PACIFIC NATIONAL NETWORK AND ACCESS ("PNNA")

VICTORIAN RAIL ACCESS REGIME

SUBMISSION ON PRICING

TO THE ESSENTIAL SERVICES COMMISSION

Attachments

HISTORY OF ACCESS FEES

WEIGHTED AVERAGE COST OF CAPITAL

OPERATING MARGIN

COST ALLOCATION PRINCIPLES

PRICING RISK AND EFFECTS OF MODAL SHIFT
PACIFIC NATIONAL NETWORK AND ACCESS (“PNNA”)
VICTORIAN RAIL ACCESS REGIME
SUBMISSION ON COST ALLOCATION PRINCIPLES
TO THE ESSENTIAL SERVICES COMMISSION

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1 Executive Summary

This paper is prepared by of Pacific National, Network and Access to examine the most appropriate network usage measurement for costs that cannot be directly attributed on the network. This includes an examination of other network policies in alternative jurisdictions.

Gross tonne kilometres (GTK) are most often used as a measure and cost allocation for maintenance costs, but train kilometres (TK) are usually used for other costs, such as operational costs.

GTK is an appropriate measure when network usage exceeds one million gross tonnes per annum per kilometre, as is the case in other jurisdictions examined. In Victoria this volume is not achieved and therefore TK should be used for all cost allocation, including maintenance.
Network Usage Measurement.

2 Introduction:

Pacific National Network and Access Division (“PNNA”) is required to distribute costs on a fair and equitable basis where costs are not directly attributable to any part of the network. This requires some form of usage measurement that reasonably reflects the consumption of the services provided by PNNA.

3 Appropriate “Fair and Reasonable” cost distribution:

Measurement must, to be economically sound\(^1\), in some way be a proxy for the cost drivers of the network. That is, if the maintenance of the network is driven by wear and tear on the network, weight of trains on the network can be used.

There are three possible scenarios, time charge, and weight by distance charge or distance charge. Time generally applies to terminals, where the activities are static, but is not considered here.

Typically in Australia this is done by using Gross Tonne Kilometres (GTK), which reflects the weight of traffic per kilometre on the network. This is the most common measurement for rail freight networks. In coal line networks, where multi millions of GTK pass over a line section is appropriate to use GTK given the impact of train weight on maintenance costs. This is due to the rate of maintenance on the networks is usually driven by usage. This is considered to be lines where in excess of one million gross tonnes per annum operate over the line\(^2\). References papers used by the QCA and quoted by the ESC do not record the effect on costs where networks are actually below 10 Million Gross Tonnes.\(^3\) This is the case in the Victorian network which is actually considerable lower than this threshold and consequentially has different cost drivers.

Train Kilometres (TK) are used on the Australian Rail Track Corporation (ARTC) network to charge a pathway reservation fee. This forms the fixed part of the two tiered access charge. ARTC charges a fixed fee to allocate a pathway for an operator to occupy the track. This fee is a “take or pay” fee and reserves the right of the operator to a timetabled pathway. This component reflects a contribution to the fixed cost component of the network.

\(^1\) ESC RA2/2002 Determination Statement, page 9 see also page footnote 6, page 6.

\(^2\) Benchmark Infrastructure Costs, GHD Report for the ESC, November 2002, Page 38.

\(^3\) QCA – Draft Decision re: QR’s Draft Undertaking Vol 4 (Dec 00) - Working Papers, page 9
On a network, that is capacity constrained, “ownership” of a pathway is a critical element to an operator’s competitive edge and is a valuable asset. The ARTC fixed fee is roughly 40% based on TK and the variable fee is roughly 60% based on GTK. This charging structure is reflective of its costs in that they are driven primarily by gross tonnage. ARTC has an allocation of non-specific costs to the line segments on this ratio. The fee reflects the cost allocation formulae.  

The ESC determined that on Victorian grain lines, the proportion of maintenance cost affected by traffic on grain lines was approximately 5%. It is also unusual for networks charging GTK to have significant passenger train volume usage. Passenger trains are light and high frequency. Their weight does not have any significant impact on costs. However, lighter, faster, more frequent trains do impose additional costs on the network owing to the need for greater services, better track, and increased signalling maintenance.

The trend in passenger service operation is to reduce reliance on locomotive hauled services and substitute newer light weight self powered passenger units. The separation and privatisation of the freight and passenger operations meant that the synergies in operating similar fleets were outweighed by the increased operational cost. These behaviours were not contemplated in the original pricing formulas in Victoria.

Victoria has also legislated for Passenger Train priority, providing right of way for passenger trains over freight usage. This results in increased costs for freight usage as they are forced to undertake activities at more expensive times of the day, i.e. night. The net impact of using GTK over TK is that while costs are increasing the actual charge is decreasing. This appears to be in conflict with the principles outlined by the ESC.

This and the minimal impact of usage of the network on costs, indicates that in Victoria the use of TK would be more appropriate.

4 Previous Victorian methodology: 

Victoria adopted a hybrid 50% GTK/50% TK formula, prior to the published research above and referred to in subsequent decisions of the ESC. This formula was adopted from the Treasury’s Country Pricing Principles (Issued in about 1998), but does not provide supporting reasons for the use of this formula.

It appears to be a compromise between the competing interests of selling off the passenger business and freight businesses, where sale price was the dominant consideration and the government funded passenger access fees and subsidises passenger train operations.

The access pricing formula was conceived in an entirely different network usage profile, pre Regional Fast Rail (RFR), where a large percentage of passenger services were locomotive hauled and so more equally attracted a GTK component of the charge. Since

4 ARTC Undertaking Version 4 April 2002, clause 4.4 (f)
then the network has been significantly modified, more passenger services operate on dedicated passenger lines (eg Ballarat to Ararat.)

The net effect of charges using a component of GTK in the charging and cost distribution mechanism will be an unreasonable allocation in costs from the passenger services towards freight services and so cause unfair and unreasonable outcomes.

5  **Examples of cost allocation in other jurisdictions**

5.1.  **ARTC**

ARTC has adopted a formula for allocating non-specific maintenance costs on the basis of 60% GTK and 40% TK for maintenance costs, but 100% of non-specific maintenance costs are attributed on a TK basis. ARTC has about 10 million gross tonnes per kilometre per annum over their lines. This volume validates that train weight has an influence on maintenance cost and hence, maintenance cost allocation partially on a GTK basis. However, it is interesting to note that where the quantum of costs is not dependent on weight the ARTC allocates costs on the basis of TK and not GTK. This suggests that were costs are not dependent on weight it is more appropriate to allocate costs on the basis of TK.

5.2.  **QR**

In Queensland, similarly there is a reliance on a 50%GTK and 50% TK formula for maintenance related activities where high tonnages would be a contributing factor. Non-specific costs range from 100% TK, 75% TK and 25% GTK, to the maximum of 50% GTK for network administration costs, probably reflecting the proportional costs of maintenance.

QR operates approximately 8 million gross tonnes of freight on their network, per kilometre per annum, however this figure excludes passenger tonnes, so the figure is actually higher. QR line tonnages are also within the threshold of network usage where network usage is a contributing factor to costs.

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6 ARTC network is 3600km (http://www.ara.net.au/full.php) by 9.05 Billion GTK in December Quarter 2003 (ARTC Annual Report 2005, page 9)


6 Usage of the Victorian Intrastate Network

6.1 Usage

In comparison the PN Victorian network has 4100 km. In the 2005 financial year this network had 3.9 billion GTK, equating to less than 1 million tonnes per kilometre over the network per km per annum. That is less than 15% of the traffic on the above networks and below the recognised threshold for significant usage driven costs to be incurred. That is, costs are predominantly environmentally driven.

Partial reliance on GTK is adopted elsewhere, but the tonnages in Victoria are below the threshold level recognised as justification for this method.

As discussed later in this paper, the traffic profile on the Victorian PN network has changed and growth has been in the passenger market. The passenger market has driven network cost increases. However correspondingly, passenger trains have become lighter as is shown by table 6.2. The Victorian network has faced decreasing GTK while at the same time increasing cost suggesting again that GTK is an inappropriate measure to allocate costs.

Unit costs per passenger GTK would be reducing, whilst these costs would “spill” to freight costs under a GTK allocation structure. The World Bank comments,

- “The experience in Victoria … suggests that low-density networks are difficult to commercially sustain whether in public or private ownership”9
- “Privatisation … will not necessarily make low density lines economic … it may improve performance of light density lines”10
- “rail access regimes …there has been no evidence of price gouging … due to extremely competitive markets”11

PN notes that use of GTK over TK will result in increased costs for freight operators which are likely be detrimental to competition in the freight market. Furthermore, the use of GTK over TK will result in a further barrier for competition on the PN network as the costs structure of a new entrant will be above those of new entrant on the road network.

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10 Ibid, page 52.
11 Ibid, page 51.
6.2. Proportional usage of the Victorian BG Network

Table 6.2

<table>
<thead>
<tr>
<th>Year</th>
<th>Whole Network Freight Proportion</th>
<th>Shared Network (Passenger Network) Freight Proportion</th>
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<tr>
<td></td>
<td>GTK</td>
<td>TK</td>
</tr>
<tr>
<td>1998</td>
<td>72%</td>
<td>34%</td>
</tr>
<tr>
<td>2001</td>
<td>80%</td>
<td>35%</td>
</tr>
<tr>
<td>2002</td>
<td>81%</td>
<td>35%</td>
</tr>
<tr>
<td>2003</td>
<td>74%</td>
<td>28%</td>
</tr>
<tr>
<td>2004</td>
<td>78%</td>
<td>31%</td>
</tr>
<tr>
<td>2005</td>
<td>76%</td>
<td>30%</td>
</tr>
<tr>
<td>Post RFR</td>
<td>65%</td>
<td>19%</td>
</tr>
</tbody>
</table>

The above table indicates the changes in passenger services since 1998 when the original access fee calculations were prepared, to the Post RFR service, delivered by V/Line Passenger (VLP). Post RFR the average weight, as measured by GTK, is expected to fall significantly from 59% on the shared network to 38% and from 76% on the whole network to 65%. This reflects the close of some lines on the shared network to freight operators due to the introduction of new light railing stock which is able to perform at higher speeds on a more frequent basis. This will result in the diversion of freight trains from the passenger network to the dedicated freight network.

There have been significant changes in the services operated over the network. VLP has reduced the services operated by locomotive hauled trains and it’s fleet will eventually be entirely made up of V’locity or Sprinters. VLP average services have become 22%
lighter, while the number of services has increased over 50%. The growth in intensity of services on the network has been achieved by capital improvements and diverting more freight services off passenger lines.

Freight services have also become more efficient. Freight trains now operate one third of the number of TK on the passenger network and have significantly increased loads.

The conclusion is passenger rail services have significantly increased on the network, requiring freight train diversions. Passenger services have priority on use of the network, but would attract less cost, if fees are based on GTK, or influenced by GTK. This is inconsistent with the ESC’s stated policy that the new access regime is to have no effect on costs on the Victorian network. Freight efficiency gains have been more than offset by passenger service changes and so are disadvantaged by GTK measurement in pricing. That is, freight efficiencies have been matched by the proportional decrease in the weight of passenger services. Under the GTK approach to pricing this would result in these efficiency gains effectively accruing to the passenger service. This cross subsidisation is not supportable in the Victorian environment where costs are increasing as a result of passenger services as the incentives produced by GTK place further pressure on the freight network.

6.3. Victorian network cost drivers:

The Victorian network as stated previously, does not achieve volumes that would have a material impact on network maintenance costs. Across the network, the average gross tonnes per annum per kilometre are less that one million. Therefore predominantly maintenance costs are, as noted, environmentally driven. That is, costs are not due to the volume on the network but are based on environmental factors such as natural decay. This means that GTK on the network will only minimally influence costs. In addition to costs which are environmentally driven, there are significant operating costs which should be shared over the freight and passenger networks on the basis of TK as they are not based on the tonnage on the network.

It is inefficient to charge passenger services by GTK as it does not reflect the cost drivers for a passenger based network. The VLP contract provides only for TK measurement, which is an indication at the time, that GTK was not contemplated as a fair and reasonable measure.

The intensity of services operating on the network does have an influence. Cost increases in the operation of the network have been driven by increased passenger services, higher track standards for passenger services and the extension of the passenger network.

Furthermore, passenger priority and density results in significant freight train movements at night which incur higher network operating costs and train operations costs.

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12 ESC RA/2002 Determination Statement, page 156.
These contributing factors, coupled with the fact, unlike the ARTC and QR networks, that passenger services are dominant on the Victorian network, then a measure more accurately reflecting the impact of this type of service should be used. While GTK is appropriate where costs are driven by tonnage on the network, TK is more appropriate where costs are not directly influenced by train weight. Given that the costs associated with Victorian network are not directly related to weight, i.e. track and sleeper costs are driven by environmental factors and other operating costs reflect operational requirements of the passenger and freight networks, TK is the appropriate allocation basis for costs.
PACIFIC NATIONAL NETWORK AND ACCESS (“PNNA”)

VICTORIAN RAIL ACCESS REGIME

SUBMISSION ON WEIGHTED AVERAGE COST OF CAPITAL

TO THE ESSENTIAL SERVICES COMMISSION

Executive Summary

Pacific National has been requested by the Essential Services Commission (ESC) to provide justification for a rate of return on capital invested in the Victorian Rail Network as part of its Access Undertaking. In accordance with the ESC Rail Access Pricing Guideline, Pacific National has calculated WACC on a pre-tax real basis with the components based on Capital Asset Pricing Model (CAPM) theory.

Calculation of WACC require a series of market observations, including risk-free rate of return, inflation and market risk premium in addition to estimates of equity and asset betas. These estimations have been based on review of comparable companies, taking into account the different capital structures of each company.

The results of this analysis provide a pre-tax real WACC of 8.07% based on an equity beta of 1.053. This is considered to be in-line with expectations and suitable for a network operator with the systematic risk profile of Pacific National.

<table>
<thead>
<tr>
<th>WACC Parameters</th>
<th>PN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Risk Free Rate</td>
<td>5.26%</td>
</tr>
<tr>
<td>Real Risk Free Rate</td>
<td>2.69%</td>
</tr>
<tr>
<td>Inflation Rate</td>
<td>2.50%</td>
</tr>
<tr>
<td>Cost of Debt Margin over rf</td>
<td>1.24%</td>
</tr>
<tr>
<td>Nominal pre-tax cost of debt</td>
<td>6.50%</td>
</tr>
<tr>
<td>Real pre-tax cost of debt</td>
<td>3.90%</td>
</tr>
<tr>
<td>Market Risk Premium</td>
<td>6.00%</td>
</tr>
<tr>
<td>Corporate Tax Rate</td>
<td>30.00%</td>
</tr>
<tr>
<td>Gamma</td>
<td>50.00%</td>
</tr>
<tr>
<td>Proportion of Equity Funding</td>
<td>60.00%</td>
</tr>
<tr>
<td>Proportion of Debt Funding</td>
<td>40.00%</td>
</tr>
<tr>
<td>Debt Beta</td>
<td>0</td>
</tr>
<tr>
<td>Asset Beta</td>
<td>0.634</td>
</tr>
<tr>
<td>Equity Beta</td>
<td>1.053</td>
</tr>
</tbody>
</table>

Pre-tax real return on equity          8.07%
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1. Introduction

Pacific National has been requested by the Essential Services Commission (ESC) to provide justification for a rate of return on capital invested in the Victorian Rail Network as part of its Access Undertaking.

The methodology adopted in developing this rate of return is based on the weighted average of cost of capital (WACC) framework and capital asset pricing model (CAPM) formula. The parameter values have been appropriately sourced and justified, based on comprehensive research of comparable firms and available data.

1.1. Methodology

The purpose of weighted average cost of capital (WACC) is to provide a discount rate, or time value of money, for converting an expected cash flow generated from an investment into present value for all investors (i.e. creditors and shareholders). The WACC can be interpreted as either the:

- Regulatory rate of return for determining a price path within a regulatory period;
- Commercial rate of return for the purpose of valuing an asset, business, or investment opportunity, or
- Hurdle rate evaluating potential financial strength of a project.

This submission has been prepared on the basis of determining a regulatory rate of return.

Whilst there are a number of different WACC representations, Pacific National has calculated the Pre-tax real WACC in accordance with the ESC Rail Access Pricing Guideline.

The formula for pre-tax real WACC to be developed in this submission is expressed as follows:

\[
\text{WACC} = \frac{E}{V} \left( \frac{k_e}{1 - t_c(1 - \gamma)} \right) + \frac{D}{V} k_d
\]

Where:
- \(k_e\) = After tax cost of equity;
- \(k_d\) = Nominal pre tax debt rate;
- \(t_c\) = Corporate tax rate;
- \(D\) = Market value of interest bearing debt;
- \(E\) = Market value equity;
- \(V\) = The market value of the entity \(V = D + E\); and
- \(\gamma\) = Franking credit utilisation (“Gamma”).

1.2. The Cost of Equity

Determination of the cost of equity is an exercise in pricing risk. This requires an estimation of risk and its incorporation into a pricing model.
The framework for pricing risk is provided by modern portfolio theory which was developed by Harry Markowitz in the 1950s. This theory demonstrates the case for investors to hold a diversified portfolio of risky assets, rather than a single risky asset. Portfolio risk is not solely a function of the risk of each asset in the portfolio, but also of the correlation of returns between each pair of assets in the portfolio.

Building on this theory, and adopting some simplifying assumptions, a model for pricing risky assets was developed (independently) by three academics in the 1960s. This is the Capital Asset Pricing Model ("CAPM"). The classical specification of this model is commonly known as the Sharpe-Lintner model.

Unlike the cost of debt, the cost of equity is not directly observable for an unlisted corporation such as Pacific National. There are a number of methods for estimating the cost of equity. These methods include the Capital Asset Pricing Model (CAPM), the price/earnings (P/E) ratio method, the dividend growth model and arbitrage pricing theory (APT). The most common practice in Australian in calculating the WACC has been to use the CAPM approach. This approach has been adopted by Australian regulators, including the Australian Competition and Consumer Commission (ACCC) and the Independent Pricing and Regulatory Tribunal (IPART).

Therefore, Pacific National has adopted the CAPM method to estimate its cost of equity for the WACC calculation. The general formula for CAPM is:

\[ r_e = r_f + \beta (E(r) - r_f) \]

Where:
- \( r_e \) = Expected return on equity;
- \( r_f \) = Risk free rate of return;
- \( \beta \) = Beta of the investment being valued; and
- \( E(r) \) = Expected return on market equity.

### 1.3. The Cost of Debt

The cost of debt (\( R_d \)) should be determined based on the weighted average market yields for the business' outstanding debt, plus issue costs. On some occasions it may be appropriate to use a "short cut" method based on a benchmark market yield, such as a Government stock rate (\( R_f \)), plus a borrowing margin (\( m \)) as follows:

\[ R_d = R_f + m \]

In estimating the cost of debt for use in a WACC estimate, the objective is to arrive at an overall estimate of the weighted average cost of debt finance for the company of interest as if it were refinancing all of its debt at the valuation date, consistent with the gearing assumption being used in the WACC calculation. Where several types of debt or quasi-debt instrument are on issue from the company of interest the weighted average yield to maturity of all types of debt on issue needs to be assessed.
2. Key parameters

2.1. Risk-free rate

The risk-free rate represents the rate of return on an asset with zero default risk. Under strict CAPM principles, the risk free rate of return should be set on a forward-looking basis and reflect risk free returns which investors can currently obtain in the market. But as this requires subjective forecasting, conventional wisdom has seen the recent average yield on Government Bonds used as a proxy instead.

For the purposes of this submission, a 10-year bond yield of 5.26% was used to estimate the nominal risk free rate. Using an inflation rate of 2.5% (justified below), a real risk-free rate of 2.69% was inferred via the fisher equation.

2.2. Cost of Debt

As discussed above, the appropriate cost of debt for Pacific National is the blended rate across each of its existing facilities of 6.5% (including 1.24% debt margin).

2.3. Estimating Equity and Asset Values

Estimating the equity and asset betas for a particular firm which is not publicly traded is somewhat problematic given the CAPM’s reliance on market data to assess the implied risk associated with an individual company. However, these issues can be addressed through the use of benchmark firms which provide a comparison of the risk associated with similar investments in the market place.

2.3.1 Methodology

The CAPM uses the portfolio theory of finance which classifies risks into two types of risk:

- Systematic risk: non-diversifiable risk applicable to the market and the economy as a whole such as inflation, levels of economic growth, taxation rate increases and rises in interest rates. Systematic risk is often caused by socio-economic and political events and in CAPM is measured by the equity beta.
- Specific risk: the residual risk unique to the entity or to a small group of companies that forms a subset of the market. Specific risks are not considered in estimating WACC as they can be minimised by holding a diversified portfolio.

Pacific National faces several different specific risks such as seasonal variance, achieving track maintenance cost targets and running to time schedules. However, greater exposure to industry specific fluctuations such as losing market share to alternative transport modes is not compensated through an increasing beta under the CAPM. The equity beta should reflect only systematic risk. The CAPM views specific risks as risks which are potentially diversifiable.

Under the CAPM, the only component of risk that is priced by investors into returns (via the equity beta) is systematic risk. This is because the CAPM assumes that investors will hold diversified portfolios of assets rather than single asset because diversification reduces risk and
is costless. Systematic risk is the only risk that matters since it cannot be eliminated through diversification. Beta is a measure of an asset’s systematic risk relative to a market portfolio of assets such as the All Ordinaries Index. In this context, risk is defined by the extent to which returns of a particular listed stock co-vary with the returns of the market overall (as represented by the All Ordinaries Index).

While beta is an expected risk, as expectations cannot be observed, conventional practice is to estimate the future from historical beta values. Beta is generally measured by statistical regression of the observed historical returns of a company against returns on a market index. The market portfolio has an equity beta of 1.0. An equity beta greater than 1.0 implies that the returns on a stock are, on average, more volatile, and hence the stock is more risky, than the market, whilst an equity beta of less than 1.0 implies the reverse.

Betas derived from stock market observations represent equity betas, which also reflect the degree of financial gearing of the company. The gearing level is a key determinant of financial risk and a higher level of gearing produces a higher equity beta. Consequently, it is not possible to compare the equity betas of different companies without having regard to the gearing levels of the different companies for which equity betas are being observed. In comparison, asset betas are not affected by the gearing of entity under review. Accordingly, it is asset betas that should be compared for the purposes of benchmarking risk. However, as only the equity beta is directly observable, the asset beta must be derived from equity betas. Further, the observed equity beta implies an asset beta for a given gearing ratio. As such the equity beta must be de-leveraged to determine an un-geared asset beta. The de-leveraged asset beta is determined as follows:

$$\beta_a = \beta_e \left(1 - \frac{D}{V}\right)$$

Once this asset beta has been determined it must then re-leveraged to the appropriate gearing of the business. The re-leveraging process is achieved using the Monkhouse formula. The Monkhouse formula is as follows:

$$\beta_e = \beta_a + (\beta_a - \beta_d) \times \left(1 - \frac{R_d}{(1 + R_d) \times t}\right) \times \frac{D}{E}$$

2.3.2 Market observations

Pacific National has used market observations obtained from the Bloomberg database to determine the average equity beta of 25 comparable firms, 6 Australian and 19 international, to determine a representative equity beta (for a given gearing ratio). The results of this equity beta analysis are presented in Table 2.1.
Table 2.1 International Equity Beta Analysis

<table>
<thead>
<tr>
<th>Name</th>
<th>Raw Equity Beta</th>
<th>De-leveraged Asset Beta</th>
<th>Market Capitalisation</th>
<th>D/D+E</th>
<th>Net Debt</th>
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<tbody>
<tr>
<td>Qantas Airways Ltd</td>
<td>0.902</td>
<td>0.542</td>
<td>6,395.08</td>
<td>0.399</td>
<td>4,238.70</td>
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<td>Toll Holdings Ltd</td>
<td>1.233</td>
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<td>4,312.05</td>
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<td>Patrick Corp Ltd</td>
<td>0.782</td>
<td>0.686</td>
<td>4,769.43</td>
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<td>670.75</td>
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<td>Macquarie Infrastructure Group</td>
<td>1.189</td>
<td>0.983</td>
<td>9,005.94</td>
<td>0.173</td>
<td>1,883.75</td>
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<td>Transurban Group</td>
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<td>0.682</td>
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<td>Transfield Services Ltd</td>
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<td>MTR Corp</td>
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<td>SMRT Corp Ltd</td>
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<td>0.432</td>
<td>1,397.38</td>
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<td>Jungfraubahn Holding AG</td>
<td>0.331</td>
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<td>National Express Group PLC</td>
<td>0.573</td>
<td>0.515</td>
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<td>Firstgroup Plc</td>
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<tr>
<td>Arriva Plc</td>
<td>0.497</td>
<td>0.372</td>
<td>1,057.05</td>
<td>0.251</td>
<td>354.90</td>
</tr>
<tr>
<td>Stagecoach Group PLC</td>
<td>0.673</td>
<td>0.563</td>
<td>1,101.63</td>
<td>0.163</td>
<td>214.60</td>
</tr>
<tr>
<td>Eurotunnel PLC</td>
<td>0.853</td>
<td>0.055</td>
<td>432.84</td>
<td>0.935</td>
<td>6,241.73</td>
</tr>
<tr>
<td>Union Pacific Corp</td>
<td>0.699</td>
<td>0.532</td>
<td>21,206.33</td>
<td>0.239</td>
<td>6,643.00</td>
</tr>
<tr>
<td>Canadian National Railway Co</td>
<td>0.812</td>
<td>0.676</td>
<td>24,998.78</td>
<td>0.167</td>
<td>5,023.00</td>
</tr>
<tr>
<td>Canadian Pacific Railway Ltd</td>
<td>0.725</td>
<td>0.528</td>
<td>7,705.92</td>
<td>0.272</td>
<td>2,879.00</td>
</tr>
<tr>
<td>Burlington Northern Santa Fe Corp</td>
<td>0.854</td>
<td>0.673</td>
<td>26,314.66</td>
<td>0.212</td>
<td>7,079.00</td>
</tr>
<tr>
<td>CSX Corp</td>
<td>1.098</td>
<td>0.736</td>
<td>11,029.22</td>
<td>0.330</td>
<td>5,435.00</td>
</tr>
<tr>
<td>Kansas City Southern</td>
<td>1.571</td>
<td>1.008</td>
<td>1,121.78</td>
<td>0.359</td>
<td>627.10</td>
</tr>
<tr>
<td>Norfolk Southern Corp</td>
<td>1.059</td>
<td>0.809</td>
<td>18,375.18</td>
<td>0.236</td>
<td>5,673.00</td>
</tr>
<tr>
<td>RailAmerica Inc</td>
<td>1.215</td>
<td>0.612</td>
<td>425.19</td>
<td>0.497</td>
<td>419.56</td>
</tr>
<tr>
<td>Genesee &amp; Wyoming Inc</td>
<td>1.374</td>
<td>1.021</td>
<td>923.92</td>
<td>0.257</td>
<td>319.68</td>
</tr>
<tr>
<td>Florida East Coast Industries</td>
<td>1.135</td>
<td>0.953</td>
<td>1,367.73</td>
<td>0.161</td>
<td>261.97</td>
</tr>
<tr>
<td><strong>AVERAGE</strong></td>
<td><strong>0.889</strong></td>
<td><strong>0.634</strong></td>
<td><strong>0.281</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Asset betas determined using the Harris and Pringle formula.

Beta Estimates from Comparable Companies

Table 2.1 presents the equity betas for Australian and international rail businesses. The majority of the businesses used in this analysis, particularly the international examples, are businesses with large interests in rail networks. This includes interests in the rail operator Connex (Veolia Environnement), the Hong Kong mass transit railway (MTR Corp), the Singapore mass transit railway (SMRTCorp), and various North American rail networks.

2.3.3 Beta Estimates for Pacific National

Given the comparable company analysis above, Pacific National has calculated an appropriate asset beta of 0.634, an average of the above range 0.055 to 1.150. Therefore, using the Monkhouse formula, this represents an equity beta of 1.053, which is within the range 0.331 to 1.571 observed for comparable companies.

2.4 Market Risk Premium
Market risk premium (MRP) measures additional return that an investor expects to be compensated for when holding an equity market portfolio of assets rather than a portfolio of government bonds. MRP is the difference between the expected rate of return on the market portfolio and the risk free rate. It is estimated ideally over a long time period to eliminate short term anomalies in the measurement.

Below is a summary of various studies measuring the historical MRP in Australia.

### Table 2.2: MRP in the Australian experience

<table>
<thead>
<tr>
<th>Study</th>
<th>Period</th>
<th>Risk premium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Garry Twite (1999)</td>
<td>1974-1998</td>
<td>4.3%</td>
</tr>
<tr>
<td>AGSM – Arithmetic average</td>
<td>1964-1998</td>
<td>4.8%</td>
</tr>
<tr>
<td>AMP Henderson Global Investors</td>
<td>1950-2002</td>
<td>5.4%</td>
</tr>
<tr>
<td>AMP Henderson Global Investors</td>
<td>1901-2002</td>
<td>6.0%</td>
</tr>
<tr>
<td>AMP Henderson Global Investors</td>
<td>1950-1999</td>
<td>6.2%</td>
</tr>
<tr>
<td>AGSM – Arithmetic average, incl Oct 1887</td>
<td>1964-2000</td>
<td>6.2%</td>
</tr>
<tr>
<td>Officer (1992)</td>
<td>1946-1991</td>
<td>6.0% to 6.5%</td>
</tr>
<tr>
<td>Hathaway (1996)</td>
<td>1947-1991</td>
<td>6.6%</td>
</tr>
<tr>
<td>Hathaway (1996)</td>
<td>1882-1991</td>
<td>7.7%</td>
</tr>
<tr>
<td>Officer (2002)</td>
<td>1882-2001</td>
<td>7.2%</td>
</tr>
<tr>
<td>AGSM – Arithmetic average, excl Oct 1887</td>
<td>1964-2000</td>
<td>7.7%</td>
</tr>
<tr>
<td>London Business School (Australia)</td>
<td>1900-2001</td>
<td>7.9%</td>
</tr>
<tr>
<td>Dimson, Marsh, Staunton (2002)</td>
<td>1900-2002</td>
<td>7.9%</td>
</tr>
<tr>
<td>AGSM – Arithmetic average, excl Oct 1987</td>
<td>1964-1995</td>
<td>8.1%</td>
</tr>
<tr>
<td>Range</td>
<td>1882-2002</td>
<td>3.4% to 8.1%</td>
</tr>
</tbody>
</table>

Pacific National considers that some of the market risk premium estimates in table 2.2 are likely to be inappropriately skewed by either the absence of significant stock market events or by limited time horizons. However, there are a number of studies with appropriate time horizons within the range 5.0 per cent to 7.0 per cent. Pacific National considers that the market risk premium is within this range.

Pacific National has adopted a market risk premium of 6.0 per cent. This is consistent with both regulatory practice in Australia and the empirical market data.

### 2.5. Gearing Level

As discussed previously, the gearing ratio is important in the determination of the equity beta. It is also an important factor in the overall assessment and calculation of the WACC. Most importantly the gearing ratio is used to assign the relative weights to the equity and debt premiums.

In determining the appropriate gearing ratio to be used in the calculation of the WACC there are three choices, namely:

- adoption of the actual gearing ratio
- adoption of a target gearing ratio
• adoption of a regulatory efficient gearing ratio

The choice between these three gearing levels is dependent on the use of the WACC. For example, if Pacific National was interested in finding its actual WACC it would be appropriate to use the actual gearing ratio. If Pacific National was looking to determine a hurdle rate to assess the implied value of investments it would be more appropriate to use a targeted gearing ratio. However, if a regulatory WACC is to be calculated it is likely that a regulator would be seeking an efficient capital structure for the business, which is usually assumed to be 60 per cent debt and 40 per cent equity. This is the capital structure that Pacific National has chosen to adopt for the purposes of this submission.

2.6. Taxation

Pacific National has used the Australian corporate tax rate of 30 per cent.

2.7. Inflation

Pacific National has used the middle of the Reserve Bank of Australia target inflation rate of 2.0% to 3.0%. That is the assumed inflation used in the calculation of the WACC is 2.5%.

2.8. Franking Credit Utilisation (Gamma)

Under Australia’s dividend imputation system, domestic equity investors receive a taxation credit (franking credit) for tax paid by a company. The franking credit attaches to dividends paid out by a company and the franking credit offsets personal tax. Typically expressed as a number between zero and one, gamma represents the proportion of each dollar of dividend that is covered by an imputation credit.

Imputation credit, represents the portion of the tax paid at company level is, in effect, personal tax withheld at the company level. The credit allows an individual investor to apply against the amount of income tax payable. The value of imputation credits depends on the following factors:

• The investor associated ownership characteristics
• The dividend payout ratio (the higher the ratio is, the higher the percentage of franked credits is transferred to the investor).

The dividend imputation credit factor is usually assumed to be 0.5, derived from studies conducted by such as Officer and Hathaway (1992), McKinsey & Company, and Officer and Hathaway (1994). This assumption has also been widely accepted by various Australian regulators. Pacific National has therefore used a dividend imputation credit factor of 0.5.
3. CAPM Results

Drawing together all the parameters discussed in the preceding sections, the cost of capital for Pacific National is estimated below:

Table 4: Estimation of cost of capital

<table>
<thead>
<tr>
<th>WACC Parameters</th>
<th>PN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Risk Free Rate</td>
<td>5.26%</td>
</tr>
<tr>
<td>Real Risk Free Rate</td>
<td>2.69%</td>
</tr>
<tr>
<td>Inflation Rate</td>
<td>2.50%</td>
</tr>
<tr>
<td>Cost of Debt Margin over rf</td>
<td>1.24%</td>
</tr>
<tr>
<td>Nominal pre-tax cost of debt</td>
<td>6.50%</td>
</tr>
<tr>
<td>Real pre-tax cost of debt</td>
<td>3.90%</td>
</tr>
<tr>
<td>Market Risk Premium</td>
<td>6.00%</td>
</tr>
<tr>
<td>Corporate Tax Rate</td>
<td>30.00%</td>
</tr>
<tr>
<td>Gamma</td>
<td>50.00%</td>
</tr>
<tr>
<td>Proportion of Equity Funding</td>
<td>60.00%</td>
</tr>
<tr>
<td>Proportion of Debt Funding</td>
<td>40.00%</td>
</tr>
<tr>
<td>Debt Beta</td>
<td>0</td>
</tr>
<tr>
<td>Asset Beta</td>
<td>0.634</td>
</tr>
<tr>
<td>Equity Beta</td>
<td>1.053</td>
</tr>
<tr>
<td>Pre-tax real return on equity</td>
<td>8.07%</td>
</tr>
</tbody>
</table>
PACIFIC NATIONAL NETWORK AND ACCESS ("PNNA")

VICTORIAN RAIL ACCESS REGIME

SUBMISSION ON OPERATING MARGIN

TO THE ESSENTIAL SERVICES COMMISSION

Market rate based margins for rail operations & maintenance activities assessed by regulators in other jurisdictions

A source of relevant market rate based margins is available from engineering reports estimating the depreciated optimised replacement cost of rail networks. As part of this estimate, an allowance for costs very similar to those compensated for via the Allowable Margin has been estimated. In forming these estimates the Engineering Firms independently completed consultations with several construction and maintenance companies. Four recent estimates, which provide useful reference points, are:

- NSW Hunter Coal Network: a Report by Booz.Allen (May 2001) commissioned by the NSW Independent Pricing & Regulatory Tribunal (IPART) the BAH Final Report on Valuing Rail Access Corporation Assets (now RIC) recommended a cumulative total margin of 21% consisting of 8% for overheads including project management & other on-costs, a 10% margin 'covering profit, risk & some contingency' and an allowance (1.85%) for 'client costs & integration of the design'.1

- QLD Coal Network: engineering firm GHD as part of a Valuation of QLD Rail’s Below Rail Assets for Coal (November 2000) for the QLD Competition Authority endorsed use of 13% as an allowance for overheads and profit.2 However, these rates reflected the large capital cost of such a network replacement project.

- Hamersley Iron Railroad: report by RMS (April 1999) supporting an application to the NCC by Robe River Iron to declare the Hamersley Iron Railroad used a margin of 10% as 'a common allowance for this type of work including contingencies for sub-contractor non-performance and administration of contracts'. Again, these rates reflected the large capital cost of such a network replacement project.

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1 The 21% margin was agreed to by IPART and Booz.Allen after significant debate with RIC seeking 23.12% and FreightCorp stating that no more than 18.8% was justified.
2 Overall GHD endorsed a total contractors on-costs and margin of 25% consisting of 13% for overheads and profit as well as a 5% allowance on civil works for camp establishment costs and a 7% allowance on total replacement costs for 'other preliminary costs' which covers IR costs, QA & Environmental Plans, project management and associated on-costs including project vehicles.
• The Economic Regulatory Authority of WA in assessing a fair construction costs margin for the purpose of calculating a rail network replacement cost (asset value) for the ARG network determined an allowance for planning and design of 7%, for contractor’s risk margin of 5% and for project management an allowance of 8% providing a total margin of 20 percent.

Other evaluations of rail network maintenance and capital costings and discussions with rail civil engineers confirm that the above margin allowances are typical margins. Hence the ‘target profit/risk margins’ of engineering firms in non-competitive bids will be at higher levels and on occasions the actual margins sought in highly competitive bidding may be lower.

The V/Line Access Agreement was based on 10% operating margin as was the previous Pricing Order. The Victorian Government has also allowed 10% operating margin for the risks outlined in the Access Undertaking. The principle freight operator also accepts 10% operating margin.

Pacific National contends that the operating margin supports various risks and contingency allowances not included in either our estimates of costs nor the returns generated by the WACC. Pacific National accepts these risks as part of its role as network operator. However, the costs associated with these risks are not specifically included in our assessment of the cost of operating the network. In line with similar rail operators Pacific National has estimated that a 10% margin is sufficient to compensate for these risks. These risks include:

• Insurance risks – Pacific National must pay a $500,000 deductible on any insurance events. This results in a number of insurable events going unclaimed as they are below this threshold. The risks associated with these events are borne entirely by Pacific National.
• Design & Construction Contingencies – Construction of the networking carries with it implicit risks associated with effective design of the network. Site variations including geological differences at times result in unforeseen costs. The risks associated with these events are borne entirely by Pacific National.
• Location Risks – The dispersed nature of the rail network potentially results in increased costs of labour and materials. These costs are difficult to quantify in advance, as they are dependent on unforeseen track maintenance that may increase Pacific National’s cost structure. The risks associated with these factors are borne entirely by Pacific National.

Regulators for rail networks in this and other jurisdictions as well as Victorian customers have endorsed margins of around 10%.
PACIFIC NATIONAL NETWORK AND ACCESS ("PNNA")

VICTORIAN RAIL ACCESS REGIME

HISTORY OF ACCESS FEES

1. Passenger Access Fees

1.1. During privatisation in 1999, FA entered into an access agreement with V/Line. The basis for the calculation of the costs of operating and maintaining the network was flawed, which resulted in the access fee being too low to maintain the output specification. In order to deliver the output specification for the access fee provided, MPM was capitalised.

1.2. A V/Line price reset was due in July 2004 but was deferred by mutual agreement due to the pending sale of FA to PN and the uncertain scope from the Regional Fast Rail ("RFR") project.

1.3. During the period of April to June 2005, PN advised the Department of Infrastructure (DOI) and V/Line that the current passenger access fee had been set too low to deliver the output specification. Due to the flux of RFR and the lack of available data to accurately establish a price reset for a balanced input/output agreement, it was agreed that for 2005/06 PN would undertake a series of packages of work to the temporary speed restrictions on the passenger network. This work was funded by the DOI.

1.4. Negotiations are continuing with the DOI but the intention is for the DOI to fund packages over the next two years while the RFR project is completed (second half of 2006) and enough data can be obtained to form the basis for a longer-term agreement. While it is expected that the current V/Line agreement will be rolled over, there are unresolved issues regarding passenger line output performance and associated penalties.
2. Freight Access Fees

2.1. Due to the vertical integration of FA, there was no explicit freight access fee. MPM was capitalised. With the separation of R&B and PNNA post-PN acquisition, an explicit access fee was determined based on affordability and was paid as fixed monthly amount for access to the entire freight network. This level of access fee is not sustainable in the medium-long term, as the above rail does not generate sufficient return on capital to renew assets such as rollingstock.

2.2. Based on the ground up maintenance analysis, the access fee is only sufficient to cover return of capital, return on capital, operating costs, operating margin, basic routine maintenance - no MPM is included. The freight above rail operator therefore has access on the basis that there is no output performance commitment from the below rail operator. The internal access arrangement prior to this Access Undertaking was that each party bears its own costs in the case of an incident on the network, regardless of fault.

2.3. Through the Master Planning process established between PN and the State Government, there has been developed an understanding of the issues facing the freight network. Lack of competitive neutrality between road and rail has been a fundamental problem for a very long time. The recent COAG recognition of this issue and the intent of the Productivity Commission to address it are important steps forward.

2.4. Victoria has a relatively good road network with short hauls making road the price setter for freight movement. Rail pricing is determined by road pricing, yet above rail operators must bear the full cost of the rail infrastructure, while the truck operator does not bear the full cost of the road network. Rail also pays for level crossings, which are in place for the safe conduct of all road users.

2.5. This imbalance in modal neutrality has resulted in the long decline of rail freight relative to road. The most vulnerable tasks (e.g. containers) have steadily migrated to road starting with the shorter hauls but extending out further with road vehicle and infrastructure productivity improvements.

2.6. A competitively neutral and affordable freight access fee is ultimately required to reverse this trend and move more freight to rail.
Price Risk

Pricing in the market place is a critical determinant of demand. Currently in the major freight market, grain, this is managed by silo to port pricing. Prices are based on achieving the most efficient deployment of logistical resources. As a result of the new access regime, PNNA will be forced to introduce a new pricing signal in the market and there is likely to be a complex interplay between these old and new price signals. The effects of which cannot easily be assessed.

By way of example, grain going to Portland or to Geelong is transported the same distance from the junction point at Maroona to either port. Traditionally Geelong is a shallow draft Port and Portland is a deep-water port. Ships to Geelong are partially filled at Geelong and then topped up in Portland. However, the price for transporting grain to Geelong from Maroona on the ARTC network will be approximately half the price of Maroona to Portland under the new pricing structure.

It can reasonably be assumed that grain shipments will go to Geelong in preference to Portland. This may result in all grain transport to Portland being on road, or grain being transported to Geelong and ships filling at other Australian ports.

Other risks involve services at the network boundary shifting due to pricing structure. Southern NSW grain is currently transported to Oaklands and Tocumwal by road and railed to the nearest port in Victoria. If the combined trip becomes more expensive than the longer journey, by rail to Port Kembla in NSW, demand will shift.

Above rail operators, currently price to deploy train sets and staff, to efficiently transport to each port, maximising utilisation and efficiency in the freight logistic chain. Under the current fixed price network cost structure, this is the most sensible approach. The introduction of track differentiated pricing will create pricing signals to distort efficient operational costs. In order to gain the benefit from price advantage, operators may be required to reduce operational efficiency and incur increased above rail costs, ultimately further damaging rail’s competitive position in the transport market.

Should pricing signals cause reduced operational efficiency and commence a spiral of compensatory cost increases, further declining rail volumes, road transport will easily be substituted.
The Victorian intrastate rail network on average carries 3 million tonnes of export grain/bulk products into the ports of Melbourne, Geelong and Portland. The network also carries 1.5 million tonnes of export containers predominantly into the Port of Melbourne.

The respective ports are designed to process rapid ship loading and unloading using rail to expedite this process. The extensive use of rail significantly also reduces road congestion at these ports. At the Port of Melbourne, this is equivalent to an average additional 500 b-double truck movements in and out per day. However, when a grain ship must be loaded, this could be more like 800 truck movements in and out per day for several days.

Consideration should be given to the effects of regulatory pricing throughout the whole logistics chain and implications for port, metropolitan congestion, government road investment and environmental effects. The following discussion reviews such implications.

**Effects of Modal Substitution**

It is interesting to note that the World Bank comments “ARTC which manages many of the higher density interstate rail corridors in Australia, has been cash positive but earns significantly less than the replacement cost of it’s assets, and over the longer term will require some public funding to sustain and enhance its network.”\(^1\) ARTC currently receives a $110 million public subsidy to sustain the NSW branch lines and QR is receiving a $285 million below rail subsidy.\(^2\)

Federal, State and Local Governments spend $7 billion per year on roads. Much of this is maintenance cost to repair damage to the nation’s roads caused by heavy trucks.

Increased use of rail freight services will result in less road damage and road maintenance costs. Most wear and tear on roads is attributable to heavy trucks. Articulated trucks comprise only 12% of vehicles on the National Highway System (NHS), but are responsible for two thirds of the road damage to that system. In contrast, cars comprise 90% of vehicles on that system, but cause only 0.03% of road damage to the NHS.\(^3\)

Much of the demand for new, stronger roads and additional road works is to cater for heavier trucks and to separate trucks from cars. A cheaper and simpler solution to these problems is to reduce the number of trucks by improving rail infrastructure and making better use of it.

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2 Victorian Department of Infrastructure advice.

3 *Road Facts 2000*, Austroads, p60
The successful push by local government for the Federal Government’s $1.2 billion increase in local road funding was borne out of frustration with a decaying road network caused by over reliance on heavy trucks rather than rail transport.

In its submission to the 1991 Industry Commission Report on Rail, the Australian Local Government Association observed that:

"From the perspective of developing a rational transport system, the economics of saving public expenditure by closing a branch line might be illusionary if the net result is a requirement to increase public expenditure on roads"

A fully loaded B-double truck causes the same amount of road damage as 20,000 cars. However, it does not pay for the full extent of this damage. The extent of road damage caused by heavier trucks is evident in Victoria. One year after the widespread introduction of B-double trucks in Victoria, bridge construction and maintenance costs increased 150% from $7 million per year to $18 million per year.

Increased mass limits introduced on 1 July 1999 for trucks will require at least $1 billion of scarce public funds to be spent on repairing roads and bridges that are unable to safely handle heavier trucks. Many of the bridges that will require strengthening or repair are in rural areas. The cost of these bridge works will be an added cost burden to rural communities as there are no plans to recover the costs from truck operators.

However, the road damage in rural areas caused by trucks was recognised in the 1991 Industry Commission Report on Rail that made the following recommendation:

"State and territory laws be amended to provide local governments, for all roads under their control, with effective capacity to impose specific pavement damage and externality charges on heavy vehicles." (Recommendation 5.2)

Victoria’s western grain lines demonstrate the benefits of upgrading rail lines to reduce road maintenance costs, improve road safety and reduce transport greenhouse emissions.

When the rail line between Melbourne and Adelaide was converted from broad gauge to standard gauge in 1995, it isolated three broad gauge western grain lines including to the port of Portland. The Victorian government had to decide whether to move all the

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5 Road Access Charges in Queensland under National Competition Policy, PLI McInnes Van (1997), p10 and NRTC personal communication, February 2001

6 Boxcar Logistics, Rail Privatisation Conference, May 1997

7 Ibid, p115
previous rail hauled grain by road (870,000 tonnes per year) or to convert the three lines to standard gauge to enable rail haulage of grain to Portland to continue.

Analysis of the options undertaken by the Victorian Department of Transport concluded that the most cost-effective method of transporting grain in western Victoria was by converting the three lines to standard gauge for $20 million. This provided the greatest benefit to the (then) Grain Elevators Board, the Port of Portland, local councils and other industry groups including growers.

The one-off $20 million cost of converting the western grain lines to standard gauge was significantly less than the $30 million cost of upgrading the region’s road network and the additional $7.5 million per annum in road maintenance costs that would have been required to transport the grain by road. It has greatly improved road safety and reduced road damage and greenhouse gas emissions by keeping 22,000 grain truck trips off the region’s roads each year.

In contrast, the narrow gauge Wilmington line that operated from Gladstone in northern South Australia and carried large quantities of grain was closed rather than standardised. However, the Australian Local Government Association estimated that cessation of rail haulage of grain on the 21 kilometre line increased road maintenance costs by $140,000 (1990 prices) every 4-5 years. The ALGA commented at the time that if the cost of road damage had been included in the cost of road haulage, the line would have been more economic and kept open.

To reduce road damage on the Gladstone-Wilmington road, grain trucks were directed onto arterial and state roads that are now deteriorating more rapidly. The Industry Commission commented that the costs avoided by the government rail operator (Australian National) by closing the line were transferred to local and state governments instead in increased road damage costs.

The Federal and South Australian Governments have combined to provide a $20 million subsidy to retain the Eyre Peninsula railway.

The NSW Government Committee assessing the sale of FreightCorp called for 50% of the sale proceeds to be directed to upgrading rural rail infrastructure so that rail operators could achieve comparable travel times with road. Such an initiative is vital if rail is to retain and improve its market share and reduces the impact of heavy trucks on rural and regional roads.

Similarly, the Federal and South Australian Governments funded the conversion of the Mallee grain lines emanating from Tailem Bend from broad to standard gauge. This project has saved the South Australian Mallee region millions of dollars in road

\[8\] Ibid, p115
maintenance costs and greatly improved road safety in the region by keeping thousands of grain trucks off rural roads each year.

To put this into perspective, over the last five years, assuming a ratio of ¼ “B” doubles and ¾ semi trainers, there would have been 2.5 million additional heavy truck movements in Victoria, with the consequent additional road funding costs. Assuming availability of truck drivers and the traffics remaining viable with higher fuel prices. This is estimated to be 40% to Melbourne metropolitan destinations, 30% Geelong, regional movements and 20% to Portland.

No allowance is made for expected future growth in the transport task in Victoria in these assessments, however by way of example, the Port of Portland anticipates a crisis in traffic management.

The Port of Portland is anticipating that transport growth in its region will result in one truck into the port every 30 seconds, 24 hours per day, 365 days per year. Assuming rail remains at its current level.