects from being prioritised above necessary and important projects. Help to ensure that multiple funding streams are available. Ensures that policy and funding at each level of government are in alignment.</p>		
<p>RESILIENCE</p>	<p>STAKEHOLDERS</p>	<p>IMPLEMENTATION PATHWAY</p>
<p><i>How does this affect resilience?</i></p> <p>Increases the likelihood that resilience planning that matches the regional objectives is supported at each level of Government.</p> <p>Inclusive of existing initiatives highlighted in Appendices E & F, together with the 20 new initiatives of this Strategy.</p>	<p>NSW Government Agencies, RDA, NRJO, local government.</p>	<ol style="list-style-type: none"> 1. Work closely with NSW Government Agencies, RDA, and Local Government to identify strategic planning timeframes. 2. Ensure appropriate resources are available at an NRJO level to participate in relevant strategic planning processes. 3. Utilise the PWG’s and PCN process as a mechanism for ensuring that grass roots input to the strategic planning is maintained.

Does this initiative preclude other initiatives from being carried out in the future?

No

MODELLING

Continuing to build interaction between the Northern Rivers Freight Model and the TfNSW freight modelling will further improve the opportunity to obtain evidence based insights on supply chain initiatives. Also Refer to initiative 16.

GUIDING INSIGHTS & PRINCIPLES

TfNSW will be developing regional plans for each region to align with the Department of Planning and Environment's 20 year Regional Plans, the Regional Economic Development Strategies (REDS) and the Regional Development Framework to ensure transport planning supports growing regional economies and improves amenity for regional communities. These will be prepared in consultation with local government and Joint Organisations, other state government agencies and Australian Government bodies.

A lack of aligned planning between different levels of government, as well as a lack of 'user' involvement in planning and regulation development was identified as a critical issue for the Region. The participatory techniques implemented in the development of this strategy is a step toward better integrated planning. An important step is to ensure the outcomes of this planning are integrated into the NSW Government's Northern Rivers Regional Future Transport Plan – to be developed by Transport for NSW in 2019/2020 and the associated place and corridor plans.

INITIATIVE #12 UTILISE THE STATE APPROVALS FRAMEWORK / TOOL WHILE AT THE SAME TIME KEEP LOCAL CONTACT BETWEEN LOCAL GOVERNMENT AND FREIGHT SERVICES PROVIDERS

<p>INITIATIVE # 12</p>  <p>(Related to Initiative 15, 16 and 20)</p>	<p># 12 – Utilise the state approvals framework / tool while at the same time keep local contact between local government and freight services providers.</p>	
<p>PRIORITY</p>	<p>BACKGROUND</p>	
<p>H/M/L</p>	<p>Regulation is a key component to the delivery of safe and consistent freight services throughout the Northern Rivers Region. Good and effective regulation improves the safety of trucking operations, provides clarity to the requirements for freight users, is seamlessly integrated into the freight planning activity and delivered in a cost-effective way.</p>	
<p>IMPACT</p>	<p>Regulation impacts the freight and supply chain in many stages. From fatigue management for truck and train operations, labour laws, to development approvals for producers, manufactures and freight hubs– the freight activity is considered and assessed at many stages of the lifecycle of a business.</p>	
<p>Help with the delivery of safe and consistent freight services throughout the Northern Rivers Region. Increases public acceptance of freight on roads.</p>	<p>Regulation impacts the freight and supply chain in many stages. From fatigue management for truck and train operations, labour laws, to development approvals for producers, manufactures and freight hubs– the freight activity is considered and assessed at many stages of the lifecycle of a business.</p>	
<p>RESILIENCE</p>	<p>STAKEHOLDERS</p>	<p>IMPLEMENTATION PATHWAY</p>
<p><i>How does this affect resilience?</i></p> <p>Increases the effectiveness and reliability of freight services.</p> <p><i>Does this initiative preclude other initiatives from being carried out in the future?</i></p> <p>No</p>	<p>Local government, RMS, freight service providers.</p>	<ol style="list-style-type: none"> 1. Evaluate need for any regional training or awareness programs. 2. Carry out regional training or awareness programs where required.
<p>MODELLING</p>		
<p>Not applicable</p>		

GUIDING INSIGHTS & PRINCIPLES

Consistent provision of Restricted Access Approvals by Local Government Authorities. This process can be difficult for Local Government to consistently apply due to resourcing availability and also subject to community and political pressure. Conversely freight companies also require clear approval guidelines, engagement of local expertise and quick turnaround times for approval to support commercial activities.

The NSW Freight and Ports plan supports providing education to councils and communities to support councils in determining Heavy Vehicle Access issues and additionally will continue to promote the use of the Restricted Access Vehicle Route Assessment Tool – an online tool designed to support councils in the approvals process.

INITIATIVE #13 BETTER REST AREAS IN BETTER PLACES

<p>INITIATIVE # 13</p>  <p>(Related to Initiative 14, 15 and 16)</p>	<p># 13 – Better rest areas in better places (i.e. nearer delivery locations in industrial areas etc.</p>	
<p>PRIORITY</p>	<p>BACKGROUND</p>	
<p>H/M/L</p>	<p>While there are many initiatives on safety and wellbeing in freight and supply chain; through this report two initiatives have emerged so far as they relate to road transport infrastructure.</p> <p>Firstly, wellbeing. There are many restrictions to the movements of truck drivers with respect to fatigue management etc., and also locations where truck drivers can park their vehicle at night time, as well as legislated driving time truck drivers are required to park at rest stops overnight because the receiving business is not open (until the next morning). Existing RMS truck stops can lack preferred amenity for drivers. In some cases, by their very nature, they are busy terminals that are not ideal sleeping locations. In other cases the distance from the truck stop to the destination (say a nearby industrial area) adds additional, potentially unnecessary, transit time for the truck driver into the next day’s activities. This additional time may either affect the subsequent day’s productivity or, in the case that it is the driver’s final load before going home, can eat into the available time that truck drivers have at home with family.</p>	
<p>IMPACT</p>		
<p>Help with the delivery of safe and consistent freight services throughout the Northern Rivers Region. Increases public acceptance of freight on roads.</p>		
<p>RESILIENCE</p>	<p>STAKEHOLDERS</p>	<p>IMPLEMENTATION PATHWAY</p>
<p><i>How does this affect resilience?</i></p> <p>Increases the effectiveness and reliability of freight services.</p> <p><i>Does this initiative preclude other initiatives from being carried out in the future?</i></p> <p>No</p>	<p>Local government, RMS, freight service providers, local (affected) communities.</p>	<ol style="list-style-type: none"> 1. Identify locations for suitable facilities in conjunction with each PWG. 2. Investigate appropriate design and funding for suitable locations.

MODELLING

Modelling of traffic movements and freight service provider patterns may help to identify the appropriate locations for facilities.

GUIDING INSIGHTS & PRINCIPLES

It would be ideal if truck drivers can park their vehicle for over-night stays as close as possible to the loading/unloading destination, in many cases this will be in or near industrial or commercial zones (i.e. precincts - see below). It is recognised that this can impact mixed-residential development and that careful and specific planning should occur to identify those zones that would benefit from designated or constructed truck stop / rest zones near destinations.

It was observed that existing RMS truck stops can lack preferred amenity for drivers. An important consideration when planning precincts is the provision of driver rest locations and amenities close to the destination, enabling driver's safe and easy access to their destinations at opening of business. Innovative ideas that could be considered include provision of gymnasium facilities at the driver rest locations. The Precinct Working Groups should include this need as an important part of the precinct planning. As these facilities can impact mixed-residential development areas, careful and specific planning should occur to identify zones and planning controls. It should be recognised that local government and state planning guides and controls may need careful application to enable well designed facilities to be integrated into the community.

INITIATIVE #14 DEVELOP A FRAMEWORK TO ASSIST LOCAL GOVERNMENT TO ADAPT TO CHANGING LAND USE REQUIREMENTS

<p>INITIATIVE # 14</p>  <p>(Related to Initiative 2, 4, 6, 13, 15, and 16)</p>	<p># 14 – Develop a framework to assist local government to adapt to changing land use requirements.</p>	
<p>PRIORITY</p>	<p>BACKGROUND</p>	
<p>H/M/L</p>	<p>New and changing precinct activities may place pressure on existing infrastructure and community values if impacts are not considered in a holistic and adaptive way.</p>	
<p>IMPACT</p> <p>Provide better integration of land use changes into the existing communities. Increased public confidence in the decision makers.</p>	<p>Communities may be apprehensive about changes to their neighbourhood when there are freight movement and hub activity changes. Being able to support local government with a framework that provides facts and data in support of local government decisions will help to increase the communities’ confidence in the decision makers. This framework could be underpinned with the freight modelling carried out by this report and by future modelling activities.</p>	
<p>RESILIENCE</p>	<p>STAKEHOLDERS</p>	<p>IMPLEMENTATION PATHWAY</p>
<p><i>How does this affect resilience?</i></p> <p>Can improve the long term relationship between the community and the freight service providers and hub operators.</p> <p><i>Does this initiative preclude other initiatives from being carried out in the future?</i></p> <p>No</p>	<p>Local government, freight service operators, hub operators, producers, manufacturers and community.</p>	<ol style="list-style-type: none"> 1. Identify emerging trends in land use changes and the relevant impacts on infrastructure and communities. 2. Do a gap analysis of existing assessment procedures. 3. Develop a framework that meets the needs of local government and community.

MODELLING

Utilisation of the modelling carried out for this study in conjunction with future, more tailored, modelling will provide facts and data to help decision makers to better understand the impacts of changing land use requirements.

GUIDING INSIGHTS & PRINCIPLES

In general, demand for Northern Rivers' goods is greater than the supply of goods from the Region. The Region also has a greater manufacturing capacity than rate of the supply, meaning that processing facilities could run at greater capacity if there was greater supply of goods. This results in an overall competition for land within the Region to supply raw materials to the different markets available.

While one solution is to increase access to outside of the Region (detailed above), another is to recognise that land usage (and therefore road network usage) is subject to change, potentially rapid and significant change (at the local level).

For example the conversion of bananas to blue-berries, sugar cane to macadamia or macadamia to ground water extraction. At the state and national level the impact to freight and supply chain will be relatively insignificant – at least at the individual scale, cumulative changes may have a noticeable effect. However even one land use change can significantly impact the freight needs at the local level, even the whole community.

Local government authorities are responsible for the land use planning that will support the change in load and road usage and successful planning will result in clear and consistent rules for developers and freight transport companies while providing for the flexible that results from a demand driven supply chain.

INITIATIVE #15 DEVELOP A DETAILED UNDERSTANDING OF THE FREIGHT AND SUPPLY CHAIN ACTIVITY FOR EACH PRECINCT IN THE NORTHERN RIVERS.

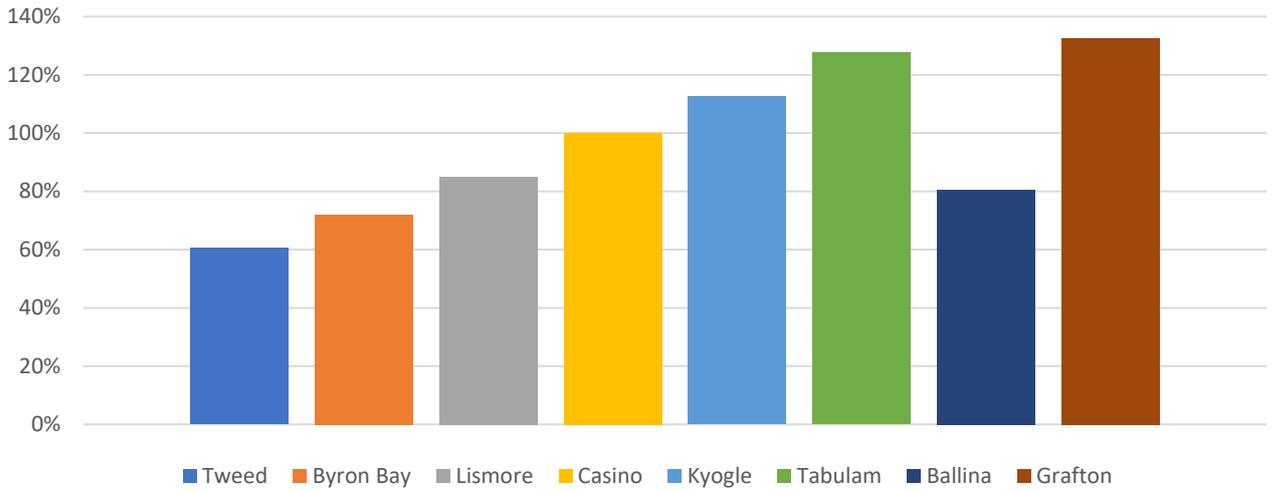
<p>INITIATIVE # 15</p>  <p>(Related to Initiative 2, 4, 6, 9, 11, 12, 13, 14, 16, 17, 18, 19 and 20)</p>	<p># 15 – Develop a detailed understanding of the Freight and Supply Chain activity for each precinct in the Northern Rivers.</p>	
<p>PRIORITY</p>	<p>BACKGROUND</p>	
<p>H/M/L</p>	<p>During the course of the study, there were many suggestions for the need of freight hubs, meaning different things to different stakeholders and emphasis on varying locations across the Region. These suggestions have been distilled into six types of hubs: namely freight, intermodal, food & innovation, Cool & Cold storage, multifunctional, virtual and two types of precincts: industrial and agricultural.</p>	
<p>IMPACT</p> <p>Create collaboration, increase economic density and generate efficiencies that add value for the product and underpin supply chain services.</p>	<p>In general, the appropriate location of hubs will depend on the success of local stakeholder’s in creating opportunities to collaborate, build economic density, generate efficiencies or other outcomes that will add value and underpin supply chain services. The Region is likely to have multiple locations where the different types of hubs may be appropriate. One of the factors that will have a bearing is the accessibility from hub locations to the markets for outgoing goods or accessibility for incoming supply of produce or resources into the processing facilities. Casino is one location where existing facilities have stimulated thinking on the creation of industrial and food hubs.</p>	
<p>RESILIENCE</p>	<p>STAKEHOLDERS</p>	<p>IMPLEMENTATION PATHWAY</p>
<p><i>How does this affect resilience?</i></p> <p>Hubs can strengthen the industries capability in enduring shocks and stresses due to climate and other events. A cluster of like and diverse hubs throughout the Region will further strengthen industries and the overall economic and social wellbeing of the Region when exposed to future shocks and stresses.</p>	<p>Producers and manufacturers across the whole Region. Logistics companies, local government and agencies.</p>	<ol style="list-style-type: none"> 1. Adoption of this regional level overarching strategy (by Northern Rivers Local Governments, NSW Government, Producers and Manufacturers) to provide the framework for the transition pathway. 2. Identify precinct boundaries within each LGA. 3. For each precinct; establish a precinct working group – made up of producers, manufacturers, logistic companies, suppliers and agencies – to explore the ‘in’ and ‘out’ of precinct issues. 4. detail the freight movements (both existing and future) of the precinct – included data logging where appropriate 5. Analyse this to identify the needs for hub activities to be developed within the

<p><i>Does this initiative preclude other initiatives from being carried out in the future?</i></p> <p>No</p>		<p>precinct (for example a freight hub to combine freight transport or store cold goods).</p> <ol style="list-style-type: none"> 6. Create subregional supply chain plans for their local areas that nest within the regional level strategy, to stimulate the development of the correct hub activities required to generate the economic and social outcomes for the Region. 7. Ongoing review and adjustment processes as the future freight demands and required adaptations unfold.
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MODELLING

The following infographics provide a view of each precincts locational advantage, expressed as a measure of the relative B-double freight cost to access markets. The first expresses the relative advantage for each location in access to the Port of Brisbane by existing B-double roads to the Port of Brisbane. Pricing is expressed as a percentage of the pricing charges for a B-double trip from Casino to the Port of Brisbane. The figure shows that the lowest costs are for precincts with proximity to the north east corner of the Region, reflecting the current role of the Pacific Highway in reaching the Port of Brisbane.

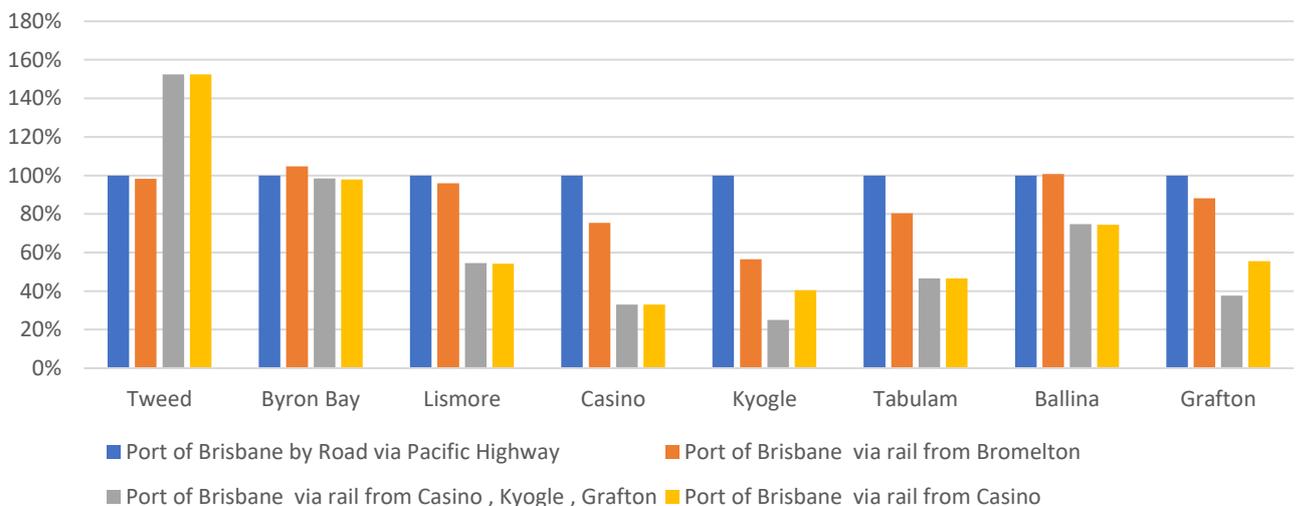
Precinct to Port of Brisbane: B double relative pricing



Precincts to Port by the Pacific Highway Route

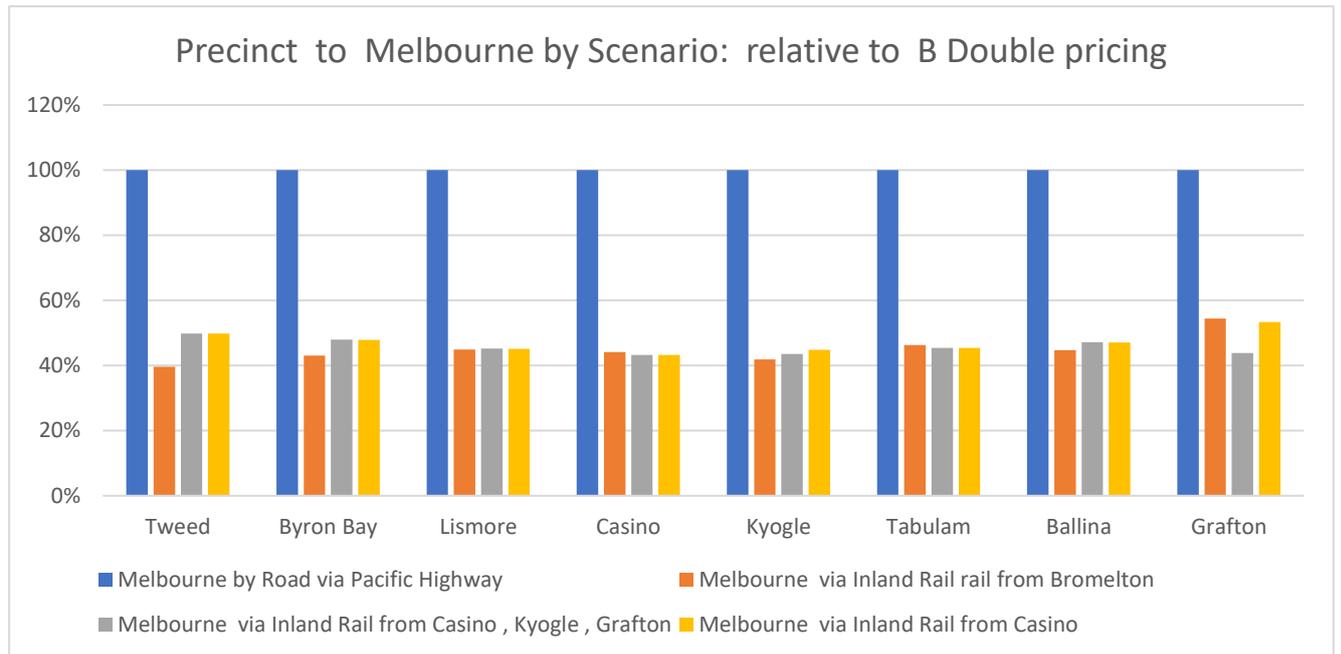
The second infographic expresses the relative advantage in access to the Port of Brisbane for each location by utilising shuttle scenario options, showing that the lowest costs are for precincts with proximity to a Casino Intermodal hub, reflecting the potential role of a shuttle rail service in advantaging all but the most north eastern precincts in their access to the Port of Brisbane. The Bromelton option assumes the presence of a B-double route via the Summerland Way and Mt Lindesay Highway.

Precinct to Port of Brisbane by Rail Scenarios: relative to B double pricing



Comparison of Freight Costs for each Precinct via Shuttle train service to POB

The third infographic expresses the relative advantage in access to Melbourne by Inland Rail based scenario options, for each precinct location. The most cost effective are the rail options for each precinct, providing very similar freight cost benefits in each precinct and each rail scenario option.



Comparison of Freight Costs for each Precinct to Melbourne for different Supply Chain Scenario options.

GUIDING INSIGHTS & PRINCIPLES

One way of thinking about freight needs which has emerged from this study is the consideration of geographically locations as ‘precincts’. These precincts (called ‘clusters’ by some others) may be groups of similar or dissimilar industries but they have in common a shared reliance on ‘facilitating’ infrastructure. This may include; reliability of electrical supply, water and sewerage services, available of residential housing supply but also freight and transport needs.

Precincts may be of varying size, from high density industrial precincts to low density agricultural precincts. In terms of freight and supply chain needs; 'precinct' thinking gives rise to an understanding of aggregated freight and supply chains. For example;

In precinct issues:

- o Dry, Cool and Cold Storage
- o Freight Aggregation – shared freight movements
- o Turning circles, drive ways
- o Driver rest areas

Out of precinct issues:

- o Local roads and bridges
- o Regional & interregional connectivity
- o Driver rest areas

One factor which can affect the viability of any supply chain upgrades can be the 'economic density' of the benefiting precinct. In response to this, the creation of 'hubs' (see discussion above on hub types) can act to intensify the economic density of the precinct. By gaining further, more detailed information, on precinct it will be possible to create scenario based analysis of various 'what-if' infrastructure scenarios. Further, it may also show that in some precincts that are clear 'anchor' businesses which can drive development activities.

INITIATIVE #16 PROMOTE THE USE OF THE NORTHERN RIVERS FREIGHT MODEL TO MAKE FUNDING APPLICATIONS FOR INDIVIDUAL FIRST MILE / LAST MILE INITIATIVE

<p>INITIATIVE # 16</p>  <p>(Related to Initiative 2, 4, 6, 7, 8, 9, 11,12, 13,14, 15, and 19)</p>	<p># 16 – Promote the use of the Northern Rivers freight model to make funding applications for individual first mile / last mile initiatives.</p>	
<p>PRIORITY</p>	<p>BACKGROUND</p>	
<p>H/M/L</p>	<p>As part of this study, a Northern Rivers Region freight model has been developed by Southern Cross University in conjunction with University of Queensland with input from the University of NSW. The model has been developed in alignment with the TfNSW freight model for NSW. Where the specific source-destination-truck type-cost</p>	
<p>IMPACT</p>	<p>information for a precinct is known then the Northern Rivers Region freight model can be employed to calculate a) their base cost for the existing activity and b) the cost advantage to that specific precinct in the case of any upgrades to access, roads, bridges etc.</p>	
<p>More substantiated applications for funding resulting from evidence based business case development.</p>	<p>Generally (though not always), infrastructure that supports the ‘first-mile/last-mile’ (called first-mile here-on) of the freight task relates to road infrastructure belonging to Local Government Authorities. By their very nature, first-mile infrastructure supports the activities of a few businesses, as low as but potentially more where the density of activity increases (say in an light-industrial estate) are such as the Bangalow Industrial Estate. Conceptually, if a “precincts model” is adopted then the first-mile limitations are concerned with road and rail access in to and out of the precincts.</p>	
<p>RESILIENCE</p>	<p>STAKEHOLDERS</p>	<p>IMPLEMENTATION PATHWAY</p>
<p><i>How does this affect resilience?</i></p> <p>Decisions are made on better information and therefore more able to meet their objectives.</p> <p><i>Does this initiative preclude other initiatives from being carried out in the future?</i></p> <p>No</p>	<p>Precinct Working Groups, Southern Cross University, Local Government and funding bodies (e.g. RMS, TfNSW)</p>	<ol style="list-style-type: none"> 1. Identification of freight services demand and options with the PWG’s, 2. Identification of current vehicle restrictions (height, weight, turning circle etc) 3. Liaise with funding bodies to ensure modelling methodologies meet requirements 4. Obtain sufficient input data to enable modelling to be initiated.

MODELLING

The existing model has been developed in order to help determine the efficiency of first mile/last mile initiatives, but has not as yet been deployed for this purpose. Doing so enables specific initiatives to be further analysed on a case by case basis as the input data is more fully available.

GUIDING INSIGHTS & PRINCIPLES

First-mile issues can be unique barriers to economic development for other reasons than the specific limitation of freight capacity. Poor roads and long transit times can reduce tourism, prevent residential development and has been observed to limit the activities of some business because suitable staff cannot be found to work on the site due to poor roads. So in addition to the freight advantage in improve first-mile access; any business case for first-mile improvements should also factor in the other benefits of the improvements.

In practice, responsibility for the suitability of the road infrastructure in the first-mile is usually shared between the users and Local Government. With local government often funding, or seeking grant funding, for the major portion of any infrastructure upgrades and industry, preferably, providing funds that demonstrate their commitment to the economic activity that will take place after the upgrade. While this may be counter-productive to an economic rationalist / user pays view of infrastructure provision, that view is often balanced against regional economic development priorities and the practicality of decisions made by commercial enterprises.

The freight model developed for this strategy is predominately developed on a 'unit-rates' basis to compare the relative advantage given to users between the various infrastructure scenarios.

INITIATIVE #17 CONTRIBUTE TO THE DEVELOPMENT OF A NORTHERN RIVERS REGIONAL FOOD STRATEGY

<p>INITIATIVE # 17</p>  <p>(Related to Initiative 1, 2, 3, 4, 6, 7, 8, 9, 15, 16, 19 and 20)</p>	<p># 17 – Contribute to the development of a Northern Rivers Regional Food Strategy and ensure that there is an awareness of the supply chain limitations and opportunities that affect food productivity.</p>	
<p>PRIORITY</p>	<p>BACKGROUND</p>	
<p>H/M/L</p>	<p>Implementation of a Northern Rivers food strategy – covering provenance, distribution, access to affordable local food. There was much support for the idea of a food strategy for the Northern Rivers at the producer, manufacturer workshop group. It did mean many things to the different stakeholders. One of the recognised benefits of a Northern Rivers food strategy is that it could muster a recognisable brand that covered collectively, produce from the Northern Rivers Region.</p>	
<p>IMPACT</p>	<p>Increases awareness of the Northern Rivers Food brand to the market place. Potential increase to both demand from the Northern Rivers Region and visits to the Northern Rivers for food tourism. Increase cooperation amongst food producers and manufacturers in the Region.</p>	
<p>Increases awareness of the Northern Rivers Food brand to the market place. Potential increase to both demand from the Northern Rivers Region and visits to the Northern Rivers for food tourism. Increase cooperation amongst food producers and manufacturers in the Region.</p>	<p>It was seen to include sharing of information for the producers, in being better organised and connected. To sell directly from farms and local markets to not only local consumers, but also making the Region and its local smaller producers visible to the food tourist from outside the Region. Consumer education was seen to be coupled with the food strategy. Much interest from the smaller newer generation farmers, growers and providers, particularly from the eastern precincts of the Region.</p> <p>Some key aspects direct from the workshop are: branding Identity; tourist pay premium to experience our lifestyle e.g. camping, indigenous export, need to get tourists to explore more; differentiators, images and branding, organic resto, authenticity - educate, bring history to tourists, eat fresh clean and green, sustainability travel, protect the brand - clean & green, mystery. Examples that are actually happening to showcase the Region’s foods include Harvest Food Festival, Harvest Food Trails by Northern Rivers Food. These type of initiatives could form the building blocks for a Northern Rivers food strategy.</p>	
<p>RESILIENCE</p>	<p>STAKEHOLDERS</p>	<p>IMPLEMENTATION PATHWAY</p>
<p><i>How does this affect resilience?</i></p> <p>Overall improvement to durability of the Regions food producers and manufacturers.</p> <p><i>Does this initiative preclude other initiatives from being carried out in the future?</i></p>	<p>Broad base of producers, manufacturers, RDA, NRJO and local governments.</p>	<ol style="list-style-type: none"> 1. Design a collaborative mechanism and determine how it will be resourced. 2. Trial across the Region. 3. Continuously improve the process as experience is gained.

No		
MODELLING		
Not applicable		
GUIDING INSIGHTS & PRINCIPLES		
<p>The productivity and efficiency of the supply chain is an enabling factor to support economic development in the Region. This can be observed through the various economic development plans that have been developed in the Region, such as the Northern Rivers Regional Economic Development Plan (RDA, 2018) which describes supply chain efficiency as one of the “engines of growth”.</p> <p>Similarly, as the majority of the production in the Region is food related (there are limited extractive or ‘heavy’ industries), the productivity and efficient of the supply chain the Northern Rivers is also a dominant contributor to the food productivity to the Region.</p> <p>Particularly noting the high (relative) production capacity of the Region and the supply of (competitively sourced) raw materials being a limiting factor to growth in food production, it should be recognised that any increase to freight productivity will result in a corresponding increase to food productivity. The opposite in therefore also true, that any desire to increase food productivity should also seek to increase the freight productivity of the Region to increase the ability of producers in the Region to competitively source raw materials from outside the Region.</p>		

INITIATIVE #18 INCREASE THE TRANSPARENCY AND SHARING OF INFORMATION BETWEEN SUPPLY AND DEMAND IN THE LOCAL FOOD ECONOMY

<p>INITIATIVE # 18</p>  <p>(Related to Initiative 15 and 17)</p>	<p># 18 — Increase the transparency and sharing of information between supply and demand in the local food economy, potentially through a virtual hub or similar system.</p>	
<p>PRIORITY</p>	<p>BACKGROUND</p>	
<p>H/M/L</p>	<p>The local food economy is a significant factor for the livelihoods of many in the Northern Rivers Region and there are opportunities to better connect the retailers and consumers of local foods to the growers of local foods within the Region.</p>	
<p>IMPACT</p>	<p>Opportunities exist because there is often a disconnection between the retailer/consumer and the producer as to the availability, quality and quantity of goods being produced, often complicated by the seasonality and perceived unreliability of the local food economy.</p>	
<p>Increase the efficiency of local food supply chain.</p>	<p>Opportunities exist because there is often a disconnection between the retailer/consumer and the producer as to the availability, quality and quantity of goods being produced, often complicated by the seasonality and perceived unreliability of the local food economy.</p>	
<p>RESILIENCE</p>	<p>STAKEHOLDERS</p>	<p>IMPLEMENTATION PATHWAY</p>
<p><i>How does this affect resilience?</i></p> <p>Overall improvement to durability of the local food producers and manufacturers.</p> <p><i>Does this initiative preclude other initiatives from being carried out in the future?</i></p> <p>No</p>	<p>Producers, manufacturers, technology providers.</p>	<ol style="list-style-type: none"> 1. Review and evaluate existing technologies. 2. Identify a pilot precinct for implementation. 3. Complete and evaluate pilot program. 4. Roll out technology solution across the Region.
<p>MODELLING</p>		
<p>Not applicable</p>		
<p>GUIDING INSIGHTS & PRINCIPLES</p>		
<p></p>		

INITIATIVE #19 DATA SHARING WITHIN THE REGION FOR FREIGHT MOVEMENTS TO BETTER COORDINATE SMALLER SCALE MOVEMENTS

<p>INITIATIVE # 19</p>  <p>(Related to Initiative 15, 16 and 20)</p>	<p># 19 – Data sharing within the Region for freight movements to better coordinate smaller scale movements and reduce the number of part filling trucks etc., i.e. an “Uber for freight”.</p>	
<p>PRIORITY</p>	<p>BACKGROUND</p>	
<p>H/M/L</p>	<p>Through the interview and workshop process it was observed by many that the Region had a high portion of small freight movements of part empty vehicles. It was thought that data sharing / coordinating capability in the Region would reduce the movement of part empty vehicles but also increase the availability of services to smaller business.</p>	
<p>IMPACT</p> <p>Reduce cost of services, increased ability for reaching market quicker and greater frequency.</p>	<p>While this was coined “uber for freight” during the work shop activities there actually is an “uberfreight” service (www.uberfreight.com) but also other services providers such as “freightlancer” (www.freightlancer.com) which operates in the Australian environment.</p> <p>An issue exists for some producers, being the need for custom or dedicated trailers or compartments to move the goods. For example, fish need specialised equipment for correct shipping.</p>	
<p>RESILIENCE</p>	<p>STAKEHOLDERS</p>	<p>IMPLEMENTATION PATHWAY</p>
<p><i>How does this affect resilience?</i></p> <p>Opens up more avenues for producer manufacturers to receive freight services.</p> <p><i>Does this initiative preclude other initiatives from being carried out in the future?</i></p> <p>No</p>	<p>Producers, manufacturers, freight service providers, data sharing technology providers.</p>	<ol style="list-style-type: none"> 1. Review and evaluate existing data sharing technologies. 2. Identify a pilot precinct for implementation. 3. Complete and evaluate pilot program. 4. Roll out technology solution across the Region.
<p>MODELLING</p>		
<p>Utilisation of the model with more tailoring to model the collaborative opportunities, will provide facts and data to help producers, manufacturers and freight service providers in their decision making.</p>		
<p>GUIDING INSIGHTS & PRINCIPLES</p>		

INITIATIVE #20 REGIONAL COLLABORATIVE GROUP(S) TO IMPLEMENT INITIATIVES IN THE STRATEGY

<p>INITIATIVE # 20</p> <p style="text-align: center;">20</p> <p>(Related to all Initiatives)</p>	<p># 20 – Regional Collaborative Group(s) to Implement Initiatives in the Strategy.</p>	
<p>PRIORITY</p>	<p>BACKGROUND</p>	
<p>H/M/L</p>	<p>This report has been developed in a ‘ground-up’ fashion, commencing with user and freight services providers needs and aspirations and following through with agency information, research and modelling. It will be vital to the successful implementation of many initiatives that the users and service providers continue to have a ‘front-seat’ to the decision making processes.</p>	
<p>IMPACT</p>		
<p>Ensures the successful ongoing development and implementation of the initiatives in the Region’s Strategy</p>		
<p>RESILIENCE</p>	<p>STAKEHOLDERS</p>	<p>IMPLEMENTATION PATHWAY</p>
<p><i>How does this affect resilience?</i></p> <p>Provides an ongoing process that unlocks the realisation of resilience through the initiatives</p> <p><i>Does this initiative preclude other initiatives from being carried out in the future?</i></p> <p>No</p>	<p>RDA, NRJO, local government, producers, manufacturers, freight services providers, logistic companies</p>	<ol style="list-style-type: none"> 1. Design a collaborative mechanism and determine how it will be resourced. 2. Trial on a specific precinct with known issues and opportunities. 3. Continuously improve the process as experience is gained.
<p>MODELLING</p>		
<p>Not applicable</p>		

GUIDING INSIGHTS & PRINCIPLES

It is recommended that Precinct Working Groups be established to provide input and momentum to these initiatives. It is considered that the majority of initiatives within this report should be driven by a regional, collaborative group with representatives from industry (producer, manufactures and freight services) and government.

These groups would have the representative capacity and initiative to progress some or all of the initiatives and may be able to use their collective voice to secure any funding for implementation – particularly if joint industry funding is available as this is often seen as a beneficial thing when securing state or national funding.

Care must be taken in the design of this group to ensure that the stakeholder group is broad enough and diverse enough – particularly in response to resilience issues.

It is proposed that this be achieved by the establishment of Precinct scale Working Groups (PWGs) and an overarching Precinct Collaborative Network (PCN). These groups would consist of freight users and services providers within the Precinct but also participation by local government and other government agencies to help create alignment across government and industry in the pursuit of freight and supply chain improvements.