

Freight Delays



BACKGROUND

Approximately 49% of Australia's domestic freight is transported by rail. Under Transport for NSW, freight trains in NSW run through three networks: Sydney Trains, Australian Rail Track Corporation, and Country Rail Network.

Each network has its own collection of data sets, with its own set of challenges.

QUESTION

Improved understanding of the frequency, location and cause of freight train delays can improve productivity and reduce the risk of freight trains impacting the passenger rail network.

The DAC was engaged to provide better visibility of issues on the rail freight network.



OUR SOLUTION

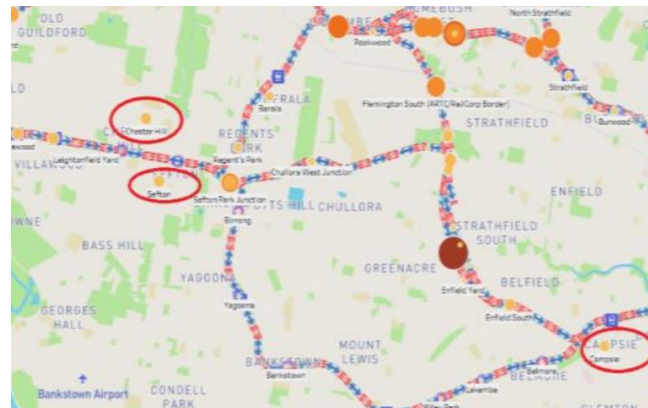
Data was sourced from the three rail systems and analysed to draw insights on various dimensions of delay in the freight network

Proof of concept demonstrating common patterns in the location and cause of freight train delays on the NSW network

The DAC developed, trained and compared several predictive models to characterise an individual trip

Models determine if a given trip will be delayed, and the likely duration of each delay

Predictions could then be created of hot spots in delays



IMPACT

Predictive information can be used to arrange alternative or supporting services to mitigate the impact of freight delays
Savings to fuel and labour costs from reducing the likelihood of freight trains being held sidling
Increase efficiency by identifying consistent cycle days or weeks where a rail operator may be able to add additional cycles
Minimised risk of delay to the passenger rail network

“Complexity of the various data sets and potential challenges with data assembly indicated this as a suitable project for the DAC, given their expertise in dealing with complex datasets and visual representation.”

Elaheh Ostovary, Transport for NSW

WHAT NEXT?

Proof of concept has been successfully delivered, and several parties have expressed an interest in collaborating on further refinement of the tool.

The Transport Performance Analytics (TPA) of TfNSW is now developing an ongoing real-time predictive analytics tool, developed with knowledge transfer from the DAC and the Proof-of-Concept. TPA is now working to develop the product in line with stakeholder priorities