Freight Network Review

Working Group 4

The Role of Regional Ports in Reducing Metropolitan Freight Activity

June 2002

Regional Ports		
Name	**Role**	**Representing**
Alan Hubbard	Convenor	Department for Planning and Infrastructure
Bryant Roberts	Project Manager	Department for Planning and Infrastructure
Doug Brindal	Member	Department for Planning and Infrastructure
David Clarke	Member	Department for Planning and Infrastructure
Dom Figliomeni	Member	Bunbury Port Authority
Patrick Weir	Member	Community
Chris Thompson	Member	Community
George Freestone	Member	Industry

Freight Network Review		
Name	**Role**	**Representing**
Janette Hartz-Karp	Overall Project Facilitator	Office of the Minister for Planning and Infrastructure
Steve Beyer	Overall Project Coordinator	Department for Planning and Infrastructure

This paper is one of a series of Papers for the Freight Network Review.

The Working Papers in the series are:

Paper No. 1 Sustainability in Relation to Freight

Paper No. 2 Freight Network Master Plan

Paper No. 3 Strategy to Increase the Use of Rail

Paper No. 4 The Role of Regional Ports in Reducing Metropolitan Road Freight Activity

Paper No. 5 Fremantle Inner Harbour Capacity and Limits

Paper No. 6 Hypothecation of Funds

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1. Executive Summary and Recommendations

This report investigates the potential for reducing the proportion of freight using road transport in the metropolitan area through greater use of shipping through regional ports and rail transport.

The Work Group found that regional ports are already major conduits for freight movements handling about 90% of the volume of trade passing through State ports. Of the remaining trade, 8% is handled at the Fremantle Port's outer harbour at Kwinana, and 2% is handled through the Fremantle Port's inner harbour. Regional ports and Fremantle Port's outer harbour mostly handle bulk commodities, the majority of which are railed to or from the ports. Fremantle Port's inner harbour trade comprises containers, break-bulk freight, motor vehicle imports and livestock exports.

A more restricted focus on the southern half of the State, consistent with the metropolitan focus of this study, shows that the regional ports of Albany, Bunbury, Esperance, and Geraldton account for half of the State's port trade in this region.

Most freight moved by trucks in the Perth metropolitan area has its origin and destination within the metropolitan area. Only a relatively small proportion of freight moved by trucks in the metropolitan area is directed through the Fremantle port or has its origin or destination in the regions.

This means that changing the mode of transport for the road freight originating from, or destined to the regions in the metropolitan area, will have relatively little impact on the overall metropolitan freight network. However, the amount of freight traffic carried by road to or from the regions can have significant impacts on the key roads entering or exiting the metropolitan area. This freight traffic has adverse impacts on the adjacent communities and potential conflict with other road users.

There may be opportunities to shift some freight from road onto rail. Rail has been successful in competing with road for bulk haul point-to-point movements. Bulk products remaining on road (such as grain) appear to have the most potential to be transferred to rail or be handled through regional ports to a greater extent than currently occurs. However, for rail to make significant inroads into the freight traffic currently on the road system, measures will need to be identified for increasing its competitiveness in other markets where it currently does not have a natural advantage over road.

The issue of whether charges on heavy road vehicles covers the costs they impose on the road network is a major issue in road/rail competition and current arrangements are discussed in Appendix 3.

Enhanced rail access to, and improved container handling infrastructure investment at Fremantle Port's North Quay will be important for linking regions and regional ports and enhancing rail's capacity to compete with road for container traffic.

Port and industry analysts are confident that the development of new, or expanded bulk export industries in the regional areas of the State will in the main, be serviced through regional ports. However, while regional ports can service increased trade, it needs to be acknowledged that this increase could have road and rail traffic impacts on the local communities, which will need to be managed.

1.1 Recommendations

1. Consideration should be given to more clearly defining the impacts of road transport compared to those of rail and sea on issues such as safety, air and noise pollution, greenhouse emissions and assess the extent to which Government can and should seek to influence decision making in the market place to reflect these impacts. (Ref: 3.1)

2. Planning consideration should be given to establishing future bulk handling freight terminals outside urban areas, where the opportunity exists to transport commodities by rail to ports. (Ref: 3.1)

3. Government should adopt supportive financial policies for port authorities on matters such as rates of return, dividends and borrowings to allow them to retain income and to undertake capital investment for commercially viable projects. (Ref: 3.2)

4. In order to link the regions and regional ports effectively by rail to the Fremantle inner harbour, a narrow gauge connection should be incorporated in an upgraded rail link. (Ref: 3.2)

5. In order to realise the potential for rail to compete with road for increased freight business, an approach needs to developed for Government to fund improved rail infrastructure where the opportunities exist to bring about a modal change. (Ref: 3.3)

6. That the West Australian Rail Advisory Council (WARAC):

    6.1 Examine the opportunity for rail to compete for the traffics identified in this report including:

    - container movements between Albany and Fremantle, and Bunbury and Fremantle;
    - movement of fibreboard product between Dardanup and Perth;
    - narrow gauge rail movement of bulk fuel, and
    - movement of export containers (eg hay).

    6.2 Identify other opportunities for rail to improve its market share through means such as:

    - reducing intermodal transfer costs;
    - aggregating traffics to achieve viable train loads;
    - adopting alternative types of train operations, and

- provision of key infrastructure connections or improvements (eg rail link to Kemerton industrial estate).

6.3 Work with transport users and rail operators to determine action plans to expand rail's role in the above areas where economic, social and environmental benefits can be identified. (Ref: 3.3)

7. Shipping companies tendering for the North West Shipping Service be invited to consider making calls at Bunbury Port, if this can be done without jeopardising schedules to the north west. (Ref: 4.1)

8. Work with the grain industry through the Grains Logistics Committee to:

8.1 Identify the Strategic Receival Points (SRP) best placed to attract grower road deliveries away from the Metropolitan Grain Centre (MGC);

8.2 Determine any barriers to the development of those SRP's which Government can assist in overcoming, and

8.3 Identify other initiatives, which could reduce road deliveries to the MGC. (Ref: 4.2)

9. Possible interventions need to be examined to ensure fuel transport takes into account externality considerations and the most efficient use of publicly provided infrastructure. (Ref: 4.3)

10. Encourage development and location of feedlots and saleyards outside the metropolitan area to areas more suitable for handling the livestock trade through the use of appropriate planning policies and levers. (Ref: 4.5)

2. Scope for Affecting Metropolitan Freight Movements

The extent to which the possible shifts in modal use may affect the overall metropolitan freight network depends in part, upon the mix of vehicles using the road. Main Roads WA (MRWA) estimates average traffic composition on metropolitan state managed roads in 1998 to be 93.7% cars and vans; 5.9% rigid trucks and semitrailers, and 0.4% long vehicles and road trains.

The road transport industry has advised that only a relatively small proportion of freight moved in the metropolitan area is directed through the port system. Furthermore, most freight moved by trucks in the metropolitan area has its origin and destination within the metropolitan area.

This means that changing the mode of transport for freight originating in or destined for the regions that is currently moved by road in the metropolitan area, will have relatively little impact on the overall metropolitan freight network.

Road transport that enters and leaves the Fremantle Port is mostly moving containers and livestock for export, and is focussed on the inner harbour. Of the containers moved through Fremantle (354,227 TEU in total in 2000/01[1]), 82% (290,466 TEU's comprising 387,288 truck journeys[2]) were destined for, or originated from the metropolitan area.

There would appear to be very limited potential for these containers to be routed through regional ports at present. The reasons for this are outlined in the next section. However, another working group has examined strategies to enable rail to win up to 30% of containers passing through Fremantle from road transport.

Regional ports and the Fremantle outer harbour are primarily equipped to handle bulk products that originate in their respective rural hinterlands. The transfer of bulk materials at these harbours is highly efficient and much of this freight is railed to the ports.

In the southern regional ports (ie Geraldton, Bunbury, Albany and Esperance), there is some scope to encourage greater use of rail in the delivery of products to and from the port. While this may benefit the local communities, there is likely to be little impact on the metropolitan freight network and therefore the Working Group has not considered this matter further.

In the large northern ports, most of the trade is delivered to the port by rail and has no impact on the metropolitan road network.

However, the freight traffic carried by road to or from the southern regions can have significant impacts on the key roads entering or exiting the metropolitan area. The key entry points for freight moving between the metropolitan area and the regions are the Great Northern Highway, Great Eastern Highway, Brookton Highway, Albany Highway, Brand Highway, Old Coast Road and the South Western Highway. The table below shows the estimated traffic and freight in 1998 for the following major routes.

[1] Container Origin and Destination Survey 2000 – by WA Port Operations Task Force.
[2] Based on the accepted calculation of 1.5 TEU per truck journey, where empty and loaded journeys are considered separate journeys.

MRWA		Percentage of highway traffic by vehicle type			1998
Highway	**Annual Average Daily Traffic**	**Cars and vans**	**Rigid trucks and semi trailers**	**Long vehicles and road trains**	**Freight (millions of tonnes)**
Great Northern Highway	900	80%	13%	7%	1.8
Brand Highway	2,000	76%	14%	10%	3.6
Great Eastern Highway	3,800	83%	14%	3%	2.6
Brookton Highway	800	86%	12%	2%	0.3
Albany Highway	2,400	83%	12%	5%	2.2
Old Coast Road	6,300	92%	7%	1%	1.7
South Western Highway	5,500	87%	10%	3%	3.0
				Total Freight	15.2

Information gained from permanent recording[3] sites along each of the above highways indicate traffic annual compound growth rates (over the past 10 years to 1998) of the following percentages: Great Northern Highway (2.0%), Brand Highway (0.5%), Great Eastern Highway (0.1%), Brookton Highway (1.9%), Albany Highway (2.3%), Old Coast Road (7.1%), and South Western Highway (2.7%).

Some basic conclusions or comments can be made:

- outside the Perth metropolitan area, the South West Region is the fastest growing area of the State, as exemplified by the high traffic growth rate;
- growth rates have varied significantly between the different corridors, ranging from a relatively static situation on the Great Eastern Highway (partly reflecting the success of the interstate rail service) to a very high rate of growth on the Old Coast Road to Bunbury (reflecting the growth in the South West);
- trucks typically represent less than 20% of vehicles on most of the main arteries and the larger combination vehicles less than 5% (the Great Northern and Brand Highways being notable exceptions);
- by way of comparison the forecast increase in road freight over the next 20 years for Australia as a whole is 3.5% per annum, and
- a 2% per annum growth rate results in a 50% increase in traffic over 20 years, while at 3.5% per annum traffic would double over that period.

[3] Source Main Roads WA 1998. Note readings are for all vehicle types.

3. Factors Influencing Modal Choice and General Considerations

The key influencing factors behind modal choice in transport are cost, service frequency, efficiency and suitability for the task. These in turn involve considerations of volume, origin and destination, distance, turnaround time, time sensitivity of delivery, and availability of infrastructure.

The provision of suitable infrastructure for multi-modal freight handling and storage is essential if a change in mode (or multi-modal transport solutions) is to be achieved.

Land use planning and zoning is also important. Industrial sites by nature are generators of traffic movements. It is important therefore, that attention is given to transport planning issues and infrastructure when areas are set aside for industrial development.

Rail and shipping are most efficient in moving bulk commodities. These modes of transport can also be efficient in transporting non-bulk products over long distances if there is sufficient volume and suitable intermodal infrastructure at each end of the journey. The dominance of rail in the carriage of non-bulk freight on the interstate corridor, where it has a market share over 75%, illustrates this point. Rail can also operate efficiently as a terminal service providing shuttle services between facilities, where efficient loading and unloading facilities exist.

In the area of bulk freight, there is strong competition between rail and road transport for some commodities such as grain and fuel. There is also competition between shipping and road transport for the movement of fuel and fertilisers to places like Geraldton and Esperance.

Outside of bulk traffic and setting aside interstate freight, rail plays a minimal role and road transport dominates. There are indications that freight transport users do not in many cases, fully consider the use of rail for tasks other than bulk products. This may reflect perceived costs for rail and other advantages of road but also rail's absence from many freight transport markets in recent times due to the focus on bulk hauls. In other words, rail has lacked visibility and perhaps credibility in non-bulk markets in WA.

Both the State Government's desire to maximise use of rail and the professed aim of rail operators to enter a number of non-bulk traffics offer an opportunity to address these issues.

There is some evidence that the prominence being given to the issue by the Government has already prompted some freight transport users to approach rail operators to discuss their transport needs.

3.1 Road Transport

Albany, Bunbury, Geraldton, and their hinterlands have relatively small populations and are well connected to the Perth metropolitan area by good roads, which provide access within an acceptable driving timeframe.

This puts road transport in the favoured position for servicing these areas' needs, particularly for non-bulk products. This is reinforced by a road transport industry that is highly efficient and is characterised by intense competition between operators, which can provide door-to-door service.

The inherent flexibility of road transport provides the opportunity for frequent "just-in-time" delivery so that companies can keep inventory and infrastructure costs down to a minimum.

While road transport plays a vital role in the economy it does impose greater impacts on the community than do rail and shipping. For a given amount of freight, road transport will generally have higher air and noise pollution, accident levels and greenhouse emissions.

It is claimed that heavy vehicles do not pay adequately for the infrastructure they use. As explained in Appendix 3, this is true only in certain circumstances.

For the reasons stated above, road transport is very competitive in relation to other modes.

The Working Group noted that a range of economic and land availability issues have resulted in bulk commodity freight terminals, export livestock facilities and associated nodes of activity, being established on the plains west of the Darling Scarp in the metropolitan area. This has resulted in large amounts of regionally sourced freight being trucked down steep inclines on the key entry roads through the Darling Scarp.

There may a case for future export freight handling facilities (particularly those sourcing bulk material or mass numbers of livestock from regional areas to be delivered to the Fremantle port) to be situated on the Eastern side of the Darling Scarp. Possible locations such as Northam, Toodyay and Beverley could be suitable. These have both road and rail access.

This could provide the opportunity for export bulk freight that is currently being consolidated in the metropolitan area to be consolidated outside this area and transported by rail through the metropolitan area to Fremantle Port's outer and inner harbours. However, such action should only be considered where rail would reduce overall truck movements and could be achieved without undue costs placed on industry.

Such facilities are more likely to be viable and effective if:

- they involve value adding activities rather than just transporting freight;
- they are able to eliminate rather than duplicate a function performed in the metropolitan area, and
- they are on major freight flow routes so additional distance is not involved.

Consideration needs to be given to:

- more clearly defining the impacts of road transport compared to those of rail and sea on issues such as safety, air and noise pollution, greenhouse emissions, etc. and
- assessing the extent to which Government can and should seek to influence decision making in the market place to reflect these impacts.

A potential application of this arises from revised road transport permit approval processes following the recent road train summits. In considering proposals for permit issue, the opportunity for and benefits arising from use of alternative modes such as rail will need to be considered. A framework for such an assessment, incorporating the points raised above, needs to be developed.

Recommendations:

- *consideration should be given to more clearly defining the impacts of road transport compared to those of rail and sea on issues such as safety, air and noise pollution, greenhouse emissions and assess the extent to which Government can and should seek to influence decision making in the market place to reflect these impacts, and*
- *planning consideration should be given to establishing future bulk handling freight terminals outside the urban area, where the opportunity exists to transport commodities by rail to ports.*

3.2 Ports and Shipping

The choice of port to cater for bulk cargo movement will be determined by the availability and costs of land transport, availability of suitable port facilities and depth of water to cater for ships required to service the trade.

Port and industry analysts are confident that the development of new, or expanded bulk export industries in the regional areas of the State will in the main, be serviced through regional ports. In this respect, we can expect that major resource development projects in the regions should have minimal impact on the metropolitan freight network, provided that the port authorities are able to invest in infrastructure for commercially justified projects. However, constraints imposed through Government policies, which would prevent the ports of Geraldton, Bunbury, Albany and Esperance from undertaking improvements in port infrastructure to handle additional throughput, could result in the trade being lost or routed through the metropolitan area.

The Fremantle Port's inner harbour has developed as the State's only specialised container port, catering for general cargo import and export containers, together with motor vehicle imports, livestock and scrap metal exports. However, there are ongoing issues of road congestion and the question as to what level of increase in traffic the local population is willing to accept.

The world wide trend to larger, faster and more economic container carrying vessels, providing frequent scheduled services to cater for general cargo trades, demand specialised handling facilities, berth availability and port services dedicated to their requirements.

This together with the fact that most containers originate in or are destined for the Perth metropolitan area means that general cargo container services are likely to remain centred at Fremantle.

There is capacity for the present container handling facilities at Fremantle to handle increasing volumes of trade. There is limited commercial opportunity for regional ports to compete in the general cargo trades at this time. There may be niche markets, which could be served by self-geared container vessels from any of the regional ports.

With Fremantle set to remain the primary container handling port, it will be essential for narrow gauge rail access to be provided to North Quay. This will greatly enhance rail's capacity to compete with road for container traffic to and from the regions.

It should be noted that port and cargo handling costs, together with ship freight charges are recovered as part of the overall transport costs.

Recommendations:

- *Government should adopt supportive financial policies for port authorities on matters such as rates of return, dividends and borrowings to allow them to retain income and to undertake capital investment for commercially viable projects, and*
- *in order to link the regions and regional ports effectively by rail to the Fremantle inner harbour, a narrow gauge rail connection should be incorporated in an upgraded link.*

3.3 Rail Transport

Rail has been successful in competing with road for bulk haul point-to-point movements. However, if rail is to make significant inroads into the freight traffic currently on the road system, means will need to be identified for increasing its competitiveness in other markets where it does not have a natural advantage over road. Key factors that need to be identified include:

- means to reduce intermodal transfer costs (efficient container handling is a good example);
- the capacity to aggregate a number of traffics which in their own right would not constitute viable train loads (eg investigation of synergies on the existing Perth to Bunbury corridor);
- the potential to mount different types of rail operations to the traditional heavy train concept (eg new technologies such as *CargoSprinter* or use of "recycled" equipment that is no longer suitable for modern, high volume bulk haul operations), and
- key infrastructure links that need to be provided to enable efficient rail access (eg access to industrial estates such as Kemerton).

While normal commercial incentives can be expected to lead rail operators to examine opportunities for market expansion, the search will of course be limited by the need to earn commercial rates of return.

The thrust of the Freight Network Review (FNR) is that social and environmental considerations may dictate that opportunities that do not earn commercial rates of return should nevertheless be identified and possibly receive Government support until they achieve a return within a reasonable time frame.

These and other opportunities need to be examined from the perspective outlined above and a plan put to Government on the best means for expanding rail's market share.

It needs to be recognised that railway companies operate in a very competitive environment with road transport. They may not always be in a position to plan for, or pay for investment in rail infrastructure. Government can intervene to support use of rail. For example, support was provided for construction of a rail spur near Albany so that woodchips can be railed to the port. There were sound environmental and transport planning reasons for the Government taking this stand. What needs to happen now, is for Government to develop a formal policy for an ongoing role.

There is a strong case for establishing a partnership between Government, industry, and the rail operators to address the development of new rail infrastructure. This needs to occur statewide as well as in Fremantle where the issue of improved rail access into the inner harbour and new container handling infrastructure is being given serious consideration.

However, options to promote the role of rail transport are not limited to funding of rail infrastructure. For example, additional road investment could be required to help facilitate use of rail transport by bringing road-carted grains to strategic railheads. This highlights the need for a multi-modal approach to transport planning which seeks to maximise the best features of both modes.

There may exist an opportunity to review allocation methods of Federal and State funding for roads in favour of a cross modal funding system which would apportion funds to road and rail construction/upgrading/maintenance where the best benefits are identified.

It may also be prudent for the Government, working in partnership with rail operators, to fund strategic improvements to the existing rail network to streamline and improve rail services (ie extend passing loops on single lines, increase speed limits, improve signalling, better terminals, fewer level crossings, etc).

Recommendations:

1. *In order to realise the potential for rail to compete with road for increased freight business, an approach needs to developed for Government to fund improved rail infrastructure where the opportunities exist to bring about a modal change, and*

2. *That the West Australian Rail Advisory Council (WARAC):*

    (i) Examine the opportunity for rail to compete for the traffics identified in this report including:
    - *container movements between Albany and Fremantle, and Bunbury and Fremantle;*

- *movement of fibreboard product between Dardanup and Perth;*
- *narrow gauge rail movement of bulk fuel, and*
- *movement of export containers (eg hay).*

(ii) Identify other opportunities for rail to improve its market share through means such as:

- *reducing intermodal transfer costs;*
- *aggregating traffics to achieve viable train loads;*
- *adopting alternative types of train operations, and*
- *provision of key infrastructure connections or improvements (eg rail link to Kemerton industrial estate).*

(iii) Work with transport users and rail operators to determine action plans to expand rail's role in the above areas where economic, social and environmental benefits can be identified.

4. Assessment by Commodity

There are limited data available on the freight traffic moving within the metropolitan area. However, the data that are available, confirms the Work Group's view that the amount of freight originating from or is destined to regional areas is a relatively small part of total freight movement in the metropolitan area. The Work Group considered that the commodities listed below would have the greatest potential to be shifted wholly, or in part to rail transport or be handled through regional ports.

4.1 Containers and General Freight

Freight movement within the metropolitan area is dominated by road haulage. General freight such as groceries, retail goods, and construction materials comprise most of this traffic. A relatively small proportion of freight moved in the metropolitan area is directed through the port system or has its origin or destination in the regions.

In 2000, the proportion of containers imported through Fremantle which were destined for regional areas was 13%[4] (46,050 TEU or 61,400 truck journeys) for North and East rural WA, and 5% (17,711 TEU or 23,615 truck journeys) for the South West of WA.

The container volumes for the regional destinations through Fremantle have not been of sufficient volume[5] to entice shipping companies to make shipping calls at Geraldton or Albany, and likewise there has been insufficient southbound cargo for ships to call at Bunbury.

A recent study[6] concluded that the establishment of a container trade through the Port of Albany is unlikely to be viable. Another recent study[7], which looked at the feasibility of moving containers between Bunbury and Fremantle by coastal shipping or barging, concluded that these modes are not currently competitive with road operations on a commercial basis. The reports indicated that rail had more potential than shipping to compete with road for freight cartage at Fremantle North Quay, providing that suitable infrastructure was introduced.

Regional ports may in time, with the appropriate facilities, provide opportunities for container trade sourced from the regions and from the metropolitan area. These opportunities would be specific to each region. It is very unlikely that general consumer imports transported in containers will be delivered directly to regional ports, as all import distribution facilities are located in the metropolitan area.

The Government's policy statement that it would support Bunbury becoming Western Australia's second container port has encouraged some shipping lines to consider the possibility of handling containers through Bunbury Port at some

[4] Container Origin and Destination Survey 2000 – by WA Port Operations Task Force.
[5] Source Meyrick and Associates studies on Albany and Bunbury Ports - 2001
[6] Source Meyrick and Associates "The Establishment of a Container Trade through Albany - 2001"
[7] Source Meyrick and Associates "Options for a Coastal Container Shipping Service, Fremantle – Bunbury" 2001

time in the future. In addition to liner container services, other opportunities include the North West Shipping Service visiting ports south of Fremantle.

Subject to financial viability, the Bunbury Port Authority could possibly undertake the development of container import/export activities in its own right. This could be achieved by investment in terminal facilities at the port for self-geared container shipping, container storage and handling, and a road/rail loading facility. Any development of container handling infrastructure at the Bunbury Port would have to be commercially viable and not require Government subsidy unless significant community benefits can be identified.

New infrastructure investment would not only be needed in the metropolitan area, but also in regional centres and regional ports to enable rail to be competitive with road. Freight handling terminals (such as Picton near Bunbury) may be required in regional centres such as Geraldton and perhaps Albany to allow the transhipment of freight across modes where it is viable. The facilities at Picton may also need to be upgraded.

This Working Group supports the findings of the Working Group 3 Report in respect for the need for infrastructure investment at Fremantle Port's North Quay. This will maximise the use of rail and link regions and regional ports to Fremantle inner harbour by rail.

Road transport will however, remain the most efficient and flexible way of moving non-bulk general freight throughout the State. This applies in regional areas because of the small, scattered population, the varied destinations, the low volumes, and the need for flexible delivery and reasonable turnaround. Few commercial enterprises stockpile large stocks of goods at outlet locations. Rather, road transport has become so efficient at short-order delivery, that goods are sourced from central stores and resupplied on demand with very high reliability and low direct cost.

Recommendation:

Shipping companies tendering for the North West Shipping Service be invited to consider making calls at Bunbury Port, if this can be done without jeopardising schedules to the north west.

4.2 *Grain*

Grain receival by Co-operative Bulk Handling (CBH) this financial year was 10 million tonnes, with a record of 12 million tonnes in recent years. Grain output in WA is expected to continue to increase in the future.

The pattern of grain movement depends not only on available infrastructure, but also on non-infrastructure influences such as oversees market demand, pricing policies and mixture of grain products purchased. There is strong competition between road and rail for grain transport in WA. Based on the current harvest size of 10 million tonnes, every one-percent shift in tonnage from road to rail will take about 2,000 truck journeys from road. Improving rail's competitiveness (eg by investment partnerships between the grain industry and the rail operator) is a key strategy to achieving the shift from road to rail.

There are two CBH owned grain-handling facilities in the metropolitan area. These are the Metropolitan Grain Centre (MGC) located at Forrestfield and the bulk-shipping terminal at Kwinana, which receives narrow and standard gauge railway deliveries direct from the wheatbelt. The MGC receives grain by road and rail. Transfers of grain from the MGC to Kwinana are all by rail. No direct road deliveries are accepted at the Kwinana facility. The MGC/Kwinana catchment area extends from Goomalling (North East) to Southern Cross (East) to Narembeen (South East) and Williams (South).

Of the 400,000 tonnes per annum delivered by road to the MGC, around 75% is direct from farms, with the remainder being haulage from CBH country receival points. The direct deliveries from farms reflect a range of factors including the opportunity to backhaul fertiliser and other farm supplies, which makes it difficult for rail to compete. Nevertheless, there may be scope for shifting some of this grain onto rail through the continuing development of CBH's Strategic Receival Points (SRP). As facilities and services are expanded at those sites they will become relatively more attractive as receival points for growers. Expansion at some of the SRP's is constrained by local planning issues and Government may be able to assist with addressing some of these issues.

However, with new grain handlers emerging in the market, it is possible that there will be a shift in the strategic collection locations that may change patterns of transport from those currently evident.

Recommendation:

Work with the grain industry through the Grains Logistics Committee to:

- *identify the Strategic Receival Points (SRP) best placed to attract grower road deliveries away from the Metropolitan Grain Centre (MGC);*
- *determine any barriers to the development of those SRP's which Government can assist in overcoming, and*
- *identify other initiatives, which could reduce road deliveries to the MGC.*

4.3 Fuel

Fuel distribution in Western Australia has been historically focused on regional ports as primary distribution sources. Shell, BP and Caltex have facilities at most of these locations. Shipping is most efficient where the delivery distance is long and the volumes of supplies are large. The sea journey between Fremantle and Bunbury is short and thus is not economically viable for a single destination service. However, the economics could be improved and incremental costs reduced if Bunbury was serviced by ships calling at other ports nearby.

There is a trend to switch from shipping to road transport for fuel delivery to a number of regions around the coast. The high cost of capital in storage facilities at regional ports and the cost of storing large amounts of product in the regions are negative factors in the fuel distribution business.

In addition to the use of shipping and ports for primary movement of product, fuel companies utilise rail wherever sufficient volumes are present that provide economic justification.

All current rail fuel transport movements are performed on the standard gauge rail network. The supply of fuel from Kewdale to the Eastern Goldfields by rail is

one example. No fuel is distributed on the narrow gauge rail network because there is no narrow gauge rail connection to the fuel facilities at Kewdale. There are also speed and capacity limitations of narrow gauge rail from Kewdale to regional areas.

Selection of the mode of distribution by oil companies is based on three criteria namely economics, safety and competition.

The supply options and flexibility in WA are constrained due to Government imposed Fuel Quality Regulations. Because of the strict regulations, motor spirit can only be sourced economically through BP's Kwinana refinery in WA.

The modal choice also depends on customers' needs. For example, road tankers have five compartments per tanker trailer. The loads can be custom loaded for each destination comprising diesel, motor spirit, and aviation fuels. Road tankers carry between 70,000 – 145,000 litres of product depending on truck configuration. Rail tankers, have single cargo capacity up to 75,000 litres per unit. Albany, Katanning, Merredin do not consume sufficient quantities of fuels to warrant rail transport. On-demand deliveries by road train can be easily be accommodated within 12 hours.

Fuel is a commodity that is hazardous when involved in spills or accidents in transit. This fact alone should justify a more proactive approach from Government and industry to look at a modal shift to shipping and rail from road where viable.

Opportunities and recommendation:

There may be some potential for fuel companies to revisit shipping options to regional ports where new dredging allows for bigger loads to be shipped. Esperance is one such example and it may be possible for petroleum companies to bring fully laden tanker ships from Singapore into the port on their voyages to supplying other destinations such as Geelong in Victoria. Further opportunities may arise in Geraldton if the harbour is deepened.

The scope for rail to carry bulk fuel on the narrow gauge rail network if access is provided at Kewdale, is also worth exploring.

Externality considerations associated with road transport and the most efficient use of publicly provided infrastructure may cause Government to consider some sort of intervention in the market place rather than leave it up to fuel companies' commercial judgement alone. Intervention might be in the form of support of other modes, regulation, reduction of costs of rail and shipping, raising road costs or providing infrastructure to assist non-road options.

Possible interventions need to be examined to ensure fuel transport takes into account externality considerations and the most efficient use of publicly provided infrastructure.

4.4 Fertiliser

There are three main fertiliser companies operating in Western Australia. They are CSBP, Summit and United Farmers Co-Operative (UFC). Annually 1.5 million tonnes of fertiliser are supplied to the WA market place with variations of 1.3 to 1.6 million tonnes. The WA fertiliser industry is very dependent on seasonal factors such as the size of the harvest and the state of the grains, sheep and beef markets. The movement of fertiliser over the year is largely influenced by rainfall. The business is seasonally based with 75% of the demand occurring in the May/June/July period.

In terms of transport patterns, fertiliser companies try to maximise back-loading opportunities with road grain haulage and offer incentives to individual farmers and their communities to collect their fertiliser direct.

Historically fertiliser plants were set up to access rail services during the era of freight regulation. Following deregulation in 1990, rail connections were removed from all plants to accommodate road transport.

Currently all three manufacturers of fertilisers have plants at Kwinana, Albany, Bunbury[8] and Esperance. Imports to the facilities are by ship and road transport. CSBP also has depots at Wagin, Merredin Dalwallinu, Goomalling, Tambellup, and Corrigin. These were put in place 25 years ago primarily to tie in with the rail network. None have rail connections today.

The fertiliser freight task is to move product back into the farming community, unlike grain, livestock, and timber, which is transported from the hinterlands to the ports. This creates opportunities for the fertiliser industry to create synergies with the transport providers to maximise backloading and therefore reduce farm-input costs. The potential for exporting industries to increase the use of rail, will have little effect on the transport practices of the fertiliser industry. This is because the tonnage of export commodities is significantly higher than the fertiliser output of 1.4 - 1.6 million tonnes back to the farms.

The entire product for the fertiliser industry is transported by road. The customer (farmer) arranges road transport with a local carrier or uses his own truck to collect the product from the most convenient fertiliser storage facility. CSBP also transfers product by road from its Kwinana plant to the ten country facilities.

From the fertiliser company point of view, the optimum arrangement is one where grain trucks back-load with fertiliser. Inbound grain or feedstock is delivered to the CBH Metro Grain Centre facility or feedstock handlers, then the trucks move to Kwinana to collect fertiliser before returning to the regional areas.

[8] Note CSBP plant at Bunbury will cease to produce fertiliser from 2003. The facility will become a receival point for product delivered (probably by road) from Kwinana.

Fertiliser companies no longer deal with a small number of products in bulk. CSBP for example, has 100 fertiliser products available making any form of product hard to load in bulk (500 to 1,000 tonne loads) and transport by rail. Local resellers do not have a preference to store large quantities of product. Farmers have a preference to drive their own trucks to obtain a customised blend of products in convenient loads, when they are needed.

Rail transport does however, play a part in the chemical business of fertiliser companies. For example, the CSBP chemical division at Kwinana uses rail for some chemical sales. Currently 71% of ammonia product and 85% of sodium cyanide is transported by rail from Kwinana to customers outside the metropolitan area.

Opportunities:

The working group understands that the fertiliser companies have a working relationship with Australia Western Railroad to look at synergies and opportunities should they arise. However, in the final analysis there would appear to be very little opportunity to effect a change in the way fertilisers are transported.

4.5 Livestock

The WA livestock export industry uses road transport for all of its haulage needs. The livestock haulage industry provides benefits in animal welfare, flexibility and cost. Livestock comes from every corner of the State. Transport destinations for live export include all regional ports north of Perth, Fremantle inner harbour and Esperance. Transport destinations for livestock for trade or slaughter range throughout the rural areas of the State.

Currently, the livestock industry hauls all export livestock from the South West and Great Southern regions to Fremantle Harbour. Some within the industry consider that Bunbury Port should be used for livestock exports. This would require the establishment of feedlots near Bunbury. This initiative could reduce the volume of sheep transported to Fremantle for export through the metropolitan area, by giving the industry an alternate export point closer to the source of livestock.

The industry believes that coastal shipping and rail can't provide better animal welfare, or the flexibility of road transport. Following deregulation of freight in the 1970's, all livestock rail wagons, handling and cleaning facilities were disposed of and are no longer available.

Opportunities:

Changes to livestock industry transport (which would reduce the traffic through the metropolitan area) can only occur when there is development of feedlots in the proximity of regional ports. The feedlots at Baldivis are considered limited in their potential to continue to service the livestock trade. Planning for new facilities may present an opportunity to develop regional feedlots and alternative export points.

In terms of the movement of livestock to and from the sales yards at Midland, the proposal for the relocation of the Midland saleyards to a site at Muchea would have limited impact on metropolitan roads. The Muchea site does lend itself to a rail connection should significant volumes of livestock be exported from that point in future. While rail would not be effective in supplying livestock to the facility, consolidated movement to the port is a possibility.

Recommendation:

Encourage development and location of feedlots and saleyards outside the metropolitan area to areas more suitable for handling the livestock trade through the use of appropriate planning policies and levers.

4.6 Timber

There are three main elements to the WA timber industry: hardwood and softwood sawn timber, and hardwood plantation timber for woodchips. The industry is located mainly in the South West corner of the State.

Hardwood and softwood sawn timber is drawn from a vast diversity of harvest and processing locations with relatively small loads being transported from forest to mill, and mill to customer. Road transport is used exclusively for this industry.

Virtually all hardwood and softwood products are consumed in the metropolitan area for home construction and furniture manufacturing. Suppliers and retailers of timber products do not keep large stocks of timber on hand and thus rely on an efficient, flexible road transport service to supply the materials at short notice when required.

Some timber products are exported from the South West through the metropolitan area. Approximately 400 TEU of hardwood export each year is carried by road to Fremantle Port. The opportunity to export containers through Bunbury regional port relies on self-geared ships calling at the port and having the volume of containers to justify the visits.

Hardwood plantations are located principally in the South West and Great Southern regions. The plantations produce woodchips for export. The current rate of export is 1 million tonnes, ultimately growing to 4 million tonnes by 2006. The transport task for this industry involves trucks sourcing logs from plantations and delivering these to fixed chip mill sites (central processing at Mirambeena near Albany and possibly at Donnybrook in the South West). The logs are chipped and stockpiled at the mills. The chips are then transported as required, by rail to Albany and (eventually) Bunbury ports.

Native hardwood logs are trucked to the Diamond mill near Manjimup and then railed as chips to Bunbury port.

Logs may be chipped in the field with road deliveries to port. There could be a significant increase in truck movement if in-field chipping becomes general practise.

The woodchip industry currently has no traffic impact on the metro area and is unlikely to have any impact in the future.

Fibreboard is manufactured at the WesFi plant located at Dardanup from pine chips sourced from mill residue mostly from Wespine, (also at Dardanup) and residue logs from pine plantations in the South West. The majority of the fibreboard product is then trucked to the rail terminal at Kewdale and transported by rail to Eastern States customers.

Recommendation:

Encompassed in the recommendation in *Section 3.3 Rail Transport*, is that WARAC examine the opportunity for rail to compete for the movement of fibreboard product between Dardanup and Perth.

Appendix 1 – Project Description

Project Description

The initial strategy would be to better understand why road is generally the preferred mode for freight movement and why shipping and rail are not used more for freight transport. Issues to be investigated include:

- potential for current and future modal shift, especially in relation to use of regional ports;
- impediments to current and future modal shift;
- external impacts associated with road transport; and
- extent to which rail and shipping using regional ports are currently commercially unattractive alternatives.

The reasons for not using shipping may differ from those for not using rail and specific case studies will be required. The situation is also likely to differ in some respects depending on the types of freight namely:

- container [C];
- break Bulk [BB] eg large machinery, cement bags. [includes some dangerous goods];
- bulk [B] eg fuel.

Once the influencing factors are clearly understood, justification for Government intervention (on grounds such as avoidance of road damage, traffic crashes, pollution and provision of community amenity) will need to be investigated.

Interventions, which may be considered, include:

- subsidisation of services
- regulation (to address safety, environmental issues etc)
- discounting of costs associated with shipping
- review fees and charges associated with road transport (to more equitably meet costs)
- provision of supporting infrastructure (for shipping, port requirements, access etc)
- seeking changes to Federal Government policies

Appendix 2 – Objective, Project Focus and Methodology

Objective

The overall goal for the Freight Network Review is to achieve a freight system that is:

- efficient, integrated, safe and sustainable (concurrently meeting economic, social and environmental goals);
- stable, (for the understanding and planning for industry and the community) over the longer term, and
- flexible in allowing for growth and change

Project Objective

Where commercially and economically viable, shift a significant proportion of the current and future regional freight task from road transport towards shipping (especially via regional ports), and/or rail with a view to:

- promoting regional development, and
- reducing negative external impacts associated with road transport.

Project Focus, Methodology and Context

Study focus:

This study focuses on:

1. The opportunity to shift from road to sea exports and imports from overseas by
   - shipping direct to/from regional ports, OR
   - shipping between Fremantle and regional ports.
2. The opportunity to shift products that have their origin or destination in regional WA from road to:
   - rail so that the freight moves by rail to/from Perth, and
   - sea by achieving greater use of regional ports.

The study does not deal with the opportunity to shift from road to:

1. Sea for the shipping of interstate exports/imports between Fremantle and Eastern States ports, because this has no discernible effect on the metropolitan road transport task.
2. Rail for the interstate container freight because rail already holds 70-80% of the mode share and is actively pursuing more using double stacking, *Trailer Rail* and *Trailer-on-Flat-Car* (TOFC) initiatives.

3. Rail for overseas exports/imports passing through the Fremantle inner harbour because another Working Group is examining this issue in detail.

In further defining its focus, the working group decided not to consider trade passing through the ports of Broome, Port Hedland, Dampier, and Esperance because of the very slight impact and potential impact on the metropolitan road network.

The ports of Geraldton, Bunbury, and Albany are considered possible alternative handlers of some freight being currently moved through the metropolitan area either into or from the regional areas.

Methodology

The Working Group conducted research and considered a number of studies pertinent to this topic. In addition, the Working Group decided to tap into the knowledge and experience of people in industry, government, and the community. A Think Tank was held where industry representatives outlined how and freight was currently moved by particular modes and the constraints and opportunities for shifting freight off road and onto rail or ships. Small groups then generated strategies for encouraging modal shifts.

The industries chosen to present at the Think Tank were the ones most relevant to the freight task in the area of interest to the Working Group. These included representatives from the grain, fuel, fertiliser, timber, livestock, container, road and rail industries.

This report is a distillation of the information gleaned from the Working Group's research and the Think Tank.

Appendix 3 –Heavy Vehicle Road Cost Recovery.

Cost Recovery

The extent to which heavy vehicles pay for the costs associated with their use of the road system is a hotly debated and long-standing issue. This note summarises the status of the issue in Australia.

(i) Road user charges for heavy vehicles (those having a gross mass over 4.5 tonnes) are set at the national level by Commonwealth, State and Territory transport Ministers, following recommendation from the National Road Transport Commission (NRTC).

(ii) The road user charges comprise two elements: a fuel charge (currently 20 cents per litre) and a registration charge (which varies according to vehicle type). The fuel charge is collected through the Commonwealth fuel excise but there is no clear link between the funds raised and funds ultimately spent on the road system. On the other hand, funds from registration charges in WA flow directly to MRWA for expenditure on the road system.

Note that the 20 cents per litre equates to what most of the heavy vehicle fleet pays in fuel tax after the diesel fuel tax rebate is taken into account (this is explained further under point (vii)).

(iii) In calculating heavy vehicle charges the NRTC assesses the proportion of road expenditure which can be attributed to each vehicle class taking into account vehicle characteristics such as size and weight and distances travelled. The methodology used has been developed and refined over a number of years but remains contentious. At this point in time, however, it is the basis on which Ministers determine the national charges.

(iv) The NRTC approach is designed to achieve full cost recovery for each vehicle class. In other words, revenue generated by the fuel charge and the registration charge for each class of vehicle is sufficient to cover the road expenditure allocated to that vehicle class.

(v) It is important to recognise, however, that the NRTC's assessments are based on averages within each vehicle class. Therefore, while for example semi-trailers as a vehicle class meet their road costs, operators who carry above average loads and/or travel above average distances will under-recover their road costs. Equally, those operating below average loads and distances will over-recover. To a large extent this reflects the essential limitations of the road user charge mechanisms currently available (ie fuel and registration charges) which don't allow variation in loads and distance travelled to be accurately reflected in charges.

This can be significant for inter-modal competition as rail generally competes against trucks, which carry high loads and operate at high utilisation levels.

(vi) It is also important to recognise that the NRTC assessment only takes into account direct road expenditures (such as maintenance and capital works for enhancing capacity or extending the network). So called "external" effects such as noise and air pollution, accident costs (other than those covered by insurance), congestion and greenhouse emission are not taken into account. A rate of return on capital invested in the road system is also not part of the assessment because capital works are incorporated as they are incurred. The implications of a move from the current system to one based on depreciation and return on capital are not clear.

(vii) Following recent tax reforms, a large part of the heavy vehicle fleet pay fuel tax which equates to the NRTC's assessed fuel charge (ie 20 cents per litre). Heavy vehicles over 20 tonnes gross and those over 4.5 tonnes gross, which operate outside metropolitan areas, are eligible for a diesel fuel tax rebate which effectively reduces fuel tax to 20 cents per litre.

Prior to the tax reforms when all operators had to pay fuel excise in the region of 37 cents per litre, it could be argued that heavy vehicle operators were making a contribution to "external costs" and/or were being taxed excessively. For those operators eligible for the fuel tax rebate, this is no longer the case.

(viii) Estimating the dollar value of "external costs" and under-recovery of road costs by certain vehicles, as discussed above, is a difficult task and some of these costs will vary according to location and even time of day. Work needs to be undertaken to refine current estimates to enable their use in policy and road user charge assessments.

In summary:

- Based on current national methodology, heavy vehicles, both in total and for each class of vehicle, pay road user charges, which cover road costs attributed to them.
- Individual operators within each vehicle class may under or over-recover depending on their operating characteristics.
- Apart from registration charges, funds from road user charges do not flow directly into road funding.
- Effects of road vehicle operations such as congestion and pollution are not taken into account in the setting of road user charges. A rate of return on the road asset is also not included though the implications of this are not clear.

Appendix 4 – Action Spreadsheet

RECOMMENDATION ACTION SHEET: WORK GROUP 4 - REDUCE METRO ROAD FREIGHT BY USE OF SHIPPING AND RAIL						
Number	***Recommendation***	***Background***	***Estimated Cost***	***Source of Funds***	***Timing***	***Lead Action Agency***
1	DPI portfolio should give consideration to more clearly defining the impacts of road transport compared to those of rail and sea on issues such as safety, air and noise pollution, greenhouse emissions and assess the extent to which Government can and should seek to influence decision making in the market place to reflect these impacts.	This addresses the need to extend decision making processes beyond economic factors to embrace social and environmental issues in order to achieve balanced outcomes.			Discussion paper by end of 2002.	DPI
2	Planning consideration should be given to establishing future bulk handling freight terminals East of the Darling Scarp, where the opportunity exists to transport commodities by rail to ports.	It would be preferable to minimise the development of any future bulk handling terminals within the metropolitan area in order to consolidate freight away from sensitive areas and maximise use of rail through the metro area.			Ongoing	WAPC / DPI
3	Government should adopt supportive financial policies for port authorities on matters such as rates of return, dividends and borrowings to allow them to retain income and to undertake capital investment for commercially viable projects.	Port authorities need to be able to capitalise on trade opportunities with reduced constraints to their ability to make capital investments.	$ 9 M in total for North Quay project	Gov't	Ongoing	DPI / Treasury
4	In order to link the regions and regional ports effectively by rail to the Fremantle inner harbour, a narrow gauge connection should be incorporated in an upgraded rail link.	The regional cities and ports of Geraldton, Bunbury and Albany are serviced by narrow gauge railways. It is vital that these railways can link into the Fremantle inner harbour to provide the maximum opportunity to win freight			Complete by end of 2004	WAGR

		business from road.				
5	In order to realise the potential for rail to compete with road for increased freight business, an approach needs to be developed to fund improved rail infrastructure where the opportunities exist to bring about a modal change.	Not all capital investments needed in rail infrastructure can or would be made by the rail operator.			Draft policy by end of 2002.	DPI
6	That the West Australian Rail Advisory Council (WARAC): 1. Examine the opportunity for rail to compete for the traffics identified in this report including: • container movements between Albany and Fremantle, and Bunbury and Fremantle; • movement of fibreboard product between Dardanup and Perth; • narrow gauge rail movement of bulk fuel, and • movement of export containers (eg hay). 2. Identify other opportunities for rail to improve its market share through means such as: • reducing intermodal transfer costs; • aggregating traffics to achieve viable train loads; • adopting alternative types of train operations, and • provision of key infrastructure connections or improvements (eg rail link to Kemerton industrial estate). 3. Work with transport users and rail operators to determine action plans to expand rail's role in the above areas where economic, social and environmental benefits can be identified.	A concerted effort is needed to promote a paradigm shift in the use of the rail network for freight transport.			By June 2003.	DPI / WARAC

7	Shipping companies tendering for the North West Shipping Service be invited to consider making calls at Bunbury Port, if this can be done without jeopardising schedules to the north west.	The opportunity for Bunbury Port to compete for trade opportunities needs to include the potential for coastal shipping services where viable.			By July 2002.	DPI
8	Work with the grain industry through the Grains Logistics Committee to: Identify the Strategic Receival Points (SRP) best placed to attract grower road deliveries away from the Metropolitan Grain Centre (MGC); Determine any barriers to the development of those SRP's which Government can assist in overcoming, and Identify other initiatives, which could reduce road deliveries to the MGC.	There may be opportunities for the grain industry to consider further opportunities and initiatives to make more use of rail in the transport of grain.			Initial report by end of 2002.	DPI / GLC
9	The Department for Planning and Infrastructure examine possible interventions to ensure fuel transport takes into account externality considerations and the most efficient use of publicly provided infrastructure.	Fuel companies are showing a preference to shift the delivery of fuel from shipping to road for a number economic reasons. This has occurred at Albany and Geraldton (in part) and may occur elsewhere.			Discussion paper by end of 2002	DPI
10	Encourage development and location of feedlots and saleyards outside the metropolitan area to areas more suitable for handling the livestock trade through the use of appropriate planning policies and levers.	There may be opportunities in the future to relocate some of the live export activities from the metropolitan area to regional ports. This will require the development of feedlots and appropriate facilities near to the ports.			Ongoing	DPI / WAPC