Auckland Network Management Plan: Track Study

Project
Auckland Network Management Plan: Track Study

Client
Auckland Transport

Location
Auckland, New Zealand

Start Date
March 2014

End Date
June 2014

Duration
3 months

Services Provided
Asset policy development, whole life evaluation, business planning, maintenance structure auditing & benchmarking

Background

Auckland Transport (AT) operates the metropolitan train service in Auckland, New Zealand (NZ). They are currently replacing an ageing fleet of diesel multiple units with new EMUs (Electric Multiple Units) from spanish rolling stock manufacturer CAF. The rail network upon which the new fleet will operate is owned and maintained by KiwiRail (KR).

Auckland Transport commissioned Network Rail Consulting to undertake a review of the existing track condition in order to assess whether the state of the track and the standards to which it is maintained are adequate to accommodate the increased level of performance expected from the new EMU fleet.

In addition, the study was to review the formation, drainage and ballast in order to assess the degree to which its existing condition is likely to affect the ability to undertake maintenance works given the difficulty in obtaining works possessions without significantly disrupting services.

A network management plan for the Auckland network is produced on an annual basis by KiwiRail, the purpose of which is to provide a visible and structured approach to maintenance and renewals. The study has provided AT with information to comment on the latest version of the plan, specifically regarding track and drainage.

Scope of Works

The scope of the study was to:

- carry out desktop investigations including the review of existing reports, data, standards and codes provided by AT and KR
- undertake a site visit to those areas considered by AT to be critical to operations or have caused most delay
- determine and document the current track asset condition and assess compliance with relevant NZ standards and then benchmark the network and NZ standards against international standards and codes of other comparable metros
- review the current standards/ codes to which the track is currently maintained and advise of any areas where this can be improved in terms of international best practice
- develop a strategy and programme for track investment following the introduction of the EMU fleet
- formulate and advise an economical plan of maintenance and renewal works to allow the Auckland metropolitan rail network to achieve its performance objectives with reference to the current budget and an idealised budget
- ensure that any proposed maintenance or renewal plan integrates with all operational and strategic plans for the existing and future rail network
- highlight the anticipated impact of the current track condition on the newly installed Overhead Line Electrification (OLE) system giving prioritisation to areas which need to be addressed within 1 year, 2 years and 5 years
- highlight the anticipated impact of the existing track condition on the newly purchased EMU fleet and give prioritisation to areas which need to be addressed within 1 year, 2 years and 5 years.

Key Project Outputs

The key project output was a report containing findings and recommendations in respect of:

- determination of compliance with existing track standards and codes
- assessment of track condition, including formation, ballast and drainage, concrete and wooden sleepers, rail, fastenings, turnouts, level crossings and vegetation with recommended priorities for repair and replacement
- review of track access and possessions regimes and integration of new timetables and rolling stock requirements
- review of track inspection regimes including frequencies of manual and automatic inspection modes
- assessment of level crossings, including safety measures, hidden element track inspection capabilities, road/rail drainage interfaces and road/rail access requirements.