AUSTRALIAN TRANSPORT MARKET SCENARIOS

Scenario Modelling

As a platform for infrastructure planning, ARTC has conducted some modelling based around four future scenarios – Low, Medium, High, and Most Probable, which is the most recent scenario. Rail volumes are forecast using a model of cross-elasticity of demand with road and sea freight, and elasticity of demand for total freight transport. The cross-elasticity model has three primary inputs: price, availability (being the ability of a mode to meet the markets' preferred cut-off and delivery times), and reliability.

The key assumptions for the scenarios are based around the possibility that transport is facing a significant shift in its underlying cost fundamentals that would result in a significant growth environment. The key elements of this new environment are:

- Continued rising fuel costs in real terms;
- Continued rising labour costs in real terms, in particular for long-distance truck drivers;
- Introduction of a carbon trading scheme;
- Introduction of mass-distance charging for road access;
- Increased urban congestion;
- Continued rising demand for NSW coal; and
- Continued rising demand for other Australian minerals.

Assumptions

The basic approach to developing base case volumes was to postulate cost levels for key input costs as at 2017/18. Costs were then held constant in real terms from 2017/18 to 2023/24. The effect of the road/rail relative price changes has been applied progressively with a lag of five years.

In all scenarios rail reliability and availability are assumed to improve significantly for the Melbourne – Sydney and Sydney – Brisbane and Melbourne – Brisbane corridors in 2009/10 with the completion of the North-South upgrade works.

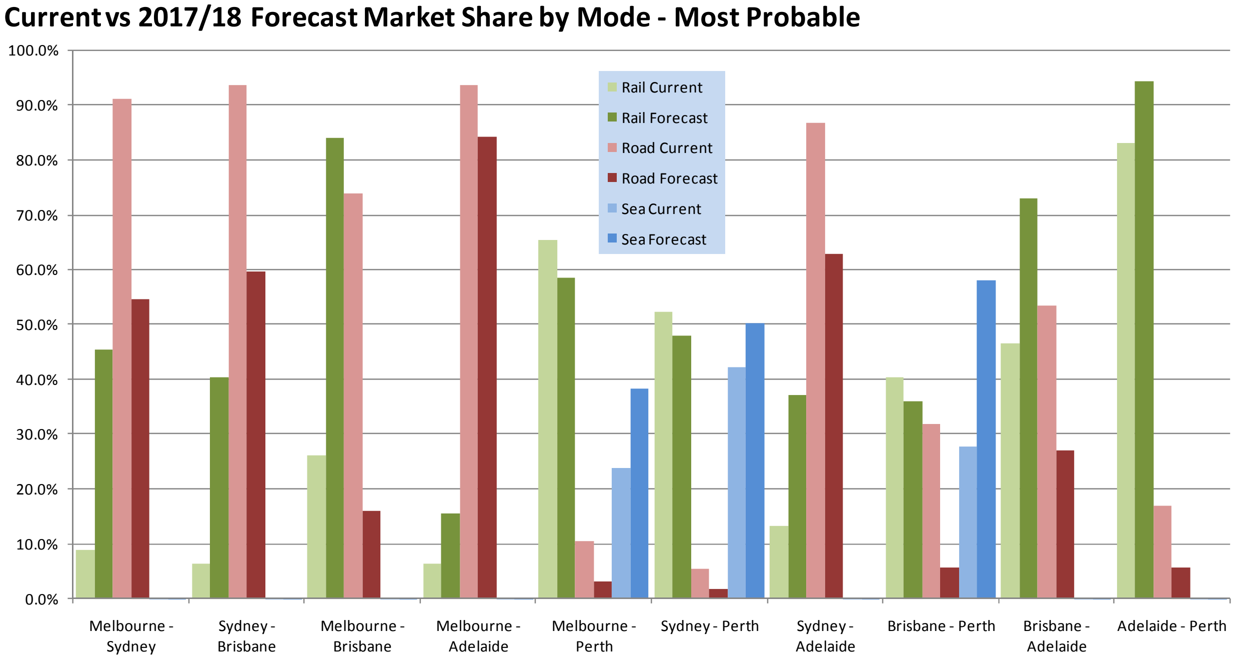
ARTC has also modelled a range of potential freight price elasticity impacts. The High, Medium, Low and Most Probable scenarios have used elasticities of -0.25, -0.5, -1, and -0.25 respectively, with the volume impact calculated from the weighted average change in freight costs for a given market.

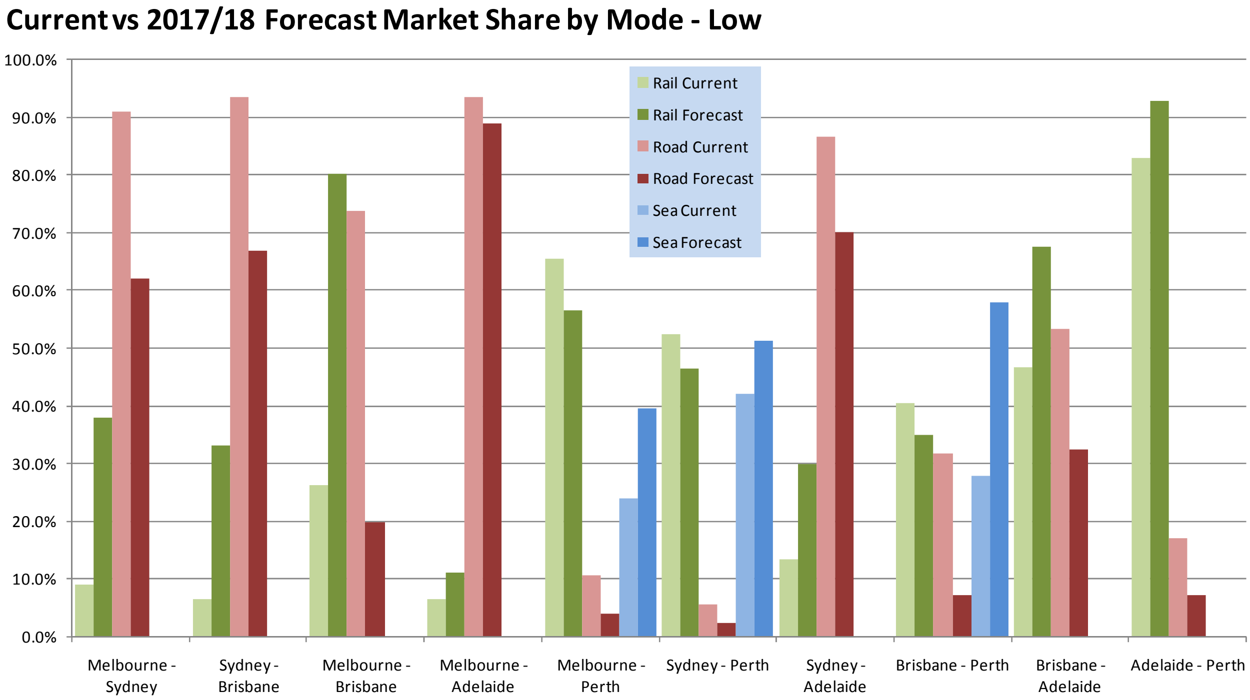
The key assumptions for the four scenarios are shown below:

2017/08 Projections

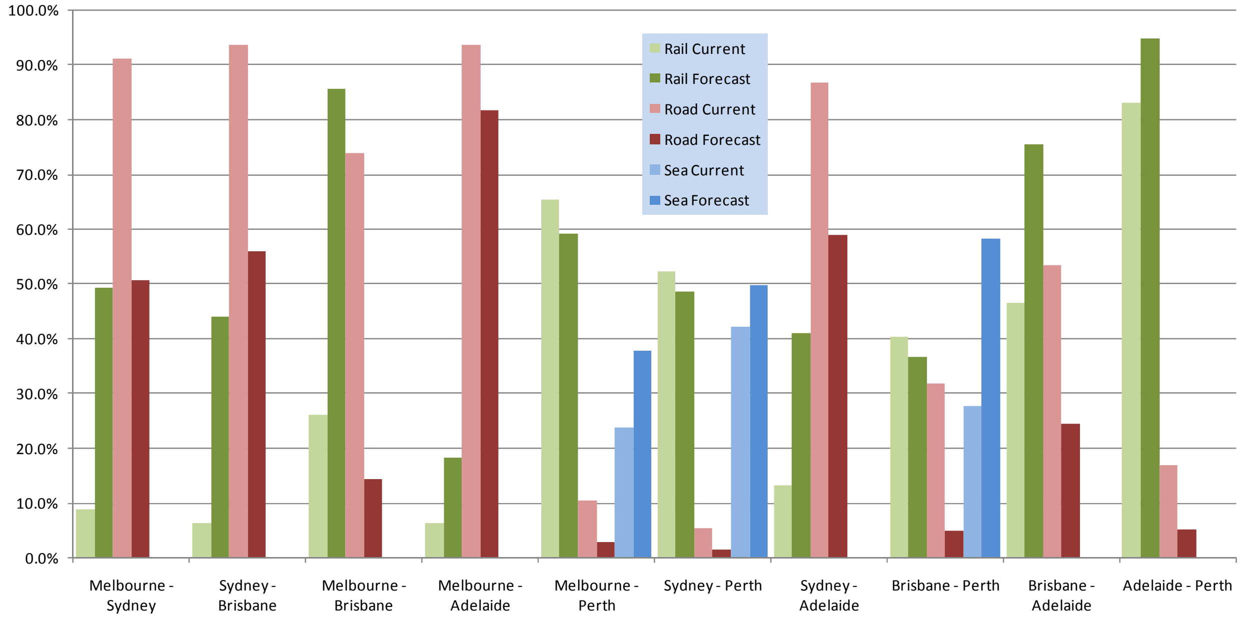
(All prices $2007/08)	Low	Medium	High	Most Probable
Oil Price (US$ / barrel)	$80.00	$100.00	$150.00	$85.00
A$ / US$ Exchange Rate	$0.85	$0.75	$0.65	$0.70
Carbon Price (A$ / tonne CO2)	$25.00	$50.00	$100.00	$50.00
Labour Costs	No real change	25% real increase	50% real in-crease	22%
Road-User Charges	No real change	50% real increase	100% real increase	10%

SCENARIO OUTCOMES – MARKET SHARE

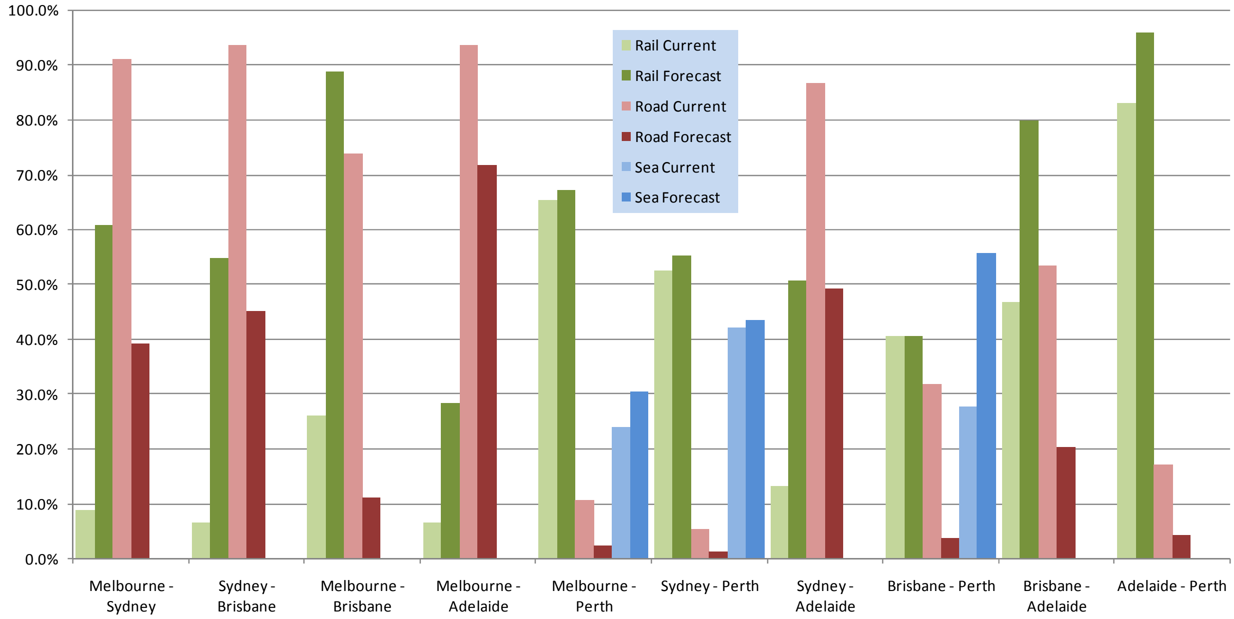




Current vs 2017/18 Forecast Market Share by Mode - Medium

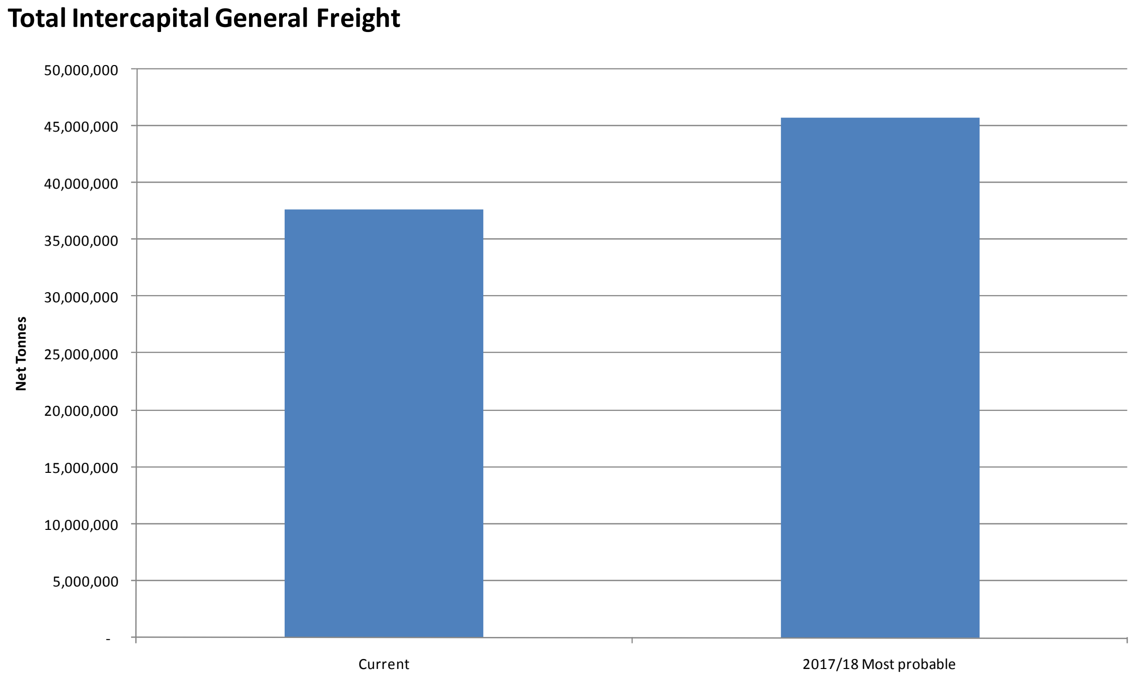


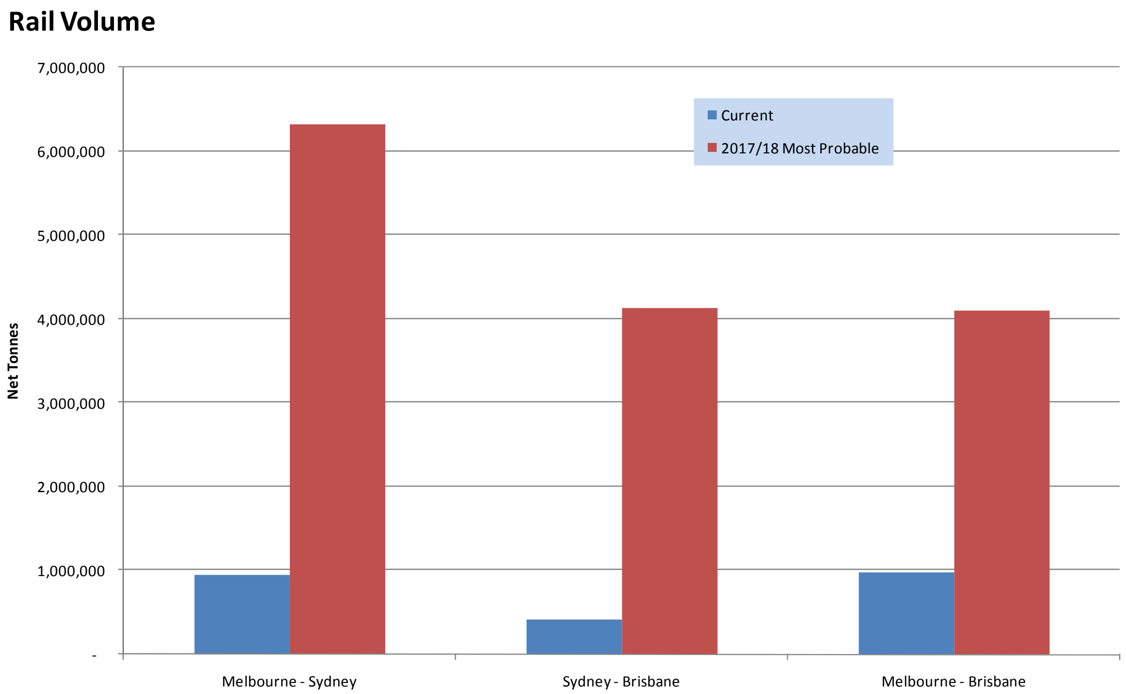
Current vs 2017/18 Forecast Market Share by Mode - High

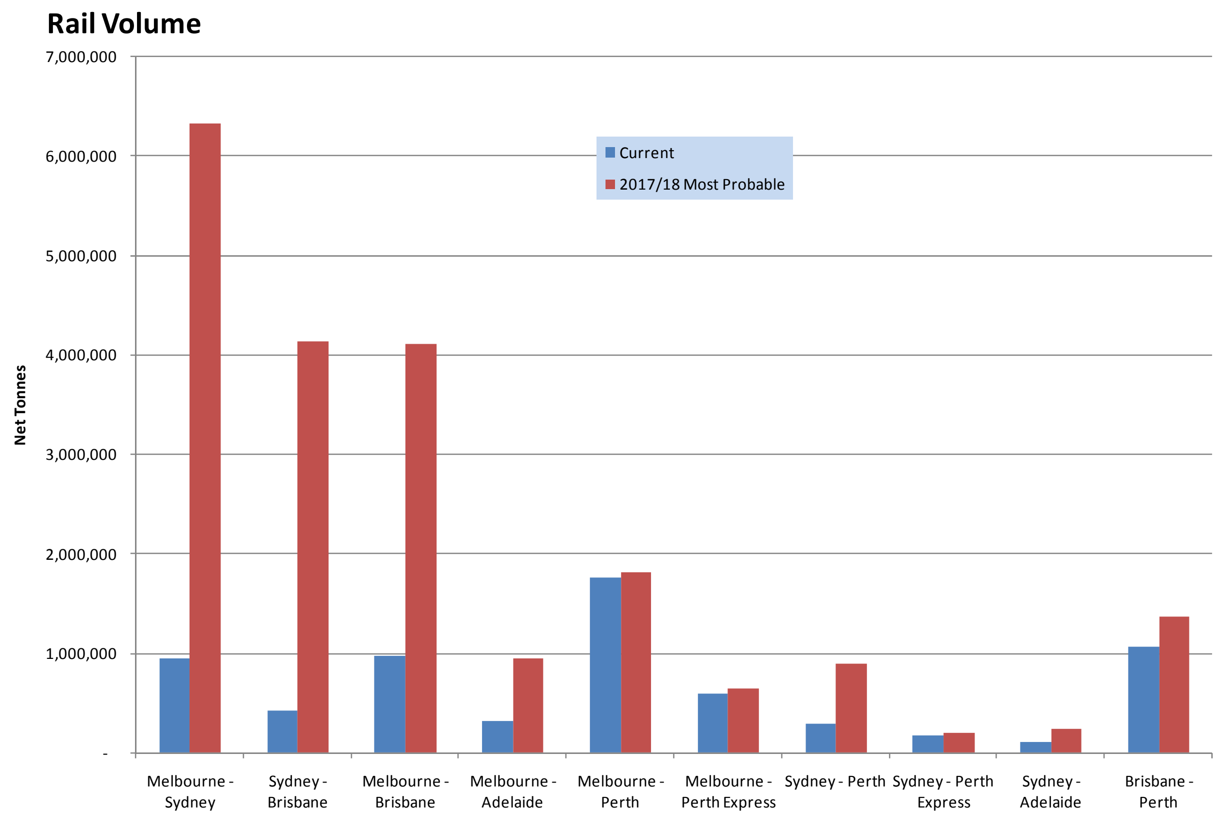


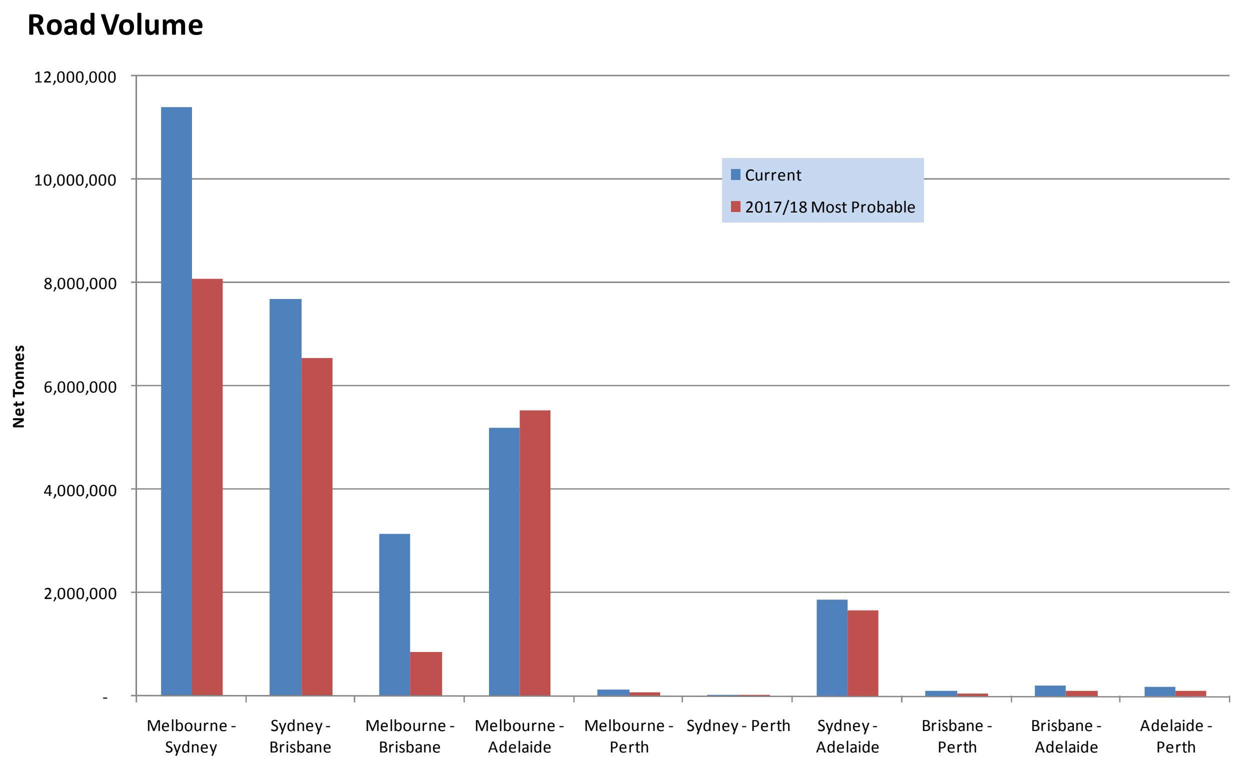
SCENARIO OUTCOMES – VOLUMES

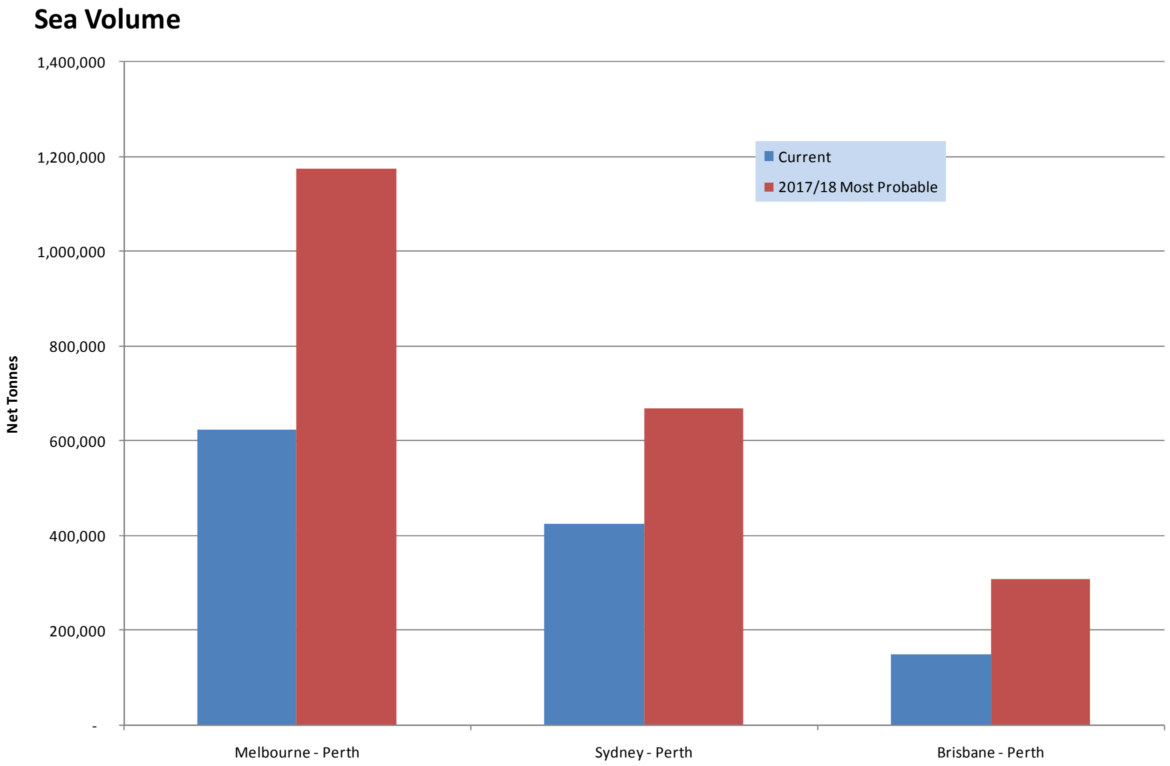
MOST PROBABLE SCENARIO OUTCOMES






Rail Volume
7,000,000
6,000,000
5,000,000
4,000,000
3,000,000
2,000,000
1,000,000
-
Net Tonnes
Current
2017/18 Most Probable
Melbourne - Sydney
Sydney - Brisbane
Melbourne - Brisbane
Melbourne - Adelaide
Melbourne - Perth
Melbourne - Perth Express
Sydney - Perth
Sydney - Perth Express
Sydney - Adelaide
Brisbane - Perth


Road Volume
12,000,000
10,000,000
8,000,000
6,000,000
4,000,000
2,000,000
-
Net Tonnes
Current
2017/18 Most Probable
Melbourne - Sydney
Sydney - Brisbane
Melbourne - Brisbane
Melbourne - Adelaide
Melbourne - Perth
Sydney - Perth
Sydney - Adelaide
Brisbane - Perth
Brisbane - Adelaide
Adelaide - Perth



ALL SCENARIO OUTCOMES