Case Study:

Transport for Greater Manchester

Find out how Transport for Greater Manchester has been unlocking the potential of their network with open data.

TRL Software

Transport for Greater Manchester

Supported by

Department for Transport

An open data first approach, delivered through our Open Data Developer Portal in UTC, drives innovation, and helps to remove vendor lock-in.

As a progressive authority, TfGM understands this fully and are leading change in the industry by adopting open platforms like TRL's UTC

Subu Kamal
Head of Product Management, TRL Software

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Department for Transport: Open Data Project

In 2019, the Department for Transport launched a competition to promote the opening and sharing of local authority transport data. Recognising the high value of data, DfT wanted to encourage Local Authorities to explore the benefits of it. Supported by DfT, Transport for Greater Manchester and TRL Software collaborated on a solution.

DfT identified six key areas, clearly demonstrating the high value of data:

Community & Environmental

Contributing to wider societal and behavioral change, such as improving air quality and accessibility of services

Operational & Efficiency

Streamlining the way that individuals and organisations work to improve cost efficiency

User Experience

Users receiving an enhanced or improved service through enriched information.

Safety & Regulation

Ensuring that information is clear and accessible, and local authorities are compliant with public legislation

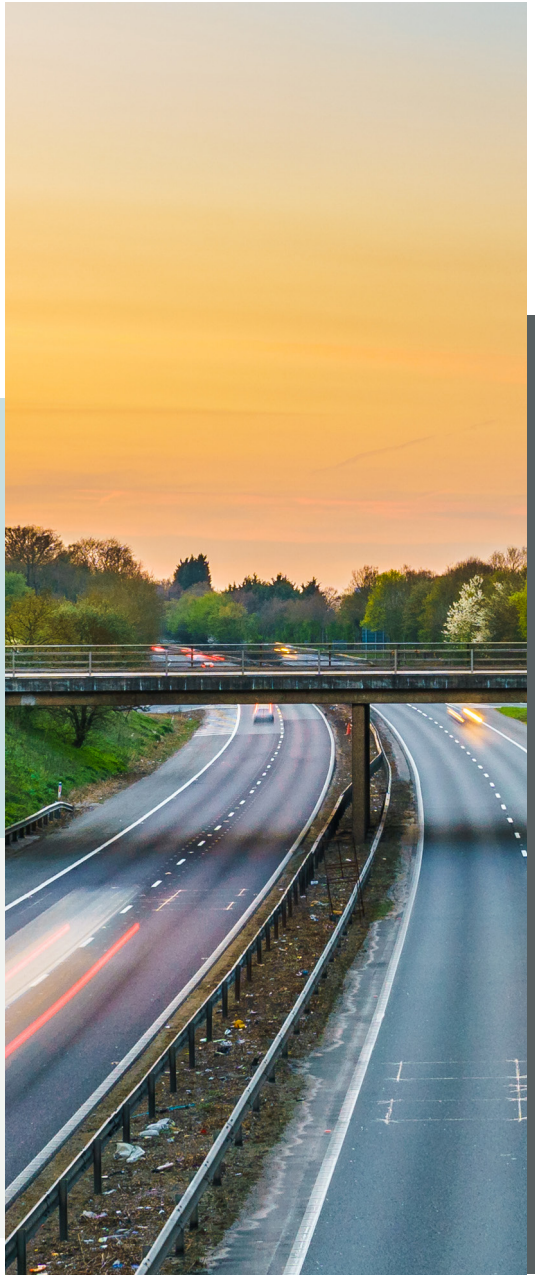
Commercial

A revenue stream derived from either an existing or a new product or service

Economic Growth

Helping to keep people, goods and services on the move to the benefit of the wider economy

Local Transport Data Discovery



Department for Transport

Further Reading:

- Connected Vehicle Data Research – GOV.UK
- SCOOT and MOVA; Smarter Traffic management through adaptive traffic signal control.
- Future of Mobility: Urban Strategy – GOV.UK
- Future of Transport: Data Standards Scoping Study – GOV.UK
- Local Transport Data Discovery: Findings and Recommendations – GOV.UK

Transport for Greater Manchester

About Transport for Greater Manchester

Working hard to keep Greater Manchester moving.

More than 5.6 million journeys are made across Greater Manchester each day.

It's TfGM's job to do everything they can to keep the city-region moving and growing. TfGM put the customer first in everything they do, and want to make travel as safe and simple as possible.

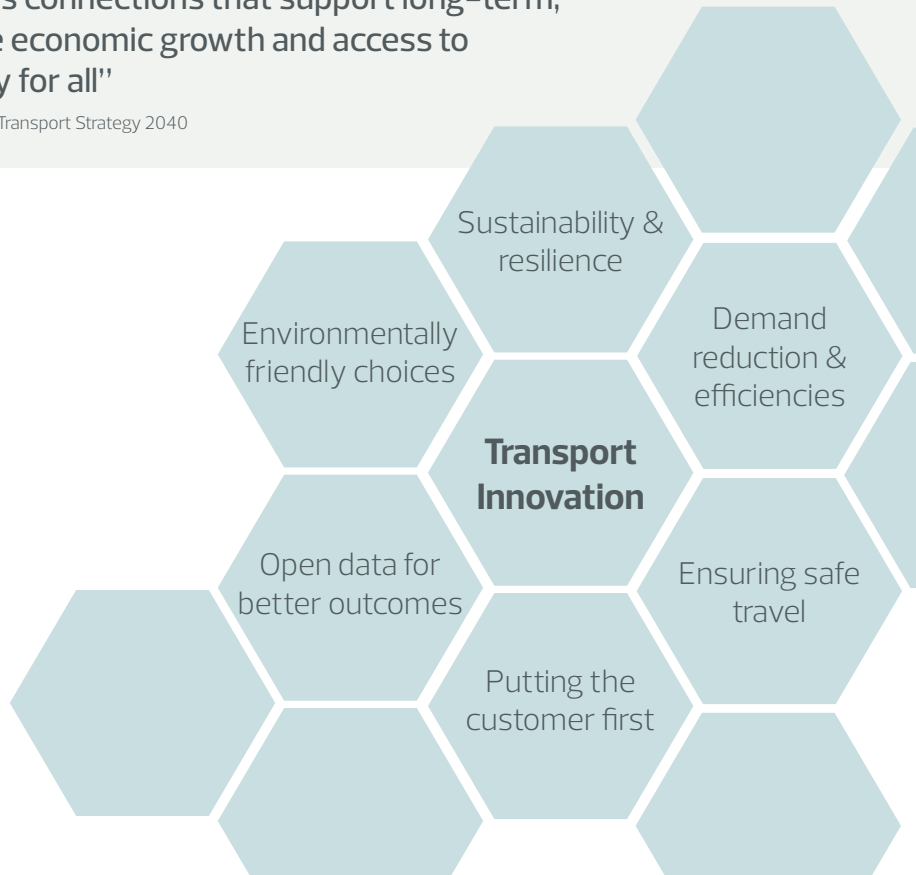
"World class connections that support long-term, sustainable economic growth and access to opportunity for all"

Greater Manchester Transport Strategy 2040

Invest in the Future

"We will continue to explore investment in next generation technology in signaling and predictive traffic management... We will also seek to invest in innovative junctions which support different modes in and around our local centers e.g. pedestrian count-down and pedestrian and cycle 'SCOOT'"

Greater Manchester Transport Strategy 2040



Key Challenges

01

Traffic Control Data

Legacy UTC Systems have locked data behind a barrier of code and high costs. This has meant traffic control data is inaccessible, and prohibitively expensive.

02

Real-Time Data

Access to real-time traffic control data is impossible and again, prohibitively expensive.

03

Skill Shortage

Traffic data is notoriously complex and the technology, tools and data skills within local authorities are limited, often lacking the in-house skills they need.

04

Lack of Evidence

There are new, novel and emerging data products, but they are not being used. The lack of examples then makes it difficult for authorities to create a compelling business case.

Local Transport Data Discovery

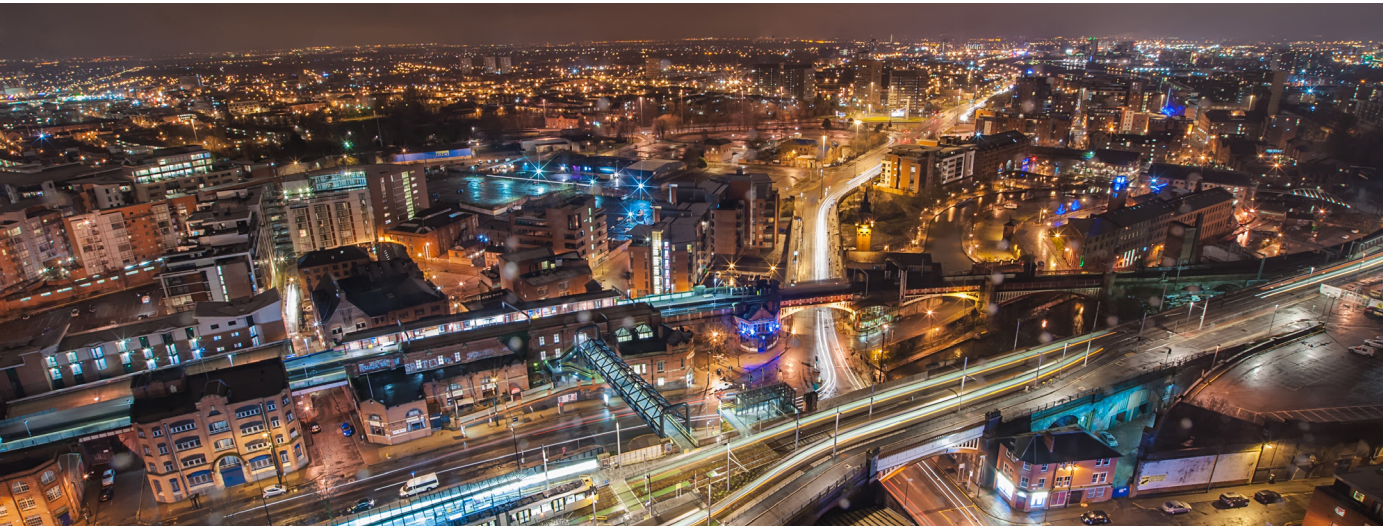
30% cite the cost involved in making open data possible as their biggest concern around sharing data openly.

Project Aims

Seeking to maximise results with their current infrastructure and a limited budget, TfGM wanted to make the best use of existing assets and address their strategic aims. Across their network, a wealth of data was being collected in their SCOOT UTC from:

- Automatic traffic counters
- CCTV
- A network of Bluetooth sensors
- Video analytics sensors
- Third party data sources such as floating car data from Waze

By opening this data up, TfGM would be able to engage with third parties who can then make use of the data and improve network experience for all modes of transport. But how to unlock access to this data?



> **There is a wealth of data in our UTC, and we wanted to make better use of it**
>
> Hannah Tune
> *Intelligent Transport Systems Engineer*
> *Transport for Greater Manchester*

Approach

Collaboration

TfGM and TRL Software collaborated as part of DfT's competition for Opening Local Authority Transport Data. This competition was all about stimulating further digital transformation and to exploit the potential of local authority transport data. The ultimate aim was to make road transport smarter by opening and sharing their data to improve safety, efficiency, and emissions. This fits perfectly with TRL Software's mission to make transport safer, cleaner and more efficient. So a collaboration began.

Implementation

TRL Software implemented UTC, Powered by SCOOT® 7. The UTC's foundation in open standards meant that TfGM could make the best use of their existing assets and data which, in turn, could be utilised to improve congestion and delay. Through implementing UTC, TfGM would be able to make better use of their assets, allowing a more coordinated and data driven approach to managing their network.

Smooth Journey

SCOOT® 7 also ensured that as traffic volumes peaked, to pre-pandemic levels, the network continued to perform efficiently and trouble-free.

Accessed via the open Developer Portal in TRL's UTC, SCOOT data was made completely available via a well-documented API. This then enabled it to be 'consumed' in a free and practical way, allowing developers to use it in external applications.

Project Results

UTC, Powered by SCOOT® 7, efficiently managed traffic across both pedestrian crossings and junctions without fault. With the work undertaken in the Opening Local Authority Transport Data project, the significant value in the publishing of SCOOT UTC data was made clear. It is, however, only the tip of the iceberg.

Openly Available Data

Open SCOOT data access via a published API. As a result, high value and historically inaccessible data was now openly available, allowing developers access for third party applications.

Enhanced Network

Initial exploration and use case development of new and novel data products in a reusable way. It also led to crowd-sourced open data products to enhance network operation visibility beyond the instrumented parts of a network at no data cost.

Reusable Tools

Real time data to provide Signal Phase and Timing Data in vehicle use. In vehicle SPAT data without the need for additional road-side equipment.

Creation of a reusable toolbox for the ingestion, analysis and reporting of data. Portable, reusable, LA specific tools and supporting guidance.

Other SCOOT® 7 benefits...

Implement Green Light Optimal Speed Advice (GLOSA).

Enhance information made available to travelers.

Increase safety by identifying congestion hotspots.

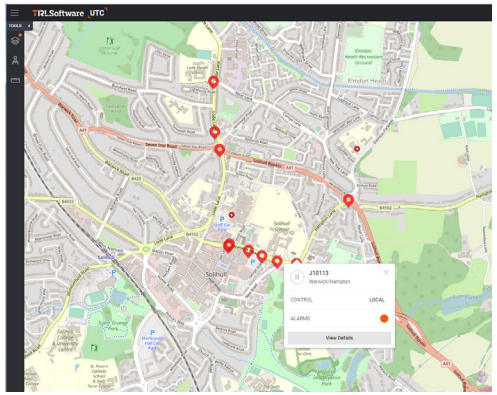
Reduce CO_2 by an average of 8% at traffic signals.

Enhanced fault management via third party apps.

Collaboration with commercial partners, providing useful data.

What Comes Next?

We haven't finished yet. With it's unique features, SCOOT® 7 has the power to transform road networks, integrating multi-modal methods of transport, embracing cleaner, safer and more efficient travel. Want to be part of the journey towards future mobility? Let's start a collaboration. In the meantime, check out our vision:



Working with the Alan Turing Institute as a strategic partner, we are bringing the best in class of artificial intelligence for societal good to urban traffic management.

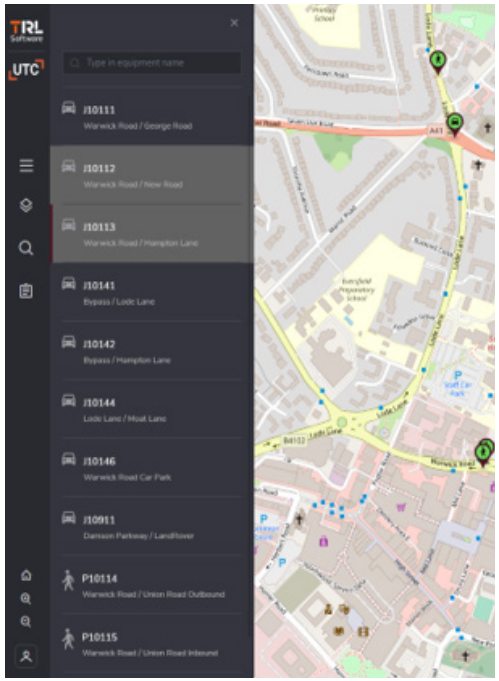
Extend the Data

Whilst it is expected that the use of connected vehicle data will result in significant benefits for the environment, congestion, safety and the economy through improvements to traffic management and asset management, there is a need for:

1. Ensuring the best use of data that is, and could be, available now
2. Mapping future data sources and use cases
3. A sustained effort to realise the benefits and the sharing of best practise

Detection

Driven by data and not by more roadside devices, the older technologies in use such as inductive loops have had their place in the evolution of adaptive traffic control. As the connected future of tomorrow gradually shifts into today, there is a clear need for a roadmap. TRL Software are leading the conversation, finding a path between the two paradigms.



Road Space for All

Urban traffic management is more than just moving metal boxes (cars!). SCOOT was the first truly multimodal adaptive traffic control system which considered all modes motorised and non-motorised road users. Addressing the equitable use of road space in a meaningful way was just the beginning.

New forms of mobility, the need for more space. Meaningful, measurable change.

World class traffic & transportation solutions

Today, TRL supports more than 1,000 clients across 145 countries, driving positive societal and economic benefits.

Our core areas of expertise include: road safety, vehicle safety, crash investigation, human factors & behavioral research, asset management & technologies; intelligent transport systems & traffic operations; sustainability & healthy mobility; major incident investigations.

Our innovative and evidence lead software solutions support the design, management and implementation of safe and reliable transport networks, with products being used worldwide by hundreds of Local Authorities, consultants and engineers.

UTC, POWERED BY SCOOT® 7
to coordinate signalled junctions in a network

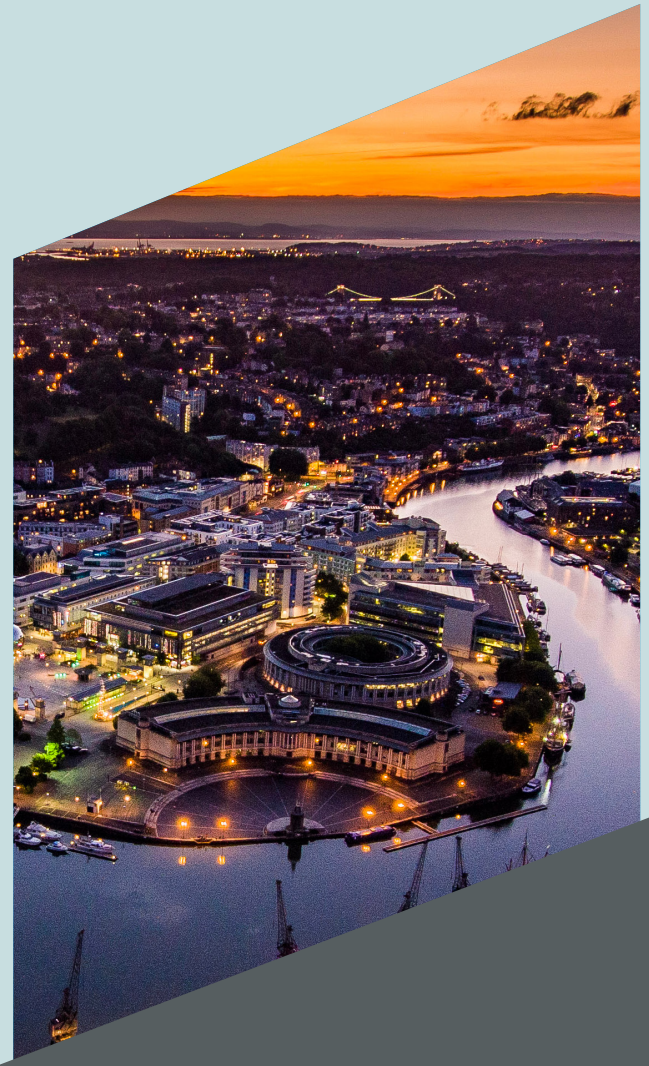
Junctions 10
PICADY: for assessment of roundabouts
ARCADY: for junction design
OSCADY: for evaluation and optimisation of isolated junctions

MOVA
to regulate traffic flow at isolated signalled junctions

iROADS
for digital road asset management of your strategic network

TRANSYT
optimises coordinated signal timings

iMAAP
for detailed crash data recording and analysis



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