Case Study

Central Line Depot Modelling

THE CHALLENGE

London Underground's (LU) Central Line was struggling to carry out all of the required maintenance on a fleet of trains which serve over one million passengers daily. The train fleet is maintained across two large and complex depots, using facilities that are not ideal for the work that needs to be carried out. Reliability is the lowest across all LU fleets, and the timetable is regularly not achieved due to poor availability of serviceable trains.

OUR SOLUTION

In order to solve the problem, the first challenge was to understand the root causes of why asset availability targets were not met. By utilising Frazer-Nash's unique Depot Modelling Software Tool to model the current situation and analyse the results, a number of areas where performance was being limited were identified. These included a maintenance regime which was very awkward to plan and deliver, an uneven balance of work between the two depots, a large discrepancy between the hypothetical headcount and actual staff on shift, and a highly segmented workforce that limited flexibility.

The novel Depot Modelling Software Tool enabled a full simulation of Hainault and Ruislip depot operations, including consideration of the depot track layout, the train timetable, the maintenance regime and the staff roster. The innovative software enabled comprehensive analysis of depot performance, through a user friendly and fast running simulation of all depot activities. By analysing thousands of permutations and applying performance metrics, the software facilitated cost effective evaluation and understanding of depot performance. It allowed us to simulate many permutations in a simple and efficient way and to explore the impact of changes without capital expenditure.

RESULTS

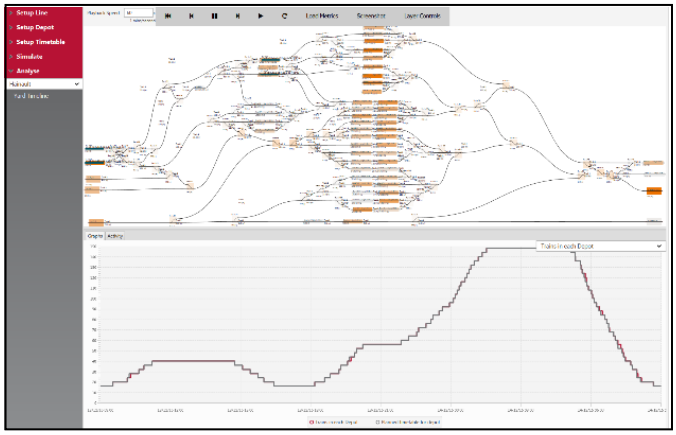
Understanding the current Central Line depot performance through Frazer-Nash's innovative Depot Modelling Software Tool allowed opportunities for improvement to be identified. Frazer-Nash was then able to develop solutions to these problems, through delivery of an updated maintenance regime for the fleet. By updating the maintenance regime in the model, it was demonstrated that the new regime would be deliverable within the other existing constraints. The expected improvements for the Central Line include significant cost reductions, improvements around timetable achievement, overtime reduction and more time available to work on activities that impact reliability.

Client
London Underground

Business need
Understand the root cause of poor availability of trains on the Central Line

Why Frazer-Nash
Frazer-Nash was able to quickly and cost effectively produce a bespoke model to understand the root cause and identify opportunities for improvement.

Date project completed
May 2017



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To find out more about our work and how we can add value to your business visit our website.

FRAZER-NASH CONSULTANCY