NZEUC Transport Special Interest Group

GIS contribution to management of the NZ Railway Network

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August 2018
Rail’s contribution to the NZ economy

Rail benefits New Zealand

Passenger and freight both contribute significantly to the New Zealand economy.

The total economic value of rail is:

$1.47B - $1.54B every year

This value far exceeds the government’s annual investment in rail.
Who is KiwiRail

A Statutory Corporation and the backbone of NZ’s Integrated Transport Network

- 4000 staff across the length of New Zealand
- 198 mainline locomotives
- 3 ferries
- Fuel costs per annum of around $60M
- 18000 hectares of land covering 61 Territorial Local Authorities
- 4000 kms of corridor
- 4023 level crossings
- 145 tunnels
- 1537 rail bridges

- 2955 leases to third parties totalling 4800 hectares
- 433 proposed leases
- Revenue from land sales/lease rentals totalling approximately $45M per annum
The GIS team

• Team is split across two separate reporting lines

• Data management sits within Business Intelligence Team
  – Responsible for maintaining datasets, sourcing new data
  – Managed by Kirsten O’Neil with one direct report (David Fowler)

• Application management sits within ICT Team
  – Responsible for maintaining underlying GIS ecosystem, building map services, creating and maintaining map viewers
  – Managed by Paul Shivnan with one direct report (Noel Sevilla)

• In order for the GIS to function successfully the teams must operate as a single unit
GIS Platform Architecture

Map Application

Spatial Map Services (ArcGIS Server)

Map Viewer (Geocortex Essentials)

Spatial Data (File gdb)

Temporal Spatial Data (MS SQL DB)

Spatial ETL (PME)

Spatial API (Linear, GPS Conversion, LRS)

Operations Management (OMS)

Data Sources (Asset, Transactions, Financial Information)

API Sources (Vehicles, Ferries)

Vehicle Location (Kupe)

Asset Management (Maximo)

Property Management (Vision)

Finance (SAP)

Ferry Location (Pulse)
Our Applications

- **GeVIS** – Provides Train Control with near real time visibility of our fleet, also a mobile version for our field staff
- **RailView** – Provides an asset rich view that has strong links with our Asset Management system to enhance planning of maintenance activities on the network
- **PropertyView** – Land Management centric view. Major tool for our land and lease managers for revenue generation and for resource management activities
- **DAS** – Driver Advice System – In loco application that advises locomotive engineers on the most efficient way to drive their train. Has resulted in fuel savings since 2015 of 16 million litres at a cost saving of $11M.
- Rail datasets available: