

RWA Rail is a leading rail consultancy, specialising in operational and strategic rail planning. We are part of the Tracsis group, an AIM-listed provider of specialist rail services and software.

We have a large and flexible team of train planners, performance modellers and operations specialists with considerable railway experience and strong analytical skills. The majority of our work is for clients who are looking to improve the rail industry's effectiveness and efficiency in meeting the needs of customers, funders and stakeholders.



We specialise in the following areas:

Network capacity planning and capacity management

Timetable planning, either recasts or changes to existing timetables

Rolling stock diagramming using DISPO™ or TRACS-RS

Train crew diagramming using TrainTRACS

Rostering using TRACSRoster

Timetable performance modelling (primarily using RailSys) for both new infrastructure configurations or new timetables

Rules of the Plan (ROTP) analysis, including using RailSys to generate new values and section running times

Timetable, infrastructure and performance data management / manipulation and data transfer – timetables, infrastructure layouts, performance statistics

Demand forecasting assignments using MOIRA and passenger flow analysis (using our sister company Peeping to collect the data)

Why use us?

- Established track record with most key industry players
- Wealth of experience across whole team
- Access to additional qualified consultants
- Links to University academics
- Highly motivated and total integrity
- Flexible cost-effective resourcing
- UK based with international coverage

Some detailed examples of the tasks we undertake and the tools we use



Rules of the Plan (ROTP) Analysis

Where timetables are being changed or different rolling stock is being considered, it may be necessary to calculate new ROTP values as an input to the timetabling process.

We use RailSys to calculate theoretical section running times, headways and junction margins. These are then converted into ROTP values using standard industry conventions. Delay data and observations are combined using in-house tools to assess dwell times.

RailSys can be used to assess where allowances can be placed to get maximum performance benefit. One of our associates used RailSys to study the best positioning of allowances as their PhD research, so we have access to what we believe is the most comprehensive study of this important area.

Timetable Development

We undertake timetable development work from minor timing changes through to major recasts, using our own train planners - all of whom have considerable experience. We use both **CMS** and **RailSys** to support this work as detailed below:

CMS

For complex timetabling projects we use CMS™ Timetables. CMS™ is particularly strong where there is a considerable amount of ROTP conflict detection and resolution to be undertaken, as it has industry-leading inbuilt ROTP conflict detection. This is available as a log and on user-editable timetable graphs. The software highlights key ROTP deficiencies, including headways, platform re-occupancy and junction margins, enabling the planner to concentrate on conflict resolution and providing confidence that timetables will be acceptable to the franchising authority and/or network operator (as appropriate).

The graphical user interface enables users to quickly create timetables either from scratch or by copying trains from other timetables and then edit them in a working timetable format or by 'dragging and dropping' on a timetable graph.

Exporting data to other systems including DISPO™ and TRACS-RS rolling stock tools is easy through the wide range of file interchange formats that we have available (including CIF and PIF).

RailSys

RailSys contains a powerful timetable editor, which enables the analyst to create or retime trains and then assess any conflicts created.

Drag and drop functionality allows the analyst to rapidly perform 'what if' analyses and the fact that RailSys calculates running times based on technical characteristics means that it can be used to rapidly assess the impact on a timetable of changing stock types or train performance characteristics.

Platforming is very straightforward in RailSys and it also provides automatic guidance on technical conflicts (for example, where signalling headways have been infringed) but requires the analyst to pass the data to CMS or manually check for ROTP compliance, where relevant.

We use RailSys for Metro timetabling because we can plan 'to the second' – we believe that in most cases planning 'below the ½ minute' gives a better answer – and evidence from our clients is that this gets good marks from bid assessors.

Timetable Performance Modelling

We use RailSys to assess performance issues with current and proposed timetables and infrastructure configurations, both to recommend changes that could lead to better punctuality and to feed into analysis likely levels of overall performance. In addition, we have analysts who can assess performance issues in detail and through our sister company, Compass we can provide performance analysis software for TOCs to run in-house.

RailSys is a signal berth level timetable planning and simulation tool (i.e. it works with a very detailed representation of the railway network) and in addition to a powerful timetable editor, RailSys has two in-built simulation tools:

- Simulation of the timetable unperturbed (running a simulation of the timetable without adding in any delays) to test the basic compliance and quality of the timetable and
- Multiple stochastic simulations (where the model has delays incorporated for train-related failures, infrastructure problems and delays caused by passengers, and predicts the resulting train delays).

Rolling Stock Diagramming using DISPO™ or TRACS-RS

For many rolling stock diagramming problems, once the timetable has been imported and the parameters set, we can produce an optimised fleet plan in under a minute. This means many different scenarios can be tested rapidly (for instance, the impact on diagrams and train miles of changing depot locations, can be tested in a matter of minutes).

In addition to the relatively simple 'single day' diagramming problem, DISPO can produce cyclic diagrams for maintenance planning should this be required.

Timetables can be imported using the UK industry standard CIF format and we have produced interfaces with a wide range of timetable packages including TrainPlan™, Voyagerplan, CMS™ and onwards to TrainTRACS. In addition, tools have been written to produce detailed statistics on the diagrams created and there are interfaces to MS Excel for ad hoc statistical evaluation.



Train Crew Diagramming using TrainTRACS

We have many experienced diagrammers in our team who have a wealth of experience of creating efficient diagrams for franchise bids as well as for train operators facing major timetable changes or wanting to make changes to train crew terms and conditions.

TrainTRACS is our preferred tool for train crew diagramming and has proved very successful in identifying possible savings from more efficient diagramming, whilst adhering to all relevant diagramming rules. On average, the product claims to deliver a 3 to 5% one-off saving in diagrammed hours compared with manual diagramming and this level of saving has been validated by RWA Rail in franchise bid work and studies for TOCs. This saving is achieved because TrainTRACS seeks to build optimal diagrams from scratch each time it is run whereas the train planner simply does not have time to do this and typically works by making changes to existing diagrams.

Once the base model is set up and run, TrainTRACS enables the planner to undertake 'optioneering' analysis quickly, with diagrams for different terms and conditions or depot locations, output in a matter of a day or two rather than many weeks.

Rostering using TRACSRoster

We have now undertaken train crew rostering work on a number of bids demonstrating how better, centralised rostering can make savings and how changes to conditions can impact crew numbers. In addition, we also provide resources on a temporary basis to TOCs who have specific peaks in workload or train planning staff shortfalls. TRACSRoster is an optimiser that has been developed by our parent company, Tracsis and enables this analysis to be made much more quickly and effectively than manual methods.

Recent and Current Projects

At any one point in time we will be working on a number of projects for different clients. Recent and current projects include:

- Timetabling and resource planning for franchise bids (we have supported clients in all recent UK passenger franchise bids, as well as working on Metro bids in Scandinavia and Ireland).
- Timetabling and performance modelling of proposed new and enhanced services across the UK including new services to Ebbw Vale; enhanced services in the Cardiff Valleys; Cambrian service changes; enhanced services between Leeds, Bradford and Manchester; Glasgow Airport Rail Link and Aberdeen area service enhancements.
- Layout design, timetabling and performance modelling for re-signalling and re-modelling projects including Reading, Crossrail, Airtrack (services to Heathrow from the south) and East West Rail (the proposed new service on the corridor from Oxford and Aylesbury to Milton Keynes and Bedford).
- Performance modelling in support of new stations (with stations modelled by us now open or close to completion at Coleshill near Birmingham, Reading Green Park and Lawrence Kirk near Aberdeen).
- Reviews of MOIRA for the Passenger Demand Forecasting Council and DfT.
- Development of a tool aimed at reducing timetable related SPAD risk.
- Improving train crew efficiency for TOCs, using TrainTRACS and TRACSRoster.
- Providing railway input to masters and undergraduate degrees at Birmingham and Loughborough universities.
- Providing train planning staff on an interim basis to TOCs and project teams as required.



Time	Destination	Plat	Expected
11:14	Birmingham New St	6	11:33
11:25	Crewe	5	11:28
11:40	Chester	6	On time
11:41	London Euston	1	On time
11:45	Oxford	Bus	On time
11:45	Cambridge	Bus	On time
11:47	London Euston	4	11:50
11:47	London Euston	2	On time
11:49	Birmingham New St	3	On time

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Clients

We have a client base that includes most of the key players in the rail industry:

- **Department for Transport**
- **Network Rail**
- **TOC owning groups and their constituent TOCs**
- **Developers and their agents**
- **Passenger Demand Forecasting Council (ATOC)**
- **Other consultancies**

For further information or to discuss your individual requirements please contact us on **01509 210110** or email **info@rwa-rail.co.uk**