MHA
Midlands Highway Alliance Plus

Improving Traffic Networks with Data, AI and Digital Tools

How to predict and provide for UTC systems

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DERBYSHIRE County Council

Improving Traffic Networks with Data, AI and Digital Tools

Content

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- The solution
- Non-reliance on infrastructure
- Localisation of traffic management objects
- Predicting future conditions with AI

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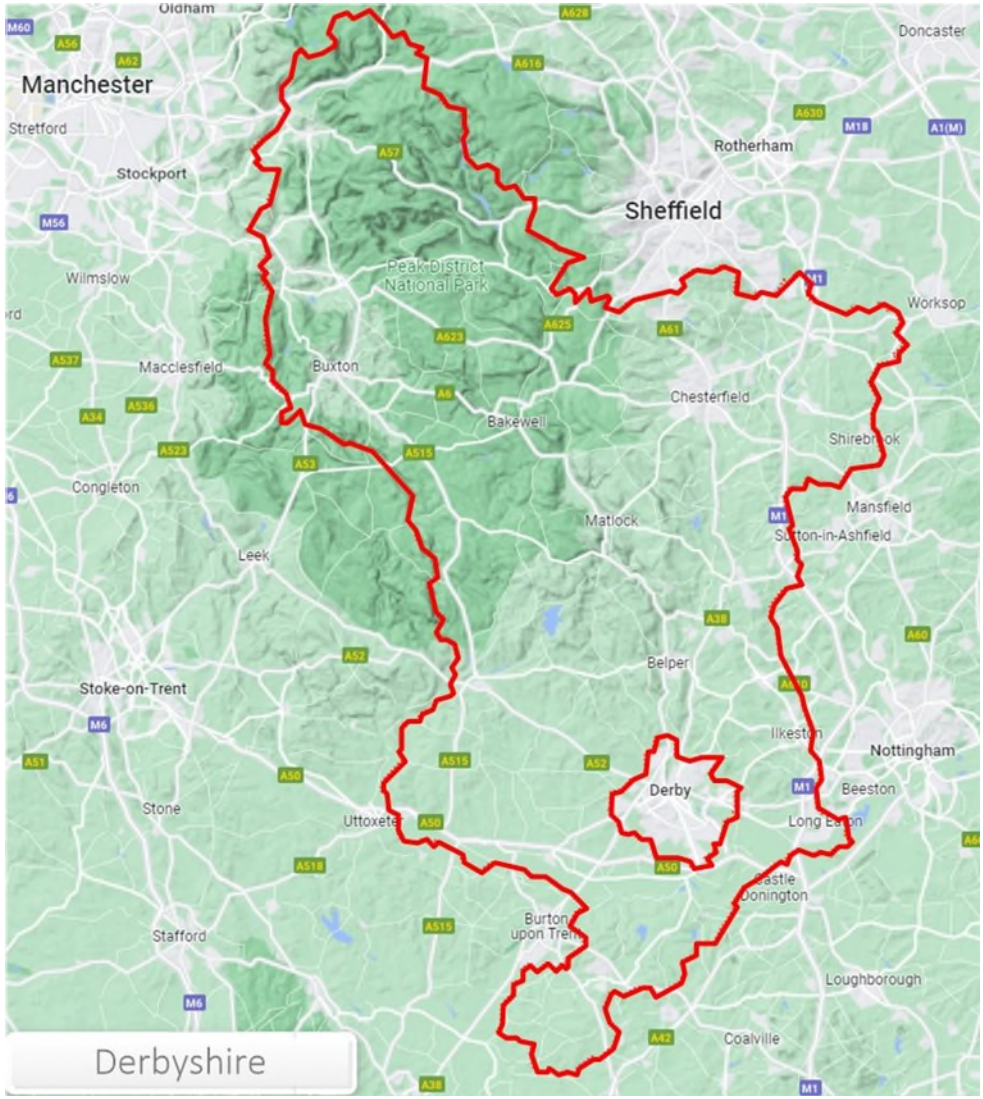
Background

Limited roadside infrastructure:

- For collecting data on traffic and other conditions
- For delivering traffic management information to motorists
- Limited means to support, through active traffic management, their business growth and other policies



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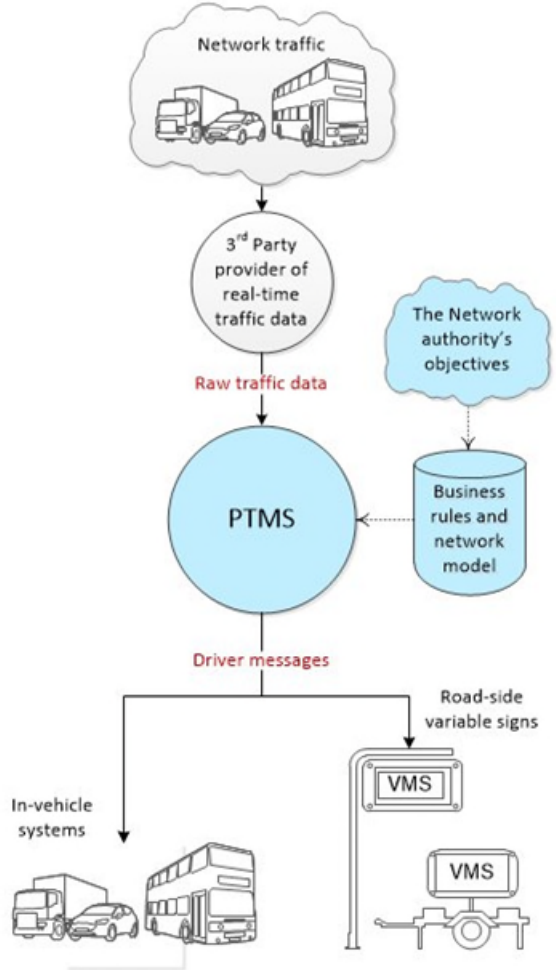
The solution for Derbyshire



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Some of the system components

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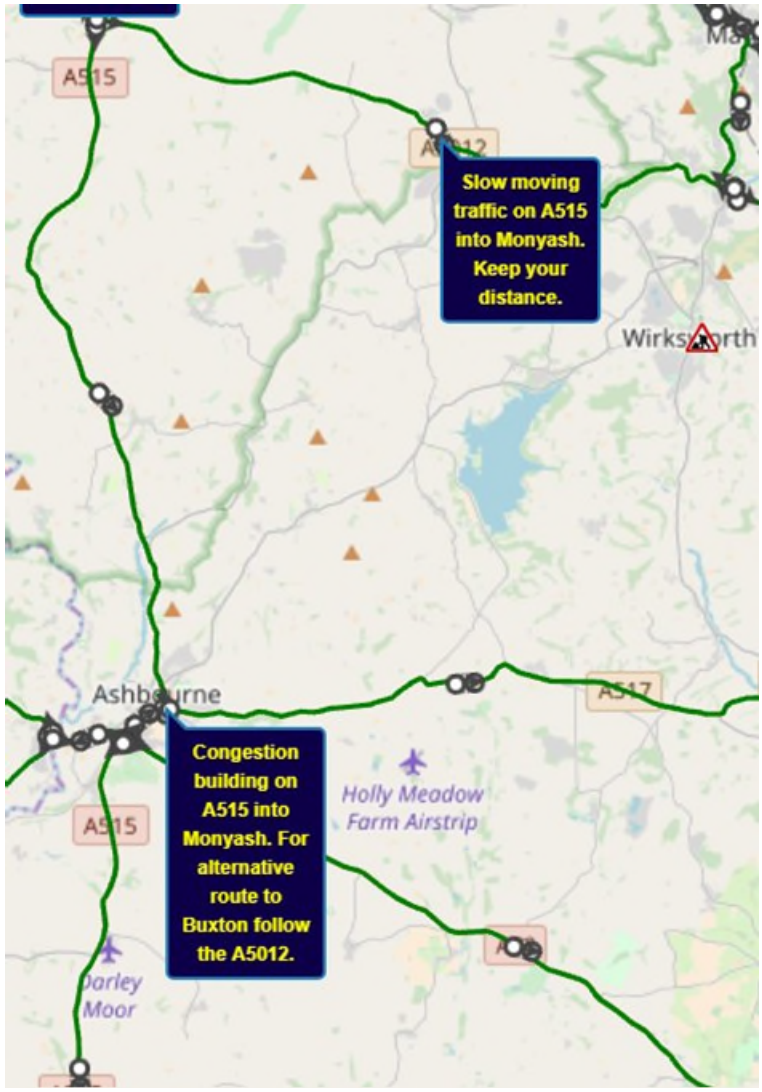
The solution for Derbyshire

- **Minimise reliance on infrastructure** due to extensive network of roads to minimise cost for traffic sensor installation and maintenance
- **Localisation of traffic management objectives** through ownership of business logic as opposed to the unknown objectives of commercial enterprises
- **Generate driver information** using automated and manual processes
- **Maintain flexibility** so the solution can evolve and expand



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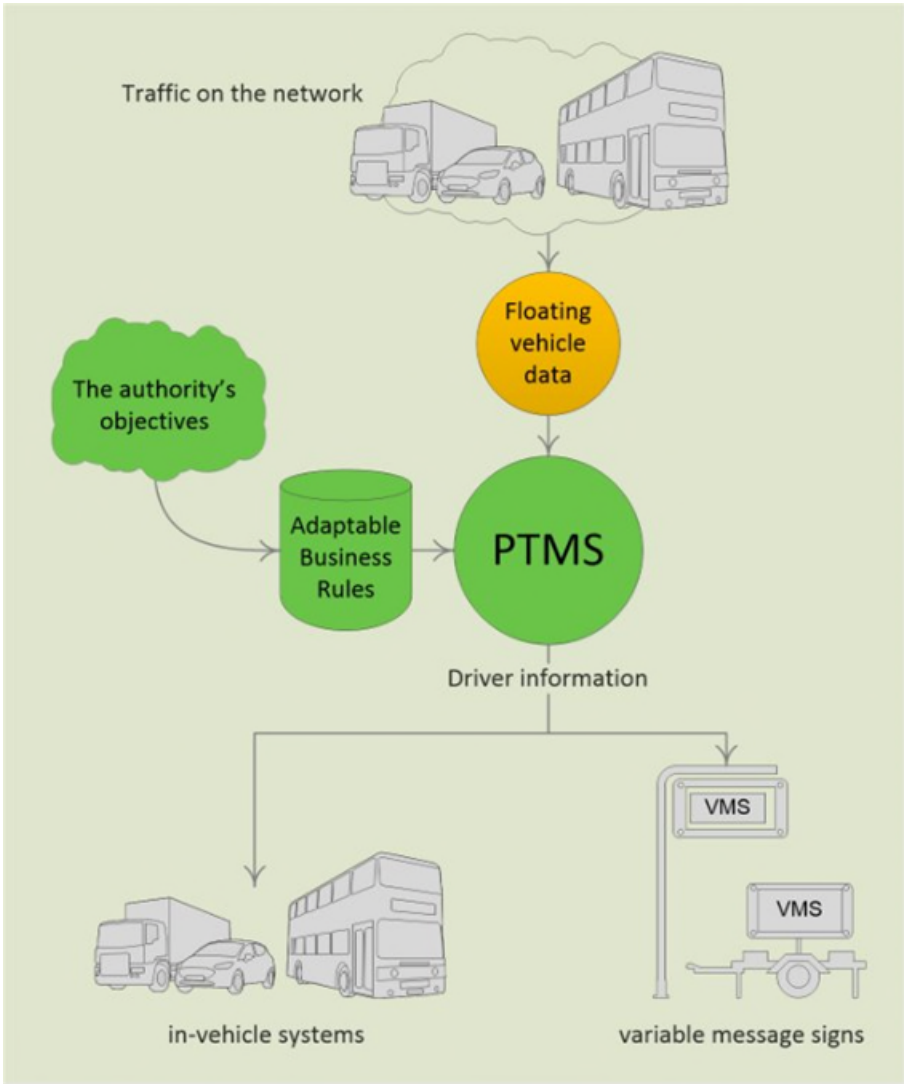
Non-reliance on infrastructure

Inputs – Does not require vehicle sensors to operate

Outputs – Driver information and interventions can be delivered in-vehicle



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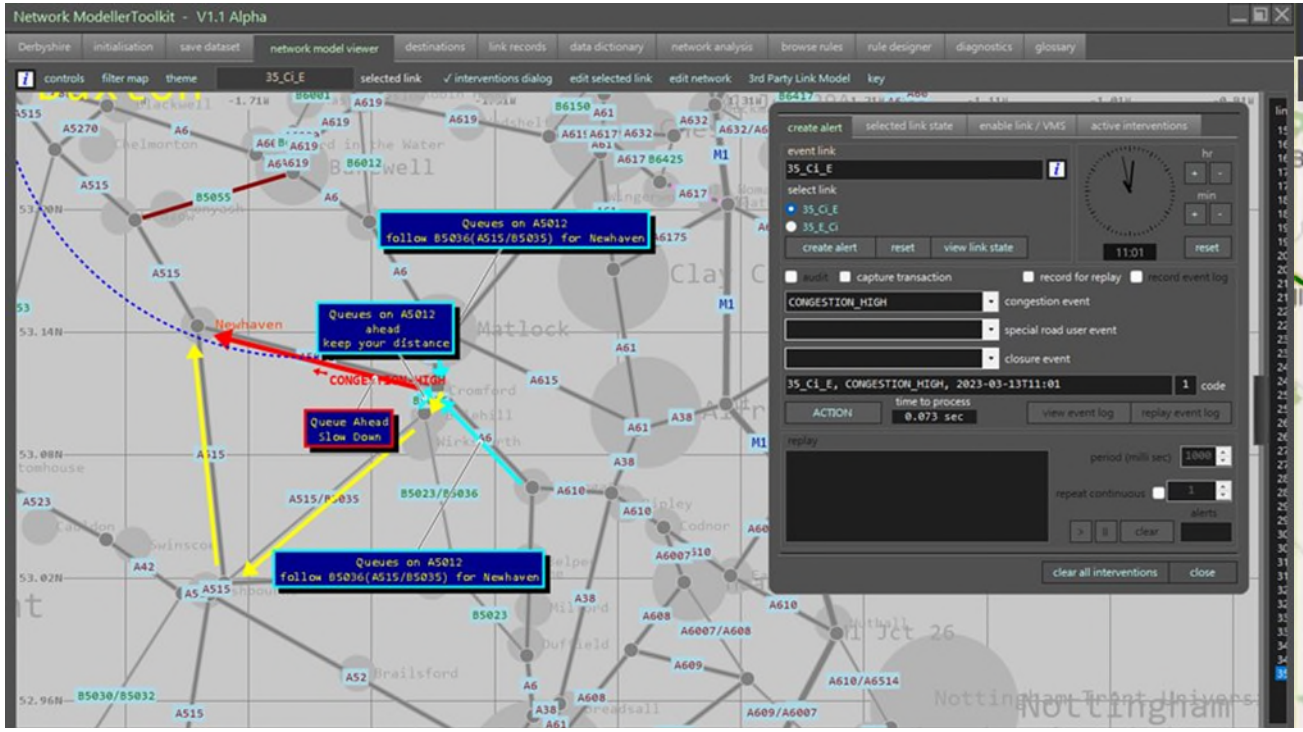
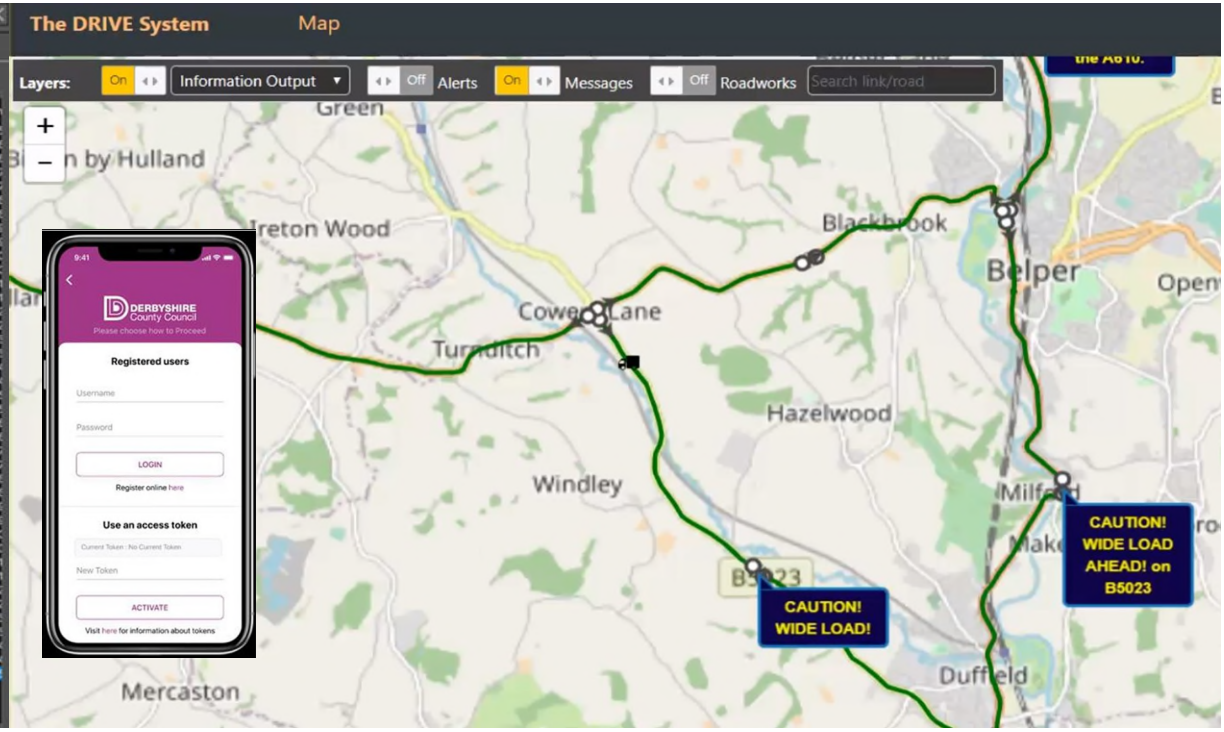
Non-reliance on infrastructure

Managing special cases - of road users





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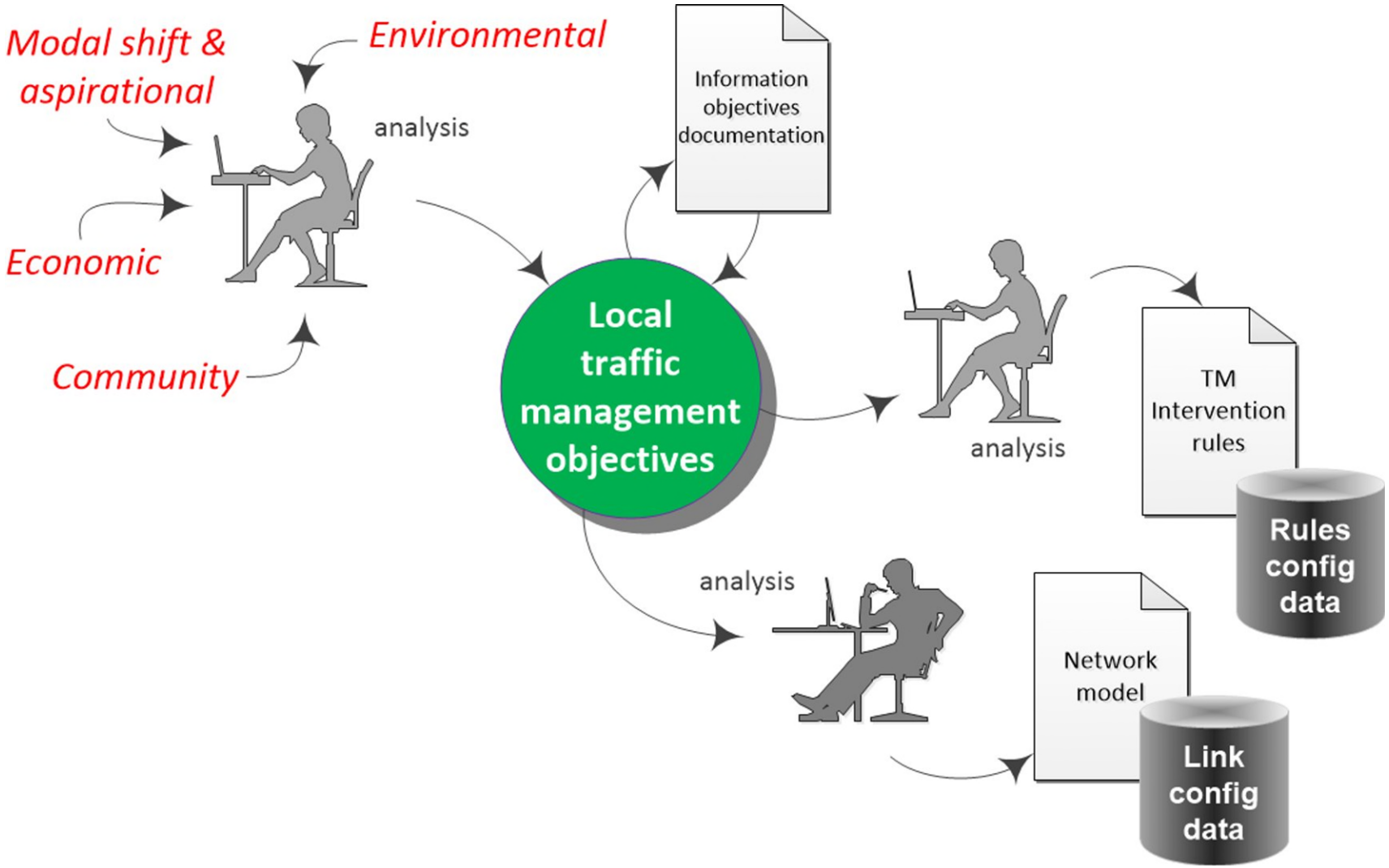
Localising objectives

Ownership of business rules

The authority's overarching objectives cascade into business rules



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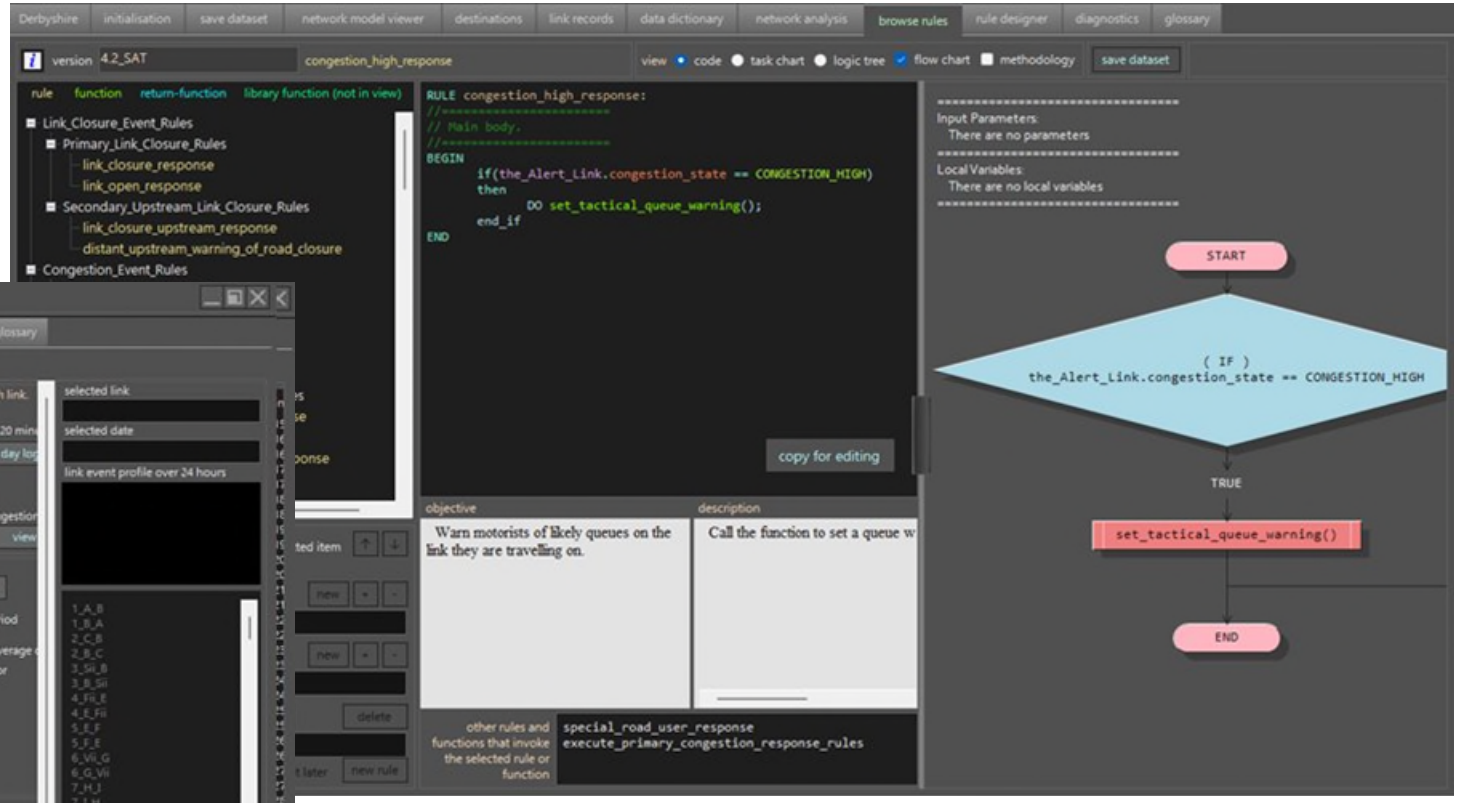
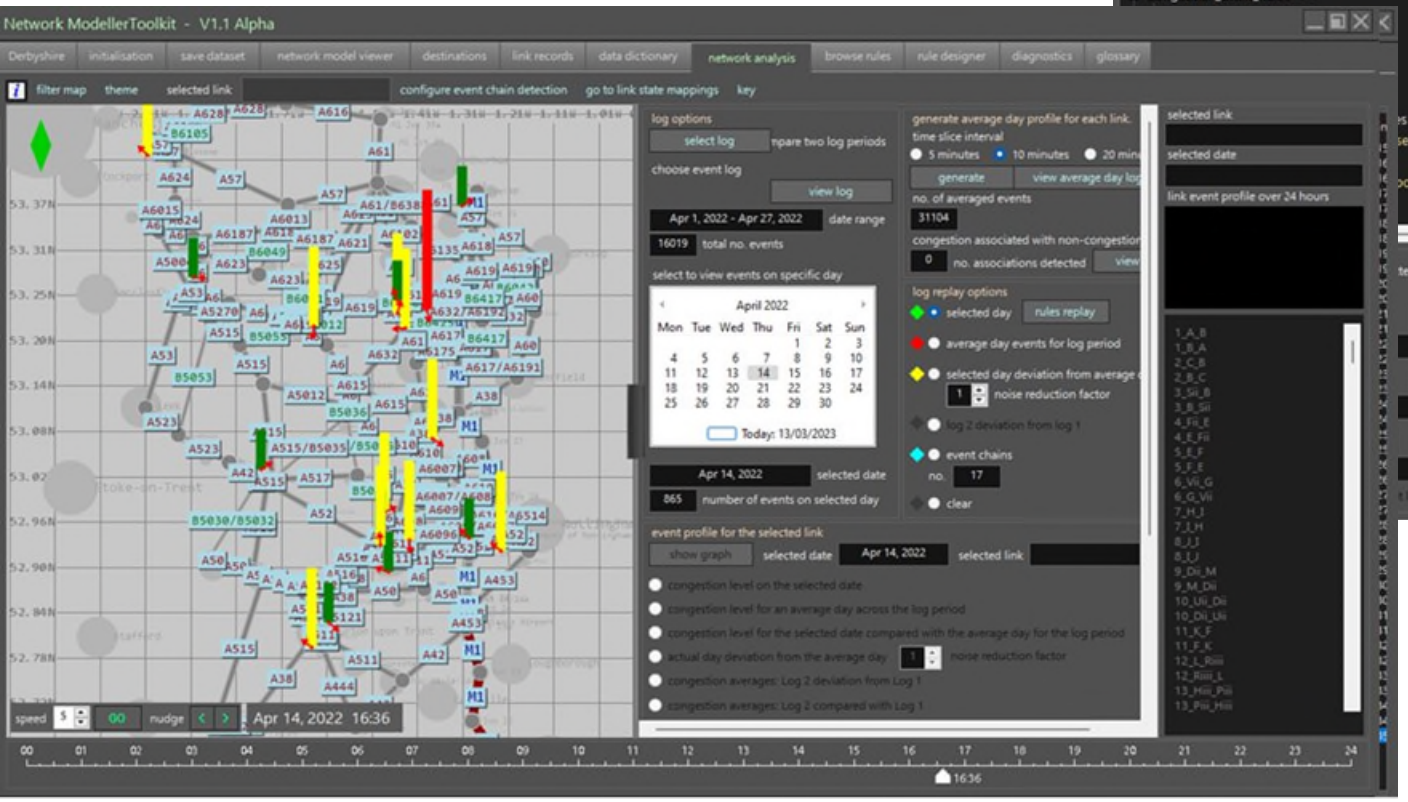
Localising objectives

Rules engine - methodology





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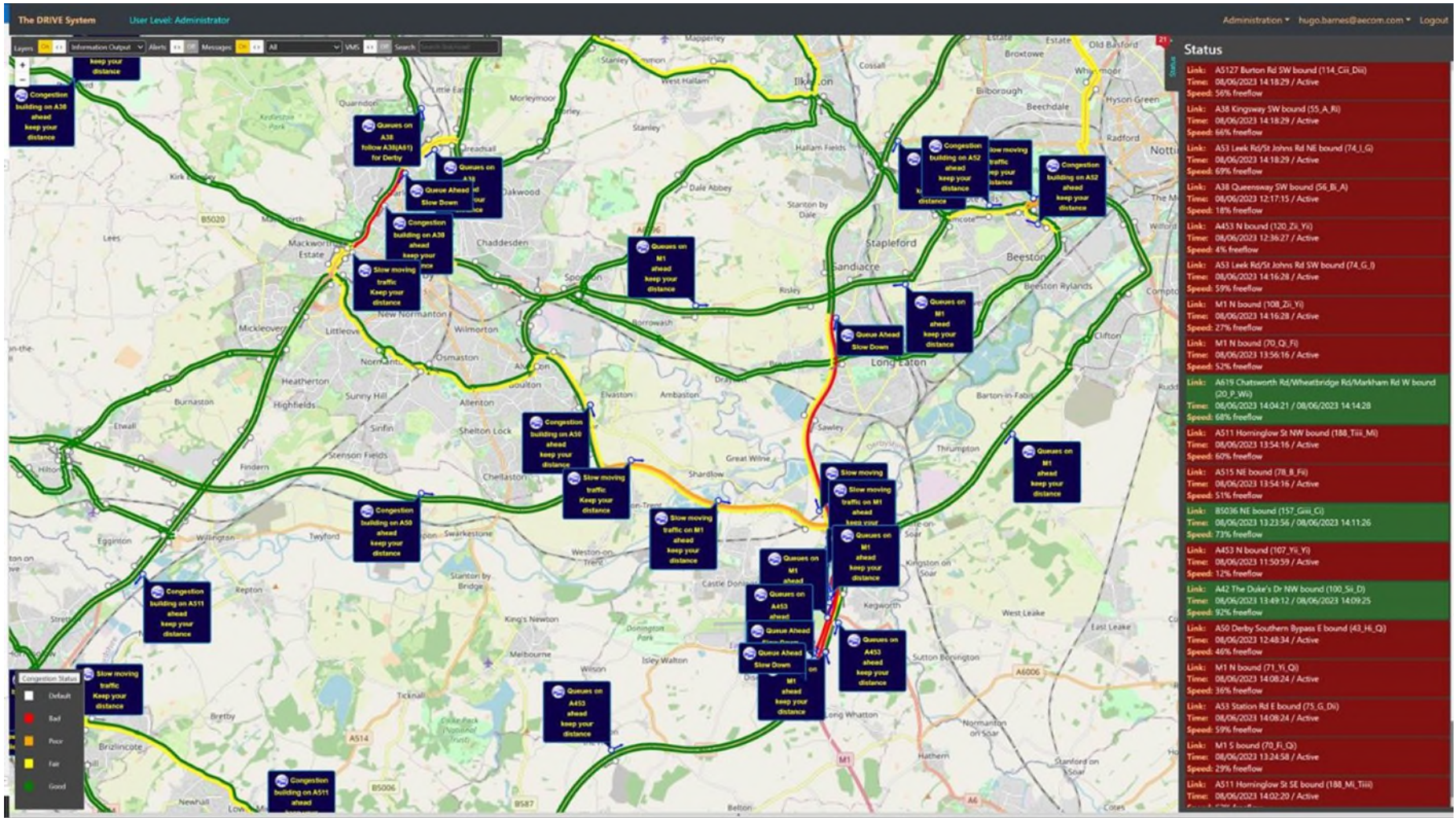
Localising objectives

Holistic approach to network management



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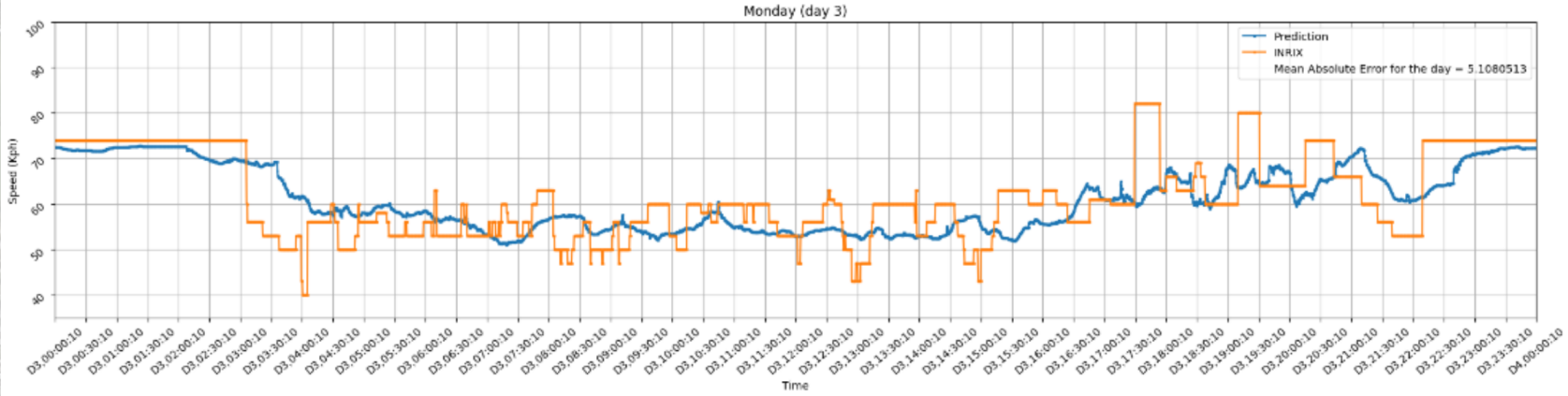
Predicting future conditions with AI



GNN prediction for 30 minute ahead on the 24_2_24 - 1_3_24 on the south bound Derby road