

# ETCS Implications for Network Capacity

**NETWORK:**  
Sydney metropolitan network—CityRail

**CLIENT:**  
Independent Transport Safety and Reliability Regulator, New South Wales (ITSRR)

**DATE:**  
June 2007 to July 2007

Systemwide investigated the capacity and reliability implications of using a European Train Control System level 1 signalling system in the Sydney metropolitan network.

## The Challenge

Railways worldwide are moving towards communication based Automatic Train Protection (ATP) systems such as the European Train Control System (ETCS) to improve safety and increase capacity and performance.

Systemwide was asked by the NSW Independent Transport Safety and Reliability Regulator (ITSRR) to undertake a preliminary investigation into the merits of adopting an ETCS level 1 signalling system versus other levels of implementation, other non ETCS ATP options and continuing with the existing system.

The main focus for evaluation was the capacity and reliability implications of the different technologies relative to current service standards. Key challenges included the limited segregation between freight and metro trains and the potential for reduction in overlaps and junction conflicts.

## Our Approach

Systemwide drew together the knowledge and experiences of a range of global users of ETCS and other ATP technologies and compared these with the outcomes of detailed modelling and other analysis of key operational and reliability aspects of the CityRail network.

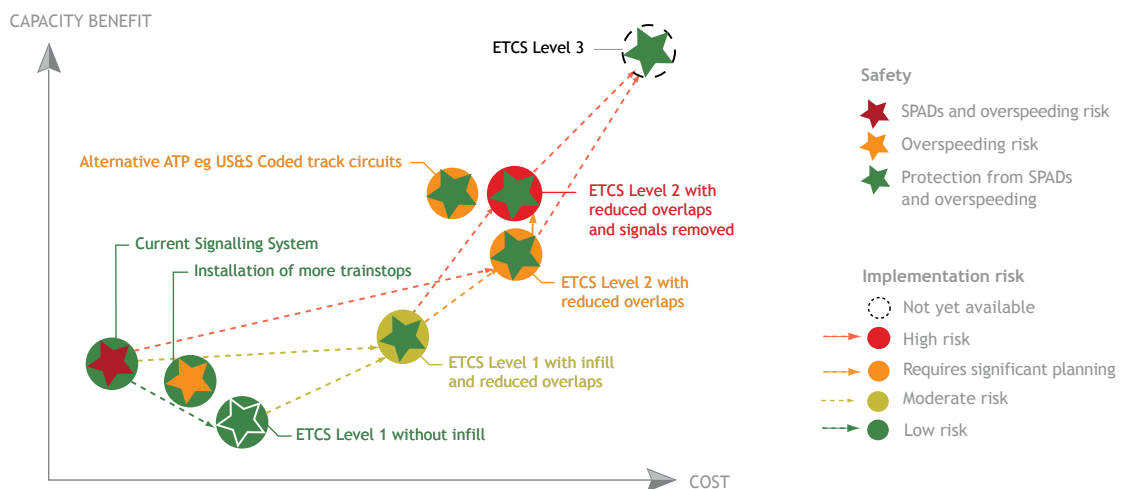
Our analysis incorporated:

- > independent expertise from experienced signalling engineers
- > the views of potential suppliers
- > the experiences of other networks and operators who have implemented ETCS and similar ATP solutions such as the Swiss Federal Railways and MTR in Hong Kong
- > Quantification of the capacity benefits of implementing different systems and levels based on a modelled comparison with the current system
- > Estimation of the performance (on-time reliability) impact of different systems on the network.

## The Benefits

This project provided ITSRR with a comprehensive overview of the potential capacity and reliability opportunities that could be realised with an ETCS level 1 system.

Importantly, our approach provided a balanced view of the merits of implementing different systems and highlighted that factors other than the 'level' of an ETCS operation can in fact be more important in influencing capacity and reliability.



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