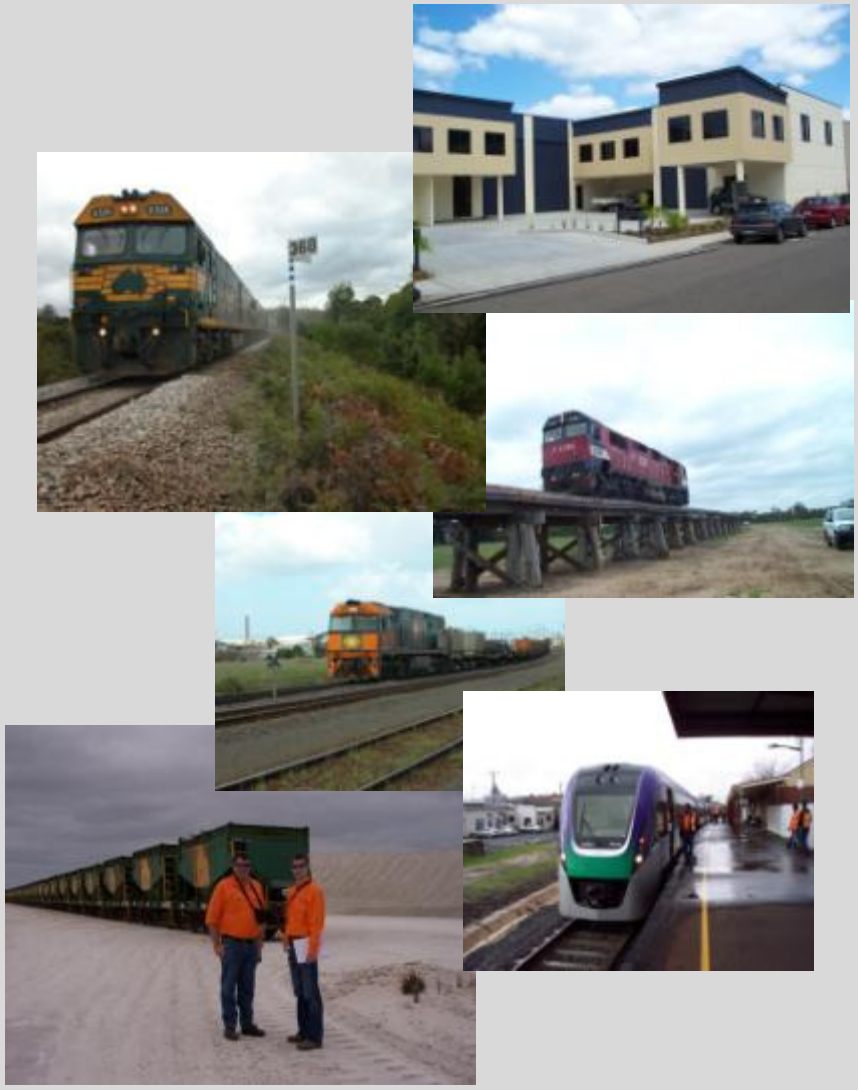
Plateway

Recent Australian OpenTrack Projects

January 2010

Corporate Background



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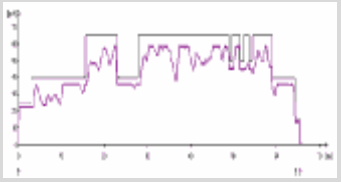
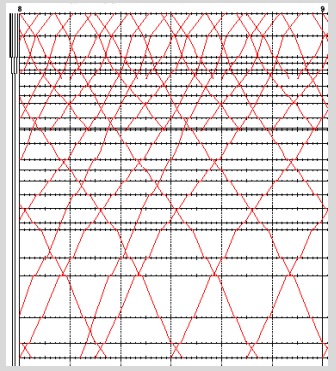
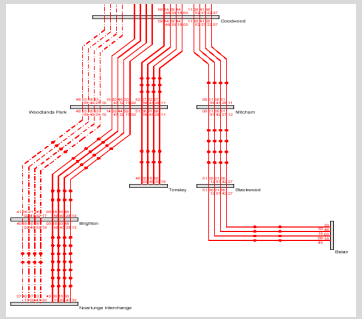
Plateway Capability

- Financial Assessment of Railway Operations and Projects
  - Project economic evaluations and cost/benefit analysis
  - Value management studies
  - Due diligence
- Railway Service Design
  - Single train simulation using OpenTrack
  - Railway network simulation using OpenTrack
  - Timetable design using Viriato
  - Haulage system capacity
- Management System Development
  - Development of Railway Safety Management Systems
  - Railway safety audits
  - Risk assessments







Plateway Capability

- Railway Management Service
  - Project management
  - Tendering and estimating
  - Contract management
  - Contract strategy selection
  - Contract performance assessment
- Railway Engineering
  - Technical standards and requirements assessments
  - Reliability analysis
  - Asset condition and assessment
  - Work program development
  - Infrastructure and rollingstock acceptance testing
  - Terminal design

Melbourne Freight Study

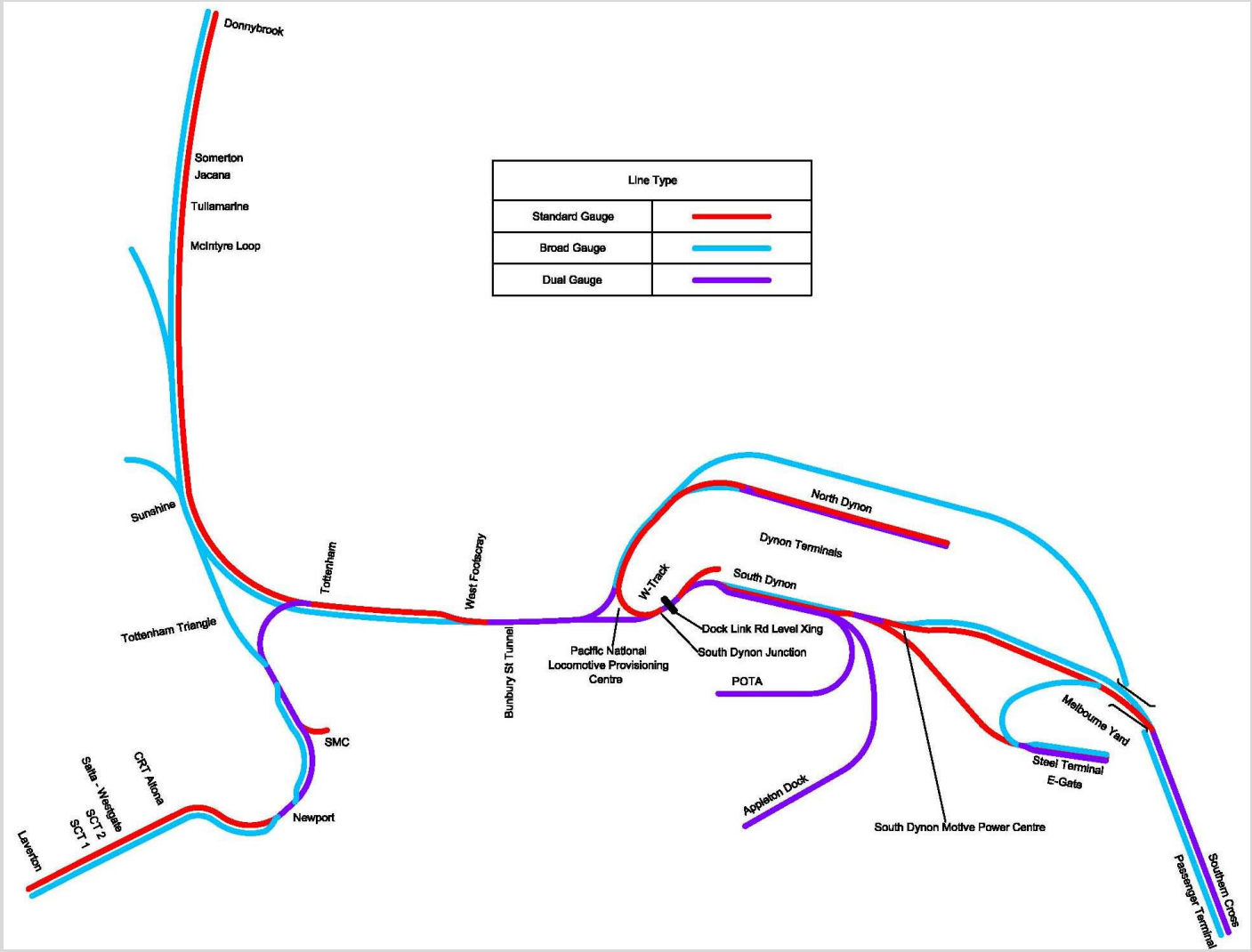
The study tasks included:

- Identifying where the standard gauge network was unable to meet predicted demand up until 2035.
- Analysing the relationship between capacity and operations to identify the most constrained sections, with the aim to identify capacity enhancements needed in both terminals and sections of track.
- Assessing capacity improvement options at a high level
- Devising freight train operating plans for 12 scenarios.

Melbourne Freight Study

- Terminals date from 1962 segregate broad and standard gauge.
- Terminal was a final destination for the freight trains and only three long haul passenger trains operated each way daily.
- Maximum train lengths under 400 m.
- Study focussed on inner area with which covers broad gauge, standard gauge and dual gauge track.

Melbourne Freight Study



Current Environment

- Interstate train lengths now 1500 m increasing to up to 1800 m following completion of north south corridor upgrade.
- Number of network managers / owners has increased from 1 to 6
- Passenger train numbers increased to 10 daily by 2010 rising to 36 by 2035.

Current Environment

- Shunting operations and “dead” running were significant consumers of mainline and junction capacity.
- Simple capacity calculation suggested significant mainline capacity available.
- Port terminals generate significant “through” traffic.
- Area “mixed” gauge.

Methodology

- Viriato tool used to develop 12 future demand scenario's.
- Used to export timetables into OpenTrack for those scenarios tested.
- Simple capacity calculation made based on Viriato Outputs to determine future years and locations where infrastructure capacity was inadequate.
- The current and near term scenarios were simulated in OpenTrack to validate system behaviour and identify "choke" points.

Open Track Model

Significant model size:-

- Approximately 100 route km of network
- Includes 3 major yards
- Contains over 100 trains operating a 24 hour timetable

Outcomes

- Actual consumed capacity substantially higher than a simple model would suggest which was confirmed by the actual moves recorded by train control.
- There was a shortage of siding space in the port precinct when the system was simulated under “disturbance”.

Sources of capacity consumption included: -

- shunting moves.
- transfer of control between networks.
- Transfer of locomotives and vehicles into servicing facilities.

Outcomes

Potential Solutions

- Provide staging areas away from the inner terminal areas to split and amalgamate long trains.
- Reliability has to improve substantially to accommodate the increased demand.
- Provide new terminals which can accommodate modern train lengths.

Outcomes – Terminal Configuration

- Separate from mainline operations
- Access mainline at line speed.
- Dead running to servicing facilities should not consume mainline capacity.
- Must be able to handle long trains preferably without splitting.

Adelaide Tram Network

Tasks undertaken

- Determine run times as these will be variable
- Identify capacity of the current system
- Identify factors which drive service reliability

OpenTrack Model Features

- 12 trams in operation during peak hours
- Route length approximately 25 km
- Traffic lights modelled using “on off” signal with durations taken from traffic light system programming.
- Lights linked where this occurs.

OpenTrack Model Features

- Entire days operations simulated.
- Signalled using moving block functionality with 1 m separation between trams.
- Viriato used to enter timetables and export to OpenTrack so that different headways could be simulated until saturation was reached.
- Measuring element functionality used to calculate “headway” as this is more important than “timetable”.

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