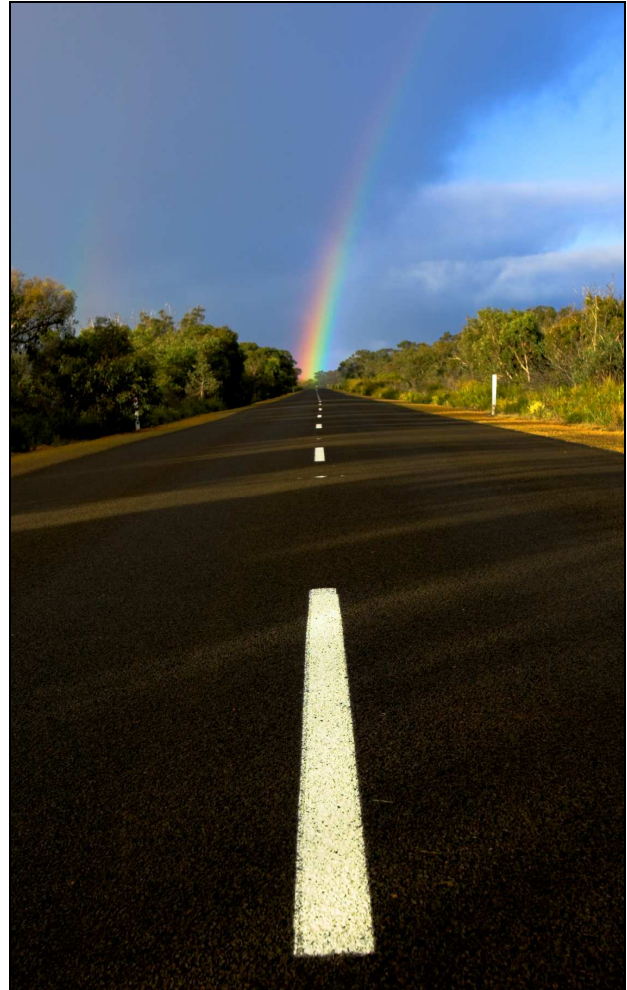


**NATIONAL  
FREIGHT  
NETWORK  
STRATEGY:  
ROADS 2010-60  
CONCEPT  
BENEFITS  
ARCHITECTURE  
CANDIDATES**



A discussion paper for *Infrastructure Australia*

Juturna Consulting

June 2010

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## Introduction

This paper discusses the concept of a *national freight network strategy for roads* – a strategy designed to maximise the productivity of Australia’s most important and freight intensive roads, while also delivering direct benefits for road safety.

In Australia, road freight is ubiquitous, and its relative efficiency is vital to the nation’s future wellbeing. But until now, road freight has been seen as simply one of a number of other competing functions of our road networks, taking place in competition for attention alongside passenger vehicle access for work and leisure, and public transport tasks. Most road jurisdictions do not produce dedicated road freight strategies. Unfortunately, this historic approach has more or less ensured that advances in heavy vehicle road freight productivity must move only at the maximum pace of wider road investment and planning objectives. Yet in constraining freight productivity to this pace of investment and reform, Australia loses considerable opportunities to maximise its road freight productivity and safety outcomes on its most important and heavily-trafficked freight routes. This paper discusses an alternative approach where a core national road freight network is identified – and treated distinctly. The approach has both productivity and social amenity in mind. Such a reform also has great potential for fostering profitable commercial investment in and operation of a core freight-intensive road network; such an outcome would significantly reduce the net taxpayer funding burden, allowing more public funding to be targeted to other road network motivations, such as community roads, roads to alleviate urban congestion and public transport infrastructure investment.

## **What is a national freight network strategy for roads?**

A national freight network strategy for roads refers to planning, investment and operational commitment over a nominal 50-year horizon, seeking to deliver landmark macroeconomic reform of transport infrastructure planning and investment - in the interests of maximising the freight productivity and road safety of the Federation.

### **Context: A multimodal national freight network strategy for Australia**

This freight network strategy is designed as a concurrent reform alongside similar projects for air, sea and rail freight. Together, these high productivity freight networks are designed to complement and connect with each other to drive an optimally-productive national freight task to 2060.

### **Freight network *versus* transport network: understanding the difference**

Traditionally, Australian roads and transport jurisdictions have planned and invested in the transport network, without a distinct focus on road freight. But road freight has different core requirements to passenger movement. Road freight's primary motive is to move goods as cost-effectively as possible. This requires matching road design with optimal vehicle design - and then engineering a regulatory environment permitting road and vehicle to interact.

Road freight also produces significant unwanted side-effects (negative externalities) like road safety risks, noise, pollution and lost public amenity. Because road freight has in the past been seen as a competing motivation for road use alongside other equally significant

motivations, the traditional regulatory response has been to retard heavy vehicle access as a safety and road asset preservation response. But doing so misses many opportunities to unlock *quantum* improvements in heavy vehicle road freight productivity, infrastructure investment and safety.

Where road freight is judged to be consistently most intensive and important (that is, over the long-term), it makes more sense to create a limited national network on that basis, which offers better infrastructure and a more productive heavy vehicle environment for road freight to access. In effect, such a policy recognises that freight outcomes on that core heavy vehicle freight network can and should command higher planning and investment priority than on the wider road network.

A national freight network strategy for roads therefore takes the most productive and important freight roads and very deliberately addresses this shortcoming of historic planning and investment, by making freight a higher priority on an interconnected nationwide network of routes.

### **Is an ‘efficient road network’ more than one that just ‘joins up’?**

Most of the thousands of roads that criss-cross Australia have been *in situ* - in at least some rudimentary form - for a century or more. Yet when considering maximised road freight efficiency, it is not enough to consult a map and confirm that these roads ‘connect’.

For a freight network to be considered to be operating at maximum efficiency, there must be a degree of ‘interconnectedness’ that goes beyond the mere lines on a map intersecting at

various points. Modern road freight efficiency is the function of three key elements, each ‘interconnecting’ at optimal efficiency:

1. **The construction of the road itself**, in terms of what freight vehicles it can accommodate, and where it is situated in relation to other roads and freight destinations;
2. **The relative vehicle efficiency** of the truck/trailer combination used on that road; and
3. **The regulatory framework** governing how efficiently that heavy vehicle can interact with that road – ie determining how much freedom the vehicle has to be productive, by being able to operate a greater mass or dimensioned-vehicle, or to gain some other freight advantage, usually balanced against road wear and safety considerations.

*All three aspects must agree with each other and operate in balance to create a truly efficient freight network.*

## **Conclusion: an efficient road freight ‘network’ does not yet exist**

By the aforementioned three measures, in 2010, Australia cannot be said to have an efficient national freight network. This is a direct drag on national productivity, and as will be discussed later, on road safety and social amenity as well. Instead, Australia in 2010 has:

- **A fragmented road freight network** which is invested in and operated by 9 different jurisdictions, each with their own slightly different view of the relative importance of any given road and equally different views on what level of productive vehicle can travel on such roads from one jurisdiction to the next;
- **A poorly-planned road freight network** where not all jurisdictions even produce a dedicated freight network investment plan distinguished from wider transport plans, and where, insofar as such plans do exist, they make virtually no reference to their own network’s efficient linkage in relation to other jurisdictional road network investments across the Federation;
- **An inefficient road freight network** which does not allow the highest productivity vehicles to cross the country from one point in the network to another, where instead, heavy vehicle operators must modify their vehicle (ie trailer) combinations as they pass through each jurisdiction;
- **A road freight network compromising road safety through lack of planning**, where long-range planning does not make enough conscious investment choices to separates core heavy vehicle freight networks from exposure to passenger vehicles and pedestrians,

nor does it recognise that by delivering greater productivity conditions to some freight routes, heavy vehicles can be attracted away from traditional but less suitable (ie less safe) heavy freight routes on commercial grounds.

- **An inconsistent road freight network** which experiences differing regulation across jurisdictions, further detracting from the notion of efficient ‘interconnectedness’ that should underpin the national freight task;
- **An unfinished freight network** which suffers from cases of both underinvestment and over-investment for the freight task and in some cases, leaves large ‘gaps’ in what any rational investor in a national network would consider key productivity enhancing junctions and connections; and
- **A road freight network unattractive to commercial investors** discouraging alternative investment and operation sources due to the overly complex, non-transparent and non-prioritised nature of much jurisdictional network planning for freight vehicle access and regulation, when viewed from a national perspective (in another sense, this reflects the underdeveloped treatment of private property rights in this area of Australia’s economic infrastructure). This places great pressure on government budget allocations to retain full funding responsibility for what might otherwise be viable commercial road operations.

## **Moving to a national network – what it is - and its guiding objectives**

The idea of a national freight network for roads is intuitively similar to the concept of delivering a National Broadband Network to Australia. In the latter case, Government has decided that it is in the national interest to deliver a consistent and reliable level of infrastructure investment and internet connectivity to the great majority of Australians.

Similarly, a national freight network seeks to deliver a consistent and optimised level of road freight productivity to Australians – a network *within* the network, as it were - by focusing on the following goals:

1. **An interconnected and interoperable network** –where the most-highly productive heavy vehicle configuration can move across a nationwide road network that has been (over time) engineered to a consistent standard for maximum vehicle efficiency, all without encountering jurisdictional barriers or engineering blockages along the way;
2. **An intermodal freight network** – one that connects with maximum efficiency to other transport modes to maximise the efficiency of the total freight task; and
3. **A freight network planned to maximise road safety as well as optimise freight efficiency** – where to the extent possible, heavy vehicles networks are planned and invested in such a way as to bypass all community main streets and built up areas, reducing heavy vehicle exposure to large local passenger vehicle volumes and



pedestrians, and where the network is engineered to promote the best safety outcomes for the most productive heavy vehicles, such as the provision of sufficient heavy vehicle rest areas in upgraded infrastructure, to ensure that driver fatigue – one of the most prominent cause of heavy vehicle accidents – is managed more effectively and safely. But *most importantly*, deliberate selective strategic investment in some high productivity freight routes will serve to lower heavy vehicle traffic on less suitable and safe freight networks.

## **What is the test for national network status?**

The national freight strategy will seek to identify core parts of road infrastructure that are of the greatest significance to Australia's freight task over the coming 50 years. 'Significance' of any given part of the national freight network will be judged by:

- The **volume** of freight carried and/or;
- The **national significance** of the freight carried and/or;
- **Its ability to link to other modes of the national freight network**, including all key ports, rail junctions and intermodal hubs.

## **Creating a core network = benefits for the rest of the road network**

One significant dividend of creating a national road freight network is the sense of *long-term direction and priority* that it engenders for planning and investment choices across the remainder of the vast Australian road network.

Presently Australian cannot point to a core freight network, where the highest productivity vehicles can run to deliver the bulk of the freight task. This makes planning and investment choices for all other roads extremely difficult, because there is little sense of *long-term strategic intent* behind the jumble of freight roads across the nation.

For this reason, local governments and state governments in particular can be pulled in many different road infrastructure investment directions, making investments that may prove sub-optimal in time.

## **National freight network: shaping better ‘off-network’ market investments**

At present, road freight operators and their customers find it very difficult to plan efficient logistics investments (eg ‘where should I build my major distribution centre so that it is optimally situated to the most productive road network for the long term?’), because in most cases there is at any given time only an intuitive sense amongst jurisdictions of where major road freight investments and complementary vehicle access and regulatory reforms are due to take place. For instance, at present no jurisdictions publish anything akin to a long-term

forecast for productive vehicle access, linked to complementary road planning, investments and regulatory reforms, and in the context of freight linkages to other jurisdictions.

### **Giving a sense of direction and priority to ‘off-network’ access planning**

A national road network will redress this situation, providing the freight market, jurisdictional planners (whether Federal, State or Local government) and potential new network investors alike with a clear long-term picture of where core, productivity maximising road freight investments will be placed, so that all pieces of road infrastructure and their users can start to prioritise choices about how they access the national freight network through prioritised planning of and investment in their own roads.

## **Social dividend requirements of the national freight network for roads**

The national freight network is first and foremost about giving access to the most productive heavy vehicles on a nationwide core network to boost the performance of the freight task.

However, in doing so, the national network will over time be expected to deliver on ‘not negotiable’ safety and environmental dividends as well:

- **Bypassing of all towns and heavily populated areas on the national network** will be expected, providing productive heavy freight vehicles with a more efficient movement while also separating these vehicles from main streets, school crossings and local/urban passenger vehicle traffic in these communities (in the case of access to some capital city ports, this may extend to the construction of dedicated heavy vehicle only access roads, with accompanying construction of local traffic diversion routes);
- **Adequate modern heavy vehicle rest areas** will be built into baseline planning and upgrade costing assumptions on the national network, recognising the vital importance of managing driver fatigue safely on the heavily-trafficked national freight routes;
- **Freight network choices that assist in segregating trucks from cars** - national network status will favour – in the strategic sense - roads which are away from large urban and semi-urban population centres and whose upgrades will attract more heavy road freight away from traditional but less efficient routes that are less safe for large scale heavy vehicles activity.

- **Better environmental outcomes** from the core road freight task will be achieved by preference for national network status being given to roads which transit wherever possible through relatively flat ground (thereby reducing the significant additional fuel burn associated and carbon production associated with large numbers of heavy vehicle hill-climbs); and
- **Intermodal cooperation** will be a core requirement of the national road freight network, so that its planning and investment will include effective intermodal access arrangements to all major ports, rail links and other logistics centres deemed of strategic importance.

## **Commercialised infrastructure opportunities on the national network**

Freight services are a business, where heavy vehicle contractors are hired to move products, under contract. It follows then that on the most reliably freight-intensive of these heavy vehicle freight routes, tolling this activity either directly or indirectly in return for providing an upgraded road network with better vehicle access may well deliver a viable return to the commercial investor.

## **Commercialisation as good public policy?**

Seeking to commercialise the national freight network should be a compelling motivation for Australia's governments, as it is generally acknowledged that tax revenue alone will not fund the necessary upgrades required to drive optimal efficiency of freight infrastructure in the coming 50 years. Alternative (market) sources of funding are therefore required. If secured through commercialised freight road investment and operation under concession, significant budget allocations could be liberated to address wider transport funding motivations of passenger movement, urban congestion reduction and public transport provision.

## **Commercialisation and network planning – avoiding substitution risks**

The physical national freight network that follows has been designed with this (among many other factors) in mind. In particular, the routes selected, whilst they represent the most freight intensive networks over the coming 50 years, are in almost all cases not running in competition with one another – that is, they are not in close proximity, they do not travel to

and from the same point by alternative routes and they carry different freight tasks. This is important, because the successful commercialisation of roads relies on high and secure patronage levels, and the presence of near substitute routes will create patronage risks to the commercial road operator and reduce the attractiveness of the investment.

## **The need for equitable and transparent network regulatory architecture**

Three of the major barriers to successful long-term commercialised investment and operation of parts of the national freight network is the treatment of investor *property rights*, the provision of *efficient investor information* and the *regulation of the market* by governments.

**Property rights on the national road freight network** – commercialised involvement in the heavy vehicle freight network is quite unlike previous private sector investments in toll roads, as it is not only the concession to construct and operate the road that is required for success: as discussed earlier, maximum productivity on the national heavy vehicle network only comes about through road, vehicle type and regulation acting in efficient combination. As such, property rights that guarantee these outcomes must be secured before investors are likely to consider such commercialisation as viable; a failure to deliver such outcomes would constitute a major risk to the project. Equally, the expectations on the investor from the government perspective, such as the need to construct safety-enhancing town bypasses and heavy vehicle rest areas, will need to be asserted through the establishment of more transparent property rights (and obligations) for investors in road freight infrastructure.

**Provision of market information** – deeming a physical national road freight network goes a long way towards signalling commercialisation opportunities to the marketplace, but Australia's governments can and should go further, in the interests of providing as near to perfect market information on these investment opportunities as possible, to encourage efficient market interest and uphold transparency in the process.

Road jurisdictions around Australia monitor daily vehicle flows in great detail on certain key points across their road networks, including on almost all of the physical candidates for the national road freight network nominated in this paper. This information, known as culway or weigh-in-motion data, provides accurate data on heavy vehicle patronage on any given route. It is vital that this information be made readily available to prospective market investors to assist in the investment decision-making process. Where culway data does not exist in support of the national freight network, it should be installed. Some further discussion on this front is offered in the **Actions Required** section below.

**Regulation of the national freight network** - will first and foremost involve the oversight of efficient planning and investment decisions in line with long term network plans – whether these activities are carried out by the public or private sector, or a mixture of both. A single national freight network regulator would ensure consistency across the network, clarify the property rights of investors in the network, rule on ‘off-network’ proposals to access the national network and ensure that concession holders for commercialised investment in the network are free to exercise their operational rights - whilst also living up to their obligations.

Importantly, a national freight network regulator will also manage land planning and acquisition matters as they relate to national network needs, and it will be *via* the national freight network regulator that a streamlined planning approval process will be delivered to encourage investor involvement in managing safety, heritage and environmental approvals associated with road investment and operation.

## **Progress: further actions required**

The following pages nominate physical candidates for a national road freight network. These candidates need to be tested by agencies, independent analysis and the freight industry alike in the interests of developing a final, robust and successful network

1. All jurisdictions and related national bodies such as the National Transport Commission should collate and analyse all relevant historical culway data and other economic growth, land, environmental and heritage plans for the nominated candidates for the national road freight network with a view to providing comment on these choices in the context of the national freight networks stated objectives;
2. As the custodian of such matters, Austroads should be charged with collating this data and examining the nominated candidates in relation to these projections and requirements, with a view to providing a preferred network to *Infrastructure Australia*;
3. The current inefficiencies experienced by the absence of full access for the most productive heavy vehicles across the entire nominated national network should be examined, to appreciate the level of productivity gain likely to be experienced over time from unlocking these productivity improvements – this would include mapping each of the current inefficiencies to determine the size of this problem;.
4. A further, broader-based survey of freight operators and their customers should be commissioned to start shaping the demands of the industry for the nominated freight

network, so that alternatives and constructive suggestions from those who most rely on the outcomes can inform the process; and

5. Once agreed, a final national road freight network should be made public and all information relating to it should be made publicly available via the Austroads website; and
6. A national road freight network regulator should be established, whose first task will be to establish clear property rights related to the national road freight network for operator and user alike, as well as a clear process for managing productive off-network access to the national road freight network.

## **PHYSICAL NATIONAL ROAD FREIGHT NETWORK CANDIDATES**

### **In summary: key deliverables on the national road freight network:**

- \*Uniform access for highest-productivity freight vehicles (ie B-Triple, Super B-Double);**
- \*Each section for the network connects with all others nationwide, incl. other modes;**
- \*Consistent safety/access regulatory treatment nationwide;**
- \*All towns/heavily-populated areas on each route bypassed;**
- \*Sufficient modern heavy vehicle rest areas engineered into each route;**
- \*All route subject to GPS-based telematic tracking for vehicle compliance;**
- \*Open to expressions of interest for long-term commercial operation;**
- \*Low substitution risk between network sections to lower commercialisation risks;**
- \*Property rights/obligations for commercialised operation established and published;**
- \*Network to ensure direct access to all major ports, incl. dedicated freight road links**
- \*Overseen by a single national freight network regulator.**

## **Assumptions: basis for inclusion on the network**

The following national road freight network list has been developed through close consideration of the following factors

### **Interrogation of AUSLINK road corridor projections and State plans**

The Auslink corridor strategy analysis provides an essential reference to historic and projected heavy vehicle road usage in Australia, modelled in the context of wider anticipated trends in the Australia economy; State freight plans, where available, can also be helpful guides to national network candidacy. However, Auslink road use projections do not presuppose the existence of a dedicated, interconnected heavy vehicle freight network within the wider road network. For this reason, some of the choices below understandably may depart from some Auslink corridor analysis conclusions.

### **Interviews with heavy vehicle road freight operators**

Experienced heavy vehicle operators are a vital source of intelligence when attempting to discern the most cost-effective core road freight network for Australia. According, this analysis has drawn heavily on this resource, conducting many interviews with operators around the country to determine where optimally productive vehicle combinations could work efficiently and safely given the right investments, and - just as importantly - where the most efficient networks are to service the core freight task.

At this juncture it is worth mentioning an overwhelming response from operators in favour of the idea of constructing core national freight routes and in effect segregating major freight tasks from the wider community. Most interviewees responded to this matter in the same way; to paraphrase:

*“I don’t want to be in the main street of a country town or a city with my heavy vehicle – it saps productivity for me and it is dangerous for the local community, and each of us has to live with the consequences of any accidents. So I don’t want to be there and the residents don’t want me to be there either. If there is an alternative available through dedicated freight upgrades and bypassing, why am I still here?”*

Accordingly, safety, segregation and a desire to funnel heavy vehicles away from less safe and amenable routes by offering better productivity dividends on the national freight network have been driving factors to the selection process. These conscious objectives are quite new, and are therefore likely to lead to different planning and investment conclusions than the more traditional Auslink projections might otherwise suggest.

### **Commercialisation and substitution opportunity**

Another motivation in selection has been the desire to make the network as commercially attractive as possible. One of the major factors conditioning the attractiveness of freight roads is the availability of equally or comparably-productive substitute networks nearby. Such substitutes have been avoided for this reason.

### **Freight type distinctions**

In most cases the emphasis on selection has assumed a general freight task, with bulk freight not considered.

### **Further work *is* required**

The author in no way suggests that the list below is *definitive*, but at the same time it is hoped it might be recognised that the limitations on and motivations for selection as set out here must be recognised when shaping a final national freight network for roads.

## PROPOSED NATIONAL FREIGHT NETWORK FOR ROADS 2010-2060

STATE	HIGHWAY OR CONNECTOR ROAD
NSW	<p><b>Newell Hwy</b></p> <p><b>Sturt Hwy</b></p> <p><b>Singleton/Muswellbrook northbound connector to Newell Hwy</b></p> <p><b>Pacific Hwy</b></p> <p><b>Hume Hwy</b></p> <p><b>Port Botany Connector (dedicated heavy vehicle route)</b></p> <p><b>Port of Newcastle Connector</b></p>
VIC	<p><b>Goulburn Hwy</b></p> <p><b>Western Hwy</b></p> <p><b>Hume Hwy</b></p> <p><b>Sturt Hwy</b></p> <p><b>Port of Melbourne Connector</b></p> <p><b>Port of Hastings – Hume Hwy Connector <i>via</i> Eastlink</b></p>

<p><b>QLD</b></p>	<p><b>Toowoomba Second Range Crossing (Newell Hwy to Port of Brisbane)</b></p> <p><b>Landsborough/Warrego Hwys</b></p> <p><b>Flinders Hwy</b></p> <p><b>Gregory Development Road</b></p> <p><b>Pacific Hwy</b></p>
<p><b>SA</b></p>	<p><b>Dukes Hwy</b></p> <p><b>Sturt Hwy</b></p> <p><b>Stuart Hwy</b></p> <p><b>Eyre Hwy</b></p> <p><b>Barrier- Eyre Hwy connector (Via Peterborough/Port Pirie)</b></p> <p><b>Adelaide-Port Pirie Connector (Via Princes Hwy)</b></p> <p><b>Port of Adelaide Connector</b></p>
<p><b>WA</b></p>	<p><b>Great Northern Hwy</b></p> <p><b>Great Eastern Hwy</b></p> <p><b>Coolgardie/Eyre Hwy</b></p>

	<b>Port of Fremantle Connector</b>
<b>NT</b>	<b>Victoria Hwy</b>  <b>Stuart Hwy</b>  <b>Barkly Hwy</b>  <b>Port of Darwin Connector</b>
<b>TAS</b>	<b>Nil routes. See discussion at page</b>

## **In more detail: national road freight network candidates**

The following list (overleaf) of each of the candidates listed in the preceding table summarises the rationale behind their selection for the national network. They also list the current vehicle efficiency levels on each of the routes, to aid a much-needed ‘gap analysis’ of the investment required over time to interconnect the entire network with an optimally efficient road, vehicle and regulatory outcome.

## NEW SOUTH WALES

**Route:** Newell Hwy

**Current HV combination access:** Type I Road Train north of Dubbo, B-Double south of Dubbo

**Comment:**

*The Newell Highway is the single most important component of any national road freight network strategy.*

The Newell is already the most efficient and heavily patronised heavy vehicle trunk road between Melbourne and Brisbane; it provides the most efficient and reliable link to all northbound heavy freight traffic progressing into central and northern Queensland. It runs through Parkes, Australia's most important inland port, and it also joins with the Sturt Highway at Narrandera to also link South Australia and beyond to the core east coast national network.

An upgrade of the Newell Highway to accept the most productive heavy freight vehicles, combined with complementary safety and amenity measures such as the bypassing of all towns along its length, offers potential for multiples of intermodal freight productivity to be unlocked.

When combined with complementary infrastructure upgrades such as the Townsville Second Range Crossing and the upgrade of the Goulburn Valley Highway from the Murray River

south to its junction with the Hume Highway (and on *via* Dynon Road to the Port of Melbourne), the Newell Highway network stands as clearly the single most important national road freight infrastructure task.

The Newell Hwy at present retains a presence in many main streets of regional towns like Parkes, Forbes, Dubbo, Gilgandra and Moree. Its position on the national freight network would see these towns bypassed and the road upgraded to accommodate higher productivity vehicles, most likely including a second (slow vehicle passing) lane requirement over the Warrumbungle Range at Coonabarabran.

The upgrade of the Newell Highway to national freight network standards, along with complementary investments at Toowoomba and the Goulburn Highway (see below) would also serve to attract heavy vehicle freight operations away from the New England Highway, which is far less suitable for heavy vehicle operations and is interspersed with many towns and regional centers. This effect alone promises a considerable safety dividend.

**Route:** Hume Hwy

**Current HV combination access:** B-Double

**Comment:** The Hume Highway is the main road freight route linking Melbourne with Sydney and services the broadest possible range of road freight. The recent full duplication of the Hume between Sydney and Melbourne creates favourable conditions for matching vehicle access and regulatory arrangements with a first class road network, providing an

optimally efficient heavy vehicle road freight route to link the 8.5 million people that inhabit Australia's two largest cities.

**Route:** Sturt Hwy

**Current HV combination access:** B-Double

**Comment:** The Sturt Highway intersects with the Newell Highway at Narrandera in the Riverina and then proceeds across the Hay Plains in south west NSW *via* Mildura in far north west Victoria to Adelaide, *via* the Riverland. This route carries the bulk of the agricultural product of these productive 'food bowl' regions and links them to markets further afield. The Sturt is also the premier heavy freight route from Adelaide to Brisbane *via* the Newell Highway – Australia's most vital road freight artery.

**Route:** Sydney – Singleton/Richmond/Muswellbrook/Newell Hwy Connector

**Current HV combination access:** B-Double

**Comment:** One of the enduring challenges of servicing Sydney's road freight demand has been the barrier presented by the Blue Mountains. A national road freight network strategy will fail if it does not encompass a safer and more productive northbound heavy vehicle freight route from Sydney which can move heavy vehicle activity away from major conurbations towards the key artery of the Newell Highway.

Such a route exists in principle from Singleton in Sydney's populous west, moving away from conurbations *via* Muswellbrook to the north-west until it reaches the Newell Highway

(NB: the precise route that this takes, whether northwards *via* Tamworth on the New England Highway, or to a point further south west *via* the Golden Highway, would need further examination).

When combined with investment in the remainder of the national network, this provides a viable core freight artery into Sydney from Brisbane and beyond *via* the Newell Highway.

**Route:** Pacific Highway

**Current HV combination access:** B-Double

**Comment:** Given the massive investment in town bypassing and duplication undertaken over recent years, the Pacific Highway satisfies national freight network objectives for segregating heavy vehicle and local passenger traffic and communities. A high-productivity freight vehicle route from Sydney to Brisbane combines with the Hume Highway to create a high-standard part of the national freight network that services the freight requirements of the 10.5 million people that inhabit Australia's three largest cities: Brisbane, Sydney and Melbourne.

## VICTORIA

**Route:** Goulburn Hwy – connecting Port of Melbourne to Newell Hwy

**Current HV combination access:** B-Double

**Comment:** The Goulburn Highway is the vital network connection to link the overwhelming road freight productivity offered by the Newell Highway directly with the Port of Melbourne. In effect, the Goulburn Highway is the part of the national road freight network that unlocks maximum road freight productivity by linking the Port of Brisbane with the Port of Melbourne, via the Parkes inland rail port.

Placing the Goulburn Highway on the national road freight network also serves the wider objective of moving key heavy vehicle freight networks away from passenger vehicle traffic, as the alternative solution to connecting the Port of Melbourne with the key Newell Highway network would be for all northbound traffic to travel significant distances on the Hume Highway, where passenger vehicle presence is much higher.

**Route:** Western Hwy

**Current HV combination access:** B-Double

**Comment:** The Western Highway is the most efficient heavy vehicle network linking Melbourne to Adelaide and Perth. It is a significantly shorter distance than the alternative southern route to Adelaide along the Princes Highway. When linked to Melbourne *via* the Western Ring Road and a Hastings/Eastlink Hue Hwy connector, the Western Highway puts

Perth and Adelaide Freight in direct efficient contact with the Ports of Melbourne and Hastings in a way that minimises exposure to urban areas.

**Route:** Hume Hwy

**Current HV combination access:** B-Double

**Comment:** The Hume Highway is the main road freight route linking Melbourne with Sydney and services the broadest possible range of road freight. The recent full duplication of the Hume between Sydney and Melbourne creates favourable conditions for matching vehicle access and regulatory arrangements with a first class road network.

**Route:** Port of Hastings – Eastlink - Hume Hwy Connector

**Current HV combination access:** Route in blueprint form only

**Comment:** Given the growth in demand on Melbourne’s major port facility and the growing congestion that this expanding city is faced with, it will be important to provide for national freight network road access to the Port of Hastings, on Westernport Bay to Melbourne’s south-east.

The most logical way to achieve this is to build upon the recent significant Eastlink investment – extending south-east to Hastings, and extending north-west to the Hume Highway. This provides the Port of Hastings with direct access by the highest productivity freight vehicles, operating on the national network. It also allows freight flows to and from Hastings to be transited to and from the west of Melbourne *via* the Western Ring Road.

## QUEENSLAND

**Route:** Toowoomba Second Range Crossing

**Current HV vehicle combination access:** Route in blueprint form only

**Comment:** As discussed earlier, the Newell Highway is the most important heavy vehicle freight artery in Australia. At present, the Newell ends at Toowoomba, Australia's largest inland city. From here, the westward growth that has been experienced in Brisbane over the past decade means that the efficient movement of freight from the Newell in to the port of Brisbane and major distribution centres is extremely problematic.

To do so on the current Toowoomba to Brisbane road network would not only create significant freight delays, it would also abandon a key principle of the national freight network – the principle that national freight network planning and investment should segregate the most productive heavy vehicle routes from passenger vehicle traffic and conurbations.

For this reason, a Second Crossing of the Toowoomba Range, as already projected in a number of planning proposals, has strategic merit for the national road freight network. In principle, creating second crossing for Newell Hwy freight traffic that bypasses Toowoomba and proceeds through or over the range and in to the Port of Brisbane without encountering any significant congestion will be a vital link for Australia's principle north-south road freight artery and will add significantly to the productivity of the Port of Brisbane.

**Route:** Warrego/Landsborough/Barkly Hwy

**Current HV vehicle combination access:** Type 2 Road Train, breakup to Type 1 at Morven

**Comment:** The Warrego Highway is the principle heavy vehicle freight route linking Brisbane and southern states with central, western and north-western Queensland and the Northern Territory. In addition to carrying all of the supplies and produce of all of these conurbations, it is a key freight artery for Queensland second largest industry – agriculture. Increasingly the Warrego Highway is also becoming the largest single heavy freight corridor for Queensland’s ever-expanding mining sector, in particular the coal seam gas industry.

**Route:** Flinders Hwy

**Current HV vehicle combination access:** Type 2 Road Train

**Comment:** The Flinders Highway is the principle east-west link for Northern Queensland, stretching from Townsville in the east directly to Mt Isa and on to Darwin. The Flinders Highway plays a very significant role in the mining and pastoral sectors’ freight tasks in this part of Australia.

**Route:** Gregory Development Road

**Current HV combination access:** Type 2 Road Train

**Comment:** The Gregory Development Road is the major heavy road freight artery that links the communities of far north-east Queensland with southern Queensland and the southern states. The bulk of the supplies required by these communities are brought in on this route and the key southbound exports of this region such as fruit travel *via* this route. The route also serves the growing mining sector in this part of Australia.

Importantly, maximising the heavy vehicle productivity on this route serves to divert trucks away from the more heavily populated Bruce Highway which runs down the coast of northern Queensland to Brisbane. Given the cyclone prone nature of some of these northern communities, a reliable Gregory Development Road also has broader national significance as an all-weather access point for this region.

## WESTERN AUSTRALIA

**Route:** Great Eastern Hwy (Eyre Hwy-Coolgardie Hwy connector)

**Current HV vehicle combination access:** B-Double – Type 1 Road Train

**Comment:** The Great Eastern Highway is the heavy vehicle lifeline from the eastern states to Perth; it also services key mining communities such as Kalgoorlie and Leonora.

**Route:** Great Northern Hwy

**Current HV combination access:** Type 2 Road Train, Type 1 southbound from Wubin

**Comment:** The Great Northern Highway is the main heavy vehicle road freight artery linking Perth and the eastern state road freight with the mining communities along Western Australia's coastline, heading north as the only all-weather heavy vehicle freight supply line to both the Pilbara and Kimberley, eventually linking directly to Darwin.

## **SOUTH AUSTRALIA**

**Route:** Duke's Hwy

**Current HV vehicle combination access:** B-Double

**Comment:** The Duke's Highway links at the Victorian border with the Western Highway to form the most efficient heavy vehicle artery between Adelaide and Melbourne.

**Route:** Sturt Hwy

**Current HV combination access:** B-Double

**Comment:** The Sturt Highway leave Adelaide towards the Riverland, transiting *via* Mildura in north-west Victoria and travelling across south west New South Wales to connect with Australia's key heavy vehicle artery, the Newell Highway. It is the main road freight artery for connecting Adelaide to this major north-south freight network for Australia's eastern seaboard as is the logistics link for the foodbowl regions of the Riverland in SA and the Riverina in VIC.

**Route:** Adelaide-Port Augusta *via* Princes Hwy

**Current HV vehicle combination access:** Type 1 Road Train

**Comment:** It is vital that all traffic leaving Adelaide west or northbound can do so with maximum efficiency. This connector route allows this to occur and links Adelaide with

South Australia's westwards and northwards freight routes. It is of particular importance for linking westbound heavy freight from Melbourne to Perth or even Darwin, *via* Adelaide.

**Route:** Stuart Hwy

**Current HV combination access:** Type 2 Road Train, Type 1 to enter Adelaide

**Comment:** The Stuart Highway is the road freight artery connecting Adelaide and Darwin *via* Alice Springs and Katherine. It services the majority of perishable goods requirements for most of these points but more particularly, it services all of the considerable mining and pastoral interests on this route and to the west and east of it – including remote communities and mining and pastoral interests as far removed as the gulf country of Queensland. While the volume of its freight task is itself considerable, it is the national significance of this supply role that is of particular importance in respect to its place on a national road freight network.

**Route:** Peterborough/Jamestown to Ceduna *via* Port Pirie connector

**Current HV combination access:** B-Double – Type 1 Road Train

**Comment:** To transit to and from Perth from the eastern states, heavy vehicles proceed along the Barrier Highway to Peterborough north of Adelaide, but at this point there is no dedicated high productivity road network linking the Barrier Highway in the east to the Eyre Highway in the west, on the other side of Port Pirie, at the mouth of the Spencer Gulf. This is a textbook case of a network gap in productive road freight that can be solved through placing

this stretch of road on the national network, for upgrade over time to national high productivity standards.

## NORTHERN TERRITORY

**Route:** Victoria, Stuart and Barkly Highways

**Current HV vehicle combination access:** Type 2 Road Train

**Comment:** These three highways represent Darwin and the wider Northern Territory's road link to the rest of Australia. The Victoria Highway links Darwin to the mining and pastoral interests and communities of the Kimberley, Pilbara and ultimately to Perth; the Stuart Highway links Darwin, Katherine and other Top End communities and industry with Alice Springs and Adelaide and is a major source of food and goods supply to the Territory and beyond. The Barkly Highway is the road freight link to Brisbane, NSW and VIC.

As all of these highways are currently rated for Type 2 road train, much of the productivity potential gained in matching road to vehicle and regulation has already been achieved.

However, over time the challenge for these highways may come in the national freight network requirement to engineer bypasses to towns along its route, to improve safety and amenity outcomes for these communities.

## **TASMANIA**

Given the physical constraints of the current road network relative to the highest productivity vehicle types available (eg B-Triples) as well as the need to break any interconnected journey into or out of Tasmania to other parts of the national road freight network with a sea voyage, it is likely that there will be no Tasmanian road network elements on the national freight network – instead the focus will be on maximising the productivity of ports and the relative efficiency of their connection to major road freight arteries such as the Midland Highway.

## **Generic network requirements for seaport access**

### **Capital city ports and ‘ports of significance’ access to national road network**

Australia’s major ports are the largest and most important pieces of Australia’s freight infrastructure. It follows that each of these ports, which themselves will be identified as part of the wider national freight network, should be in a position to link themselves efficiently to the national road freight network.

As such, the national road freight network will extend to high productivity heavy vehicle access roads to and from these ports. In some cases, to meet urban planning requirements, and overcome barriers to land acquisition, particularly in larger cities, it may be necessary to take heavy vehicle and passenger vehicle segregation quite literally and construct a smaller but dedicated high productivity freight vehicle artery to and from the port, which will link with the wider network once clear of urban planning, safety and congestion considerations.



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June 2010

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