



Corridor Capacity Analysis: Final Report

This is the final report of project R3.104 of the CRC for Rail Innovation. This report looks at the key issues of network performance of major bulk freight, intermodal and urban passenger networks in Australia.

This report is not an exhaustive discussion and analysis of all of the issues associated with rail network performance. Rather, it acts as an enabling project to provide a context for other Rail CRC projects focussing on more technical issues associated with rail operations and engineering.

The project undertook a literature review and surveyed industry experts on key issues associated with assessing network performance and capacity.

The report identifies and analyses methodologies for measuring and assessing capacity and capacity utilisation of rail networks and establishes the current capacity of rail networks in Australia. Importantly, it identifies performance measures that should be considered when analysing network performance. The report also identifies the key factors that impact on, and limit, the capacity of a rail network, discusses the cost-effectiveness of various mechanisms for improving capacity, and assesses the improvement in capacity required to support a doubling of the rail task.

During the course of the project it became apparent that it may not be meaningful to attempt to determine the capacity and capacity utilisation of specific rail corridors, and that it was, at any rate, a task beyond the resources available to this project. This element of the scope has not, therefore, been pursued.

This project has made five key findings.

While competition between modes is important, it is equally important to not lose sight of the fact that the majority of growth in the rail task will be in its existing core businesses. In the case of freight this is the bulk task, and to a lesser extent the intercapital general freight business. In the case of passenger rail it is the high volume urban commuter task.

The current key performance indicators (KPIs) for rail network performance are poorly defined and are inconsistent and need to be improved. This is being addressed by the new Rail CRC project, *Train Planning Assessment Tools*.

The current definitions of capacity fail to adequately deal with the related issues of timetable robustness and system reliability, and tends to reply one circumstance specific factors.

Comprehensive analysis of capacity requires detailed modelling, including microsimulation, to test mechanisms in this report.

While there is a vast range of infrastructure and non-infrastructure options available to increase capacity, they are difficult to generically assess, and need to be assessed on a case-by-case basis.